Challenges with Assessing Sovereign Debt Sustainability

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Agenda

1. Sovereign defaults likely to pick up in the more challenging credit environment to come
2. Moody’s sovereign credit ratings
3. Challenges with assessment, communication and transparency in sovereign debt sustainability analysis
1 Credit environment will be more challenging going into 2019-2020
The sovereign default rate spiked in 2017

» As of the end of 2017, the one-year default rate stood at 3.1%, four times higher than the average default rate in the 1983-2017 period

» In 2017, the Republic of the Congo (ROC), Mozambique and Venezuela missed interest payments on their government bonds, while Belize undertook a distressed bond exchange. Barbados defaulted in 2018

* There is only one rated sovereign bond default before 1998. The high annual default rate in 1989 is the result of small cohort size.

Global credit conditions will weaken in 2019 amid slowing growth and rising risks

**FINANCIAL STABILITY**
Financial conditions and liquidity will gradually tighten, spreads and market volatility will rise. Risks of sharper financial markets adjustment and capital outflows

**GROWTH**
Economic growth will decelerate, inflation will firm, trade growth will slow in 2019

**TRADE TENSIONS**
Trade tensions will intensify in 2019. US trade policy is the most potent, far-reaching source of global risk with significant sector and regional impacts

**POLITICAL RISKS**
Rising political and geopolitical risks take center stage in 2019. Heightened political risks will pose the greatest source of uncertainty

**TECHNOLOGY AND INNOVATION**
Technology and innovation have the potential to reshape the credit landscape. Digital technologies can lead to productivity improvements but also disruptions

**SECULAR TRENDS**
Environmental, social and governance risks will become more prominent in 2019. The transition to a low-carbon economy will most materially influence credit in 2019

Source: Moody’s Investors Service, 2019 Outlook – Global credit conditions to weaken amid slowing growth and rising risks, November 2018
Trade tensions likely to be prolonged

- Auto tariffs on US imports would be credit negative for almost every auto sector – carmakers, parts suppliers, dealers, retailers, and transportation companies.
- Credit negative for economies with large auto sectors, including the US, Japan and Germany.

- A prolonged US-China trade dispute and rising geopolitical tensions is our baseline.
- Significant sector and regional impacts are likely, including unintended consequences on domestic supply chains.
- Asia most vulnerable to spillovers.

- US tariffs will benefit US steel and aluminum sectors.
- But will hurt US manufacturing sectors vulnerable to higher input prices and consumers.
- US tariffs are prompting retaliatory response from trade partners.

- Reduced uncertainty credit positive for Mexico and Canada.
- US auto sector most dependent on trade within NAFTA (USMCA).

- US – EU negotiations in progress.
- EU to increase imports of soybeans and liquefied natural gas from the US.

75% of sovereigns have a stable outlook
14% have a negative outlook (or are on review for downgrade)
11% have a positive outlook

Source: Moody’s Investors Service, Sovereigns – Global: 2019 outlook still stable, but slowing growth signals increasingly diverging prospects, November 2018
Positive, negative outlooks regionally concentrated

» The overall stable outlook balances the continued but slowing growth in the global economy against rising uncertainty over longer-term economic and financial stability

» Negative outlooks are mainly in the regions that exhibit the broadest range of fundamental weaknesses – Sub-Saharan Africa, Latin America and the Caribbean – and at the low end of the rating scale

Source: Moody's Investors Service
2 Sovereign credit ratings rank order default risk
Probability of default rises with lower ratings

The likelihood of default for rated sovereign issuers increases monotonically as one moves down the rating scale.

Issuer-weighted cumulative sovereign default rates at the 3-year and the 5-year horizon (1983-2017)

Sovereign ratings balance accuracy and stability

» In addition, sovereign ratings offer a relatively stable risk measure, as they respond only to enduring changes in fundamental credit risk

» In contrast, about 83% of all moves in market opinion are reversed within a year

Average annual volatility statistics (as a percentage of issuers (1999-2018))

<table>
<thead>
<tr>
<th>Share Experiencing One or More Rating Change</th>
<th>Moody’s Ratings</th>
<th>Bond Yield-Implied Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>23%</td>
<td>86%</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Share Experiencing Large Rating Changes (more than 2 notches)</th>
<th>Moody’s Ratings</th>
<th>Bond Yield-Implied Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>37%</td>
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<table>
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<tr>
<th>Share Experiencing a Rating Change Reversal within 12 Months</th>
<th>Moody’s Ratings</th>
<th>Bond Yield-Implied Ratings</th>
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</thead>
<tbody>
<tr>
<td>0.5%</td>
<td>83%</td>
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</table>

