

# GDP-linked securities

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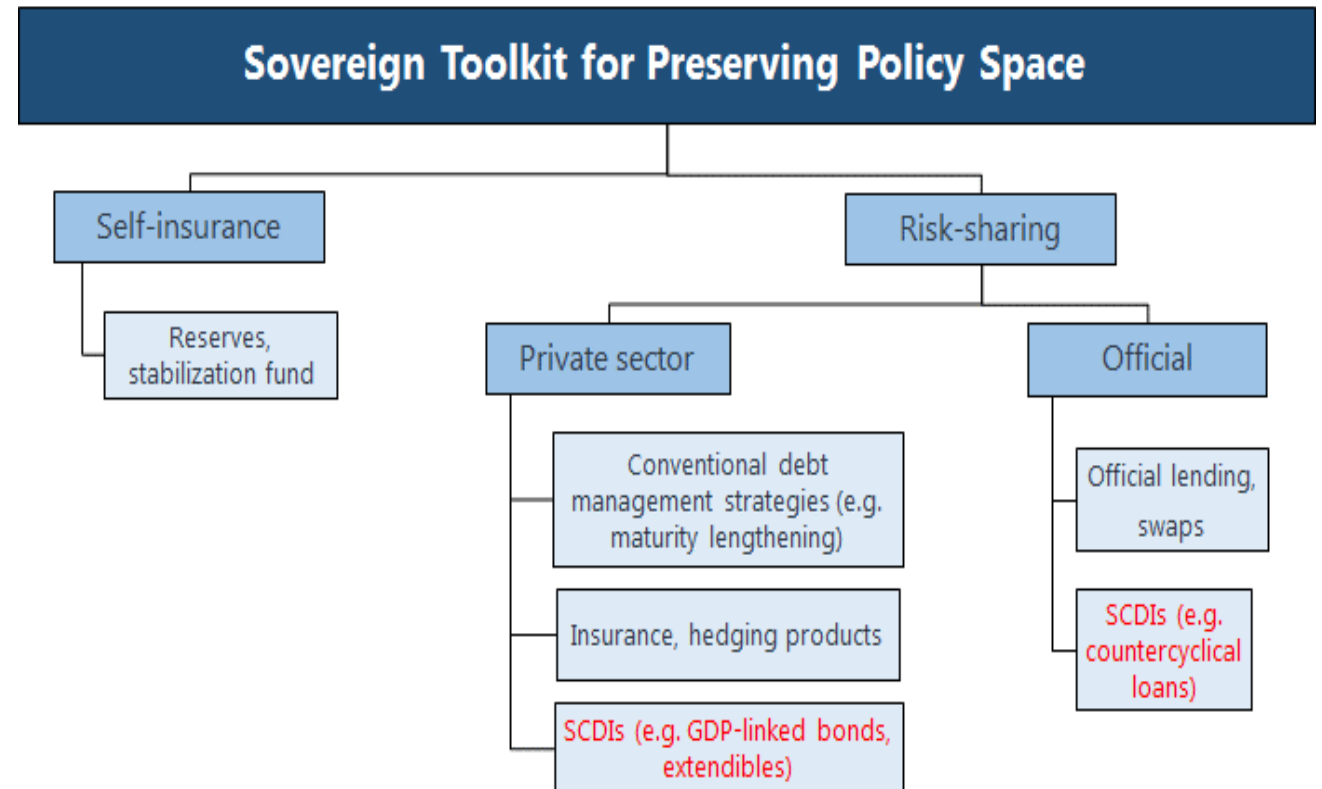
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# GDP-linked bonds provide 'policy space'

- GDP-linked bonds are part of a wider toolkit available to the sovereign to preserve policy space
- This policy space (both fiscal and monetary) is needed to undertake measures that can help mitigate the economic impact of adverse shocks.
- By tying debt payments to GDP, these bonds help to stabilize debt indicators, thus helping preserve policy space precisely when it is most needed
- And like any countercyclical tool, GDP-linked bonds can help attenuate boom-bust cycles in public spending. Furthermore, the downside protection from GDP-linked bonds could provide a mechanism to unlock productive public spending

# They can fill important gaps in the existing toolkit

- Self-insurance, at least of macroeconomic risks, is seen as vulnerable to political pressures in good times.
- Conventional debt instruments are not designed to mitigate solvency effects of large negative macroeconomics shocks.
- Protection via commodity hedges and natural catastrophe insurance is typically available over a short horizon, can be expensive, and exposes the sovereign to counterparty risk
- Official liquidity support may not be timely available or accessible



# And can reduce defaults and help complete markets

- Models show that sovereign debt limits (the levels of debt at which default occurs) can increase significantly as the share of GDP-linked bonds in the debt portfolio rises. This can drive down the default risk premium (and the hence average yield) on all debt, notwithstanding the GDP volatility risk premium that has to be paid on the GDP-linked bonds.
- But there are diminishing returns - and thus, a weak case for GDP-linked bonds replacing the entire conventional debt portfolio.
- Automatic private sector participation in crises reduces the burden on the official sector and incentivizes accurate pricing of fundamentals
- Market