How to measure country risk?

Produced by: Cross-country Emerging Markets Unit

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Road map to the presentation

1. Previous work on country risk (CR)

2. Our methodology

3. Results
   3.a Key determinants of CR
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1. Previous work on country risk
## Previous Economic Policy Research

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2. Our methodology
Sample coverage

Country risk (CR) proxied by CDS spreads

Sample period: lifespan of CDS (2004 to 2001)

Number of countries: determined by data availability (mainly CDS but also CR determinants)

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<tr>
<th>Developed Countries</th>
<th>Emerging Countries</th>
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Variables chosen

- **CDS Spreads**
  - **Global Factor**
  - **Idiosyncratic Fundamentals**
    - Global Common factor
    - General
    - Fiscal
    - External
    - Institutional

- **Extracted with Kalman filter**
  - GDP
  - Consumer Prices
  - Public Debt (% GDP)
  - External Debt (% GDP)
  - International Reserves to imports
  - PCA
    - Rule of law
    - Corruption
    - Gov. Effectiveness
    - Political Stability
    - Investor Protection
    - Days to start business
A quick look at the data

**CD Swaps**
(spreads in bp, average 2010-2011)

**GDP**
(% yoy, average 2010-2011)

**Inflation**
(Cons. Prices % yoy, average 2010-2011)

**Gross Public Debt**
(% GDP, average 2010-2011)

**External Debt**
(% GDP, average 2010-2011)

**Reserves to Imports**
(average 2010-2011)
Extracting the Global Component

We use the State Space Model to isolate the Global from the idiosyncratic model in the most possible orthogonal way

Measurement Equation

\[ CDSwaps_{i,t} = \mu_{1,t} + \beta_{j,t} x_{i,j,t} + v_{i,t}, \]

State Equation

\[ \beta_{j,t} = \beta_{j,t-1} + \omega_{\beta_{j,t-1}}, \]
\[ \mu_{1,t} = \mu_{1,t-1} + \omega_{\mu_{1,t-1}} \]

Where, \( v_{t} \sim N(0, \Sigma_{v}) \) and \( \omega_{t} \sim N(0, \Omega_{t}) \)

\( j \in (1, r), i \in (1, n) \)
Our global component vs other measures

Our measure vs alternatives Measures of Global Risk Aversion

The extracted Global Component moves close to other alternative Global Risk Measures... Specially the US Baa Corporate Bond Spread. Junk bond too volatile
Panel Data Model to explain SR

Panel Data Dynamic Error Correction Model (ECM)

\[ \Delta \log(CDSwap)_{i,t} = \beta \Delta \log(CDSwap)_{i,t-1} + \phi \Delta \log(Global)_{t-1} + \lambda (CDSwap)_{i,t-1} - \gamma X_{i,t-1} - FEff_i + \nu_{i,t} \]

- Change In Spreads
- Short run Dynamics
- Short run Effect of Global Component
- Deviation from Long Run Global & Idiosyncratic Fundamentals including Fixed Effects
- Speed of Adjustment to Long Run Equilibrium (<0)
3. Results

3.a Key determinants of CR
Global risk aversion matters in the long run.

Global developments (global risk aversion) do matter even in the long run with a higher than unitary elasticity.
This is because the estimated speed of adjustment to the equilibrium is quick (75% of the shock adjusts in 1 year).
**Economic growth** does not seem relevant for emerging markets but it is for the developed world.

**Inflation** appears to be more relevant for the developed world (or the absence of it).
The increase in **public debt** worsens country risk in developed countries. The result is inconclusive for emerging economies.

**Institutional factors** affect country risk, especially for developed economies.
Relevance of external liquidity measures

**External debt** matters but especially in emerging markets

A comfortable liquidity position in terms of **international reserves to imports** helps to reduce the spreads.
3. Results

3.b Differences across regions
Developed Europe: Actual vs Equilibrium CR

Actual CD Swaps and estimated equilibrium CR from panel ECM (median CDSwaps by region)

- **Core Europe** remains above but near “safe” long run equilibrium levels
- **Portugal, Ireland and Greece** current CDS level is similar to the equilibrium one
- **Spain, Belgium and Italy**’s country risk is clearly above the equilibrium: Contagion exists
Emerging markets: Actual vs Equilibrium CR

Actual CD Swaps and estimated equilibrium CR from dynamic ECM (median CDSwaps by region)

Emerging Europe

Emerging Asia

Latam

Emerging Markets seem to be somehow overvalued by the market: Equilibrium CR appears to be above current CDS level
Global Risk Aversion vs idiosyncratic CR across regions

Average Contribution of different determinants of CR (based on coefficients estimated in Panel ECM)

- Global risk aversion explains as much as half of CR across regions
- More relevant the riskier the region: Latam and Peripheral Europe
Fiscal dominating idiosyncratic CR across regions

Average Contribution of different determinants of CR (based on coefficients estimated in ECM)

- Fiscal factors clearly dominate: specially important in **Peripheral Europe and Latam**
- External debt most relevant for **Europe**
- Quality of institutions specially important for **Latam**, followed by **Asia**
- Macro variables hardly relevant
In most recent period fiscal continues dominating

Contribution of different determinants of country risk (based on coefficients estimated in ECM)

• External liquidity factors become more relevant for peripheral Europe
• Institutions less relevant for Latam and Asia
4. Conclusions
On our methodology

- Our CR aims at:
  - Estimating true CR of a country, compared to the market one (CDS)
    - Key is to separate global factors from idiosyncratic ones: strong methodology
      - Robustness tests to be conducted with other indicators
    - Focus on long-term CR because
      - Easier to separate global market factors from
      - Estimated speed of adjustment relatively short so long term relevant for policy making/risk assessment
    - Determining which are the key factors determining country risk
      - This allows to have different early warning indicators for different groups of countries
  - Model can also be used to predict CR
    - Using our forecasts of idiosyncratic variables
    - Forecast of global risk aversion harder
      - Work to be done on the latter
On our findings

- Global risk aversion is a key component of country risk even in long term
- In Western Europe, global risk aversion worsening CR beyond equilibrium level
- The opposite is true for the Emerging World: markets seem to be underestimating risk
- Among the idiosyncratic determinants of CR:
  - The fiscal situation has and continues to be the most relevant
    - Important warning for countries conducting reckless fiscal policies
  - External debt more relevant for European countries
  - Quality of institutions for emerging countries