In default, Moody’s positions ratings to reflect expected recoveries

Moody’s ratings refer to the probability of default and loss given default

<table>
<thead>
<tr>
<th>Quality of credit</th>
<th>Long-term rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest quality, lowest level of credit risk</td>
<td>Aaa</td>
</tr>
<tr>
<td>High quality, very low credit risk</td>
<td>Aa1</td>
</tr>
<tr>
<td></td>
<td>Aa2</td>
</tr>
<tr>
<td></td>
<td>Aa3</td>
</tr>
<tr>
<td>Upper-medium grade, low credit risk</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>A1</td>
</tr>
<tr>
<td></td>
<td>A2</td>
</tr>
<tr>
<td></td>
<td>A3</td>
</tr>
<tr>
<td>Medium-grade, moderate credit risk</td>
<td>Baa</td>
</tr>
<tr>
<td></td>
<td>Baa1</td>
</tr>
<tr>
<td></td>
<td>Baa2</td>
</tr>
<tr>
<td></td>
<td>Baa3</td>
</tr>
<tr>
<td>Speculative, substantial credit risk</td>
<td>Ba</td>
</tr>
<tr>
<td></td>
<td>Ba1</td>
</tr>
<tr>
<td></td>
<td>Ba2</td>
</tr>
<tr>
<td></td>
<td>Ba3</td>
</tr>
<tr>
<td>Considered speculative, high credit risk</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>B1</td>
</tr>
<tr>
<td></td>
<td>B2</td>
</tr>
<tr>
<td></td>
<td>B3</td>
</tr>
<tr>
<td>Poor standing, very high credit risk</td>
<td>Caa</td>
</tr>
<tr>
<td></td>
<td>Caa1</td>
</tr>
<tr>
<td></td>
<td>Caa2</td>
</tr>
<tr>
<td>Highly speculative, likely in or near default</td>
<td>Ca</td>
</tr>
<tr>
<td></td>
<td>Caa3</td>
</tr>
<tr>
<td>Lowest rated, in default</td>
<td>C</td>
</tr>
</tbody>
</table>

Approximate expected recoveries associated with ratings for defaulted securities

<table>
<thead>
<tr>
<th>Expected recovery rate</th>
<th>Fundamental</th>
</tr>
</thead>
<tbody>
<tr>
<td>99 to 100%*</td>
<td>B1</td>
</tr>
<tr>
<td>97 to 99%*</td>
<td>B2</td>
</tr>
<tr>
<td>95 to 97%*</td>
<td>B3</td>
</tr>
<tr>
<td>90 to 95%</td>
<td>Caa1</td>
</tr>
<tr>
<td>80 to 90%</td>
<td>Caa2</td>
</tr>
<tr>
<td>65 to 80%</td>
<td>Caa3</td>
</tr>
<tr>
<td>35 to 65%</td>
<td>Ca</td>
</tr>
<tr>
<td>Less than 35%</td>
<td>C</td>
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</tbody>
</table>

*For instruments rated B1, B2, or B3, the uncertainty around expected recovery rates should also be low. For example, if a defaulted security has a higher than a 10% chance of recovering less than 90%, it would generally be rated lower than B3.
Moody’s sovereign bond ratings incorporate four key factors

Factor 1: Economic Strength
- Growth dynamics
  - Growth
  - Volatility
  - Competitiveness

- Scale of the economy
  - Nominal GDP

- National income
  - PPP GDP per capita

Factor 2: Institutional Strength
- Institutional framework and effectiveness
  - Government effectiveness
  - Rule of law
  - Control of corruption

- Policy credibility and effectiveness
  - Inflation level and volatility
  - Quality of fiscal policy implementation

- Track record of default

Factor 3: Fiscal Strength
- Debt burden
  - Debt to GDP
  - Debt to revenue

- Debt affordability
  - Interest payments to revenue
  - Interest payments to GDP

- Ability to deploy resources to face current and expected liabilities
  - Debt trend
  - Share of foreign currency debt
  - Contingent liabilities
  - SWF

Factor 4: Susceptibility to Event Risk
- Political Risk
  - Domestic political risk
  - Geopolitical risk

- Government liquidity risk
  - Fundamental metrics
  - Market funding stress

- Banking sector risk
  - Strength of banking system
  - Size of banking system
  - Funding vulnerabilities

- External vulnerability risk
  - (CA + FDI) / GDP
  - EVI; NIIP/GDP

Source: Moody’s Sovereign Bond Ratings Methodology, November 2018
The four key factors in Moody’s Sovereign Bond Rating Methodology combine in a non-linear fashion.

Source: Moody’s Sovereign Bond Ratings Methodology, November 2018
Moody's communication strategy
Challenges with assessment, communication and transparency in sovereign debt sustainability analysis
Challenges with sovereign debt sustainability analysis

» The role of uncertainty
  ▪ Scenario analysis vs. debt thresholds

» The realism of underlying assumptions
  ▪ Economic and fiscal assumptions
  ▪ Feedback loops
  ▪ Hidden linkages between sectors

» The materialization of contingent liabilities
  ▪ Banking sector
  ▪ Government-related enterprises
  ▪ Government guarantees

» Transparency of information about the full debt stock and structure

» Understanding the investor base
  ▪ Assumptions about market access
There is no clear debt-to-GDP threshold

» While defaults are correlated with rising debt burden, a high debt-to-GDP ratio is neither necessary nor sufficient condition for a default

» Significant amounts of foreign-currency debt can be a major source of vulnerability

» Debt affordability is better correlated with past defaults than debt-to-GDP

» A lack of economic strength and weak institutions are decisive factors

Debt-to-GDP and interest payments-to-revenue across broad rating categories (%)

Sovereign defaults have occurred at high as well as low debt to GDP ratios (%)

Source: Moody’s Investors Service, Sovereign Defaults Series - The Aftermath of Sovereign Defaults, October 2013
The causes of modern-era sovereign defaults underscore the need for a holistic analysis

<table>
<thead>
<tr>
<th>High debt burden</th>
<th>Chronic economic stagnation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent external and fiscal imbalances build up to an unsustainably high debt burden. Slow build-up of debt and deterioration in debt affordability over many years due to terms-of-trade shocks or unsustainable fiscal policies. <em>Defaults occur at high debt-to-GDP and interest payments-to-revenue levels</em></td>
<td></td>
</tr>
<tr>
<td>Stagnating economic conditions, weak fiscal position and domestic vulnerabilities combine with large external shocks and loss of investor confidence. Vicious circle of economic distress, capital outflows, currency crisis, and banking crisis culminates into sovereign default <em>even at initially low debt-to-GDP which spikes after currency depreciation</em></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Political and institutional weaknesses</th>
<th>Banking crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political instability, unwillingness to pay, weak governance. <em>Debt-to-GDP could be low and interest payments-to-revenue vary</em></td>
<td></td>
</tr>
<tr>
<td>Systemic banking crises and capital outflows contribute to a large and sudden build-up of public debt. <em>Debt levels and interest payments rise sharply over couple of years before default</em></td>
<td></td>
</tr>
<tr>
<td>Ecuador (1999), Uruguay (2003), Dominican Republic (2005), Cyprus (2013)</td>
<td></td>
</tr>
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Realizations of contingent liabilities can have a significant fiscal impact

- Financial sector crises, natural disasters and support for state-owned enterprises (SOEs) account for the three most common causes of contingent liability materializations
- Underscores the importance of scenario analysis to deal with uncertainty and with hidden interlinkages and feedback loops across sectors and across analytical assumptions

Note: Contingent liabilities are categorized into seven categories: financial sector, state-owned enterprises (SOEs), subnational government, natural disasters, private non-financial sector, and public-private partnerships (PPPs). Fiscal costs are defined as gross fiscal outlays and immediate changes in the government financial position directly due to the contingent liability realization, for example a government bailout of a bank, emergency assistance after an earthquake, or debt assumption of a troubled SOE.

Source: IMF, 2016, Bova et al., The Fiscal Costs of Contingent Liabilities: A New Dataset, IMF Working paper WP/16/14
Market re-access can be many years after default

» Market access can remain impaired for many years after default. On average, sovereign governments remained out of international capital markets for 5.6 years after default and 4.4 years after final default resolution.

» Further, over 1997-2013, 45% of defaulters never regained market access.

» Length of market exclusion was highly correlated with the loss experienced by investors during the debt restructuring.

» Default resolution was relatively quick, taking slightly over one year on average.

» Length of market exclusion was generally not driven by inability to resolve the default but by the time it took for the country to rebuild ability and reputation to service debt.

Market exclusion is highly correlated with investor losses

Trading price-implied loss (%)

Time from default to re-access (years)

Sources: Moody’s Investors Service, Market Re-Access and Credit Standing After Sovereign Default, Oct. 2013
Appendix
Moody's default definition

» A missed or delayed disbursement of a contractually-obligated interest or principal payment (excluding missed payments cured within a contractually allowed grace period), as defined in credit agreements and indentures

» A bankruptcy filing or legal receivership by the debt issuer or obligor that will likely cause a miss or delay in future contractually-obligated debt service payments

» A distressed exchange whereby 1) an issuer offers creditors a new or restructured debt, or a new package of securities, cash or assets, that amount to a diminished value relative to the debt obligation’s original promise and 2) the exchange has the effect of allowing the issuer to avoid a likely eventual default

» A change in the payment terms of a credit agreement or indenture imposed by the sovereign that results in a diminished financial obligation, such as a forced currency re-denomination (imposed by the debtor, or the debtor’s sovereign) or a forced change in some other aspect of the original promise, such as indexation or maturity

Source: Moody’s Rating Symbols & Definitions, November 2018
Moody’s related publications

Global Outlook

» 2019 Outlook – Global credit conditions to weaken amid slowing growth and rising risks, November 2018

» Global Macro Outlook 2019-2020: Global growth to decelerate amid tightening global liquidity and elevated trade tensions, November 2018

» Sovereigns – Global 2019 outlook still stable, but slowing growth signals increasingly diverging prospects, November 2018

» Cross-Sector – Global: Global Trade Monitor: Escalating tensions will have unintended consequences for supply chains, October 2018

Sovereign Defaults Research

» Sovereign Default and Recovery Rates, 1983-2017, July 2018

» Myths and Facts about Sovereign Debt Restructurings (Presentation), January 2016

» Sovereign Defaults Series - The Aftermath of Sovereign Defaults, October 2013

» Topic Page: Sovereign Default Research

Methodology

» Moody’s Rating Symbols & Definitions, November 2018

» Sovereign Bond Ratings, November 2018

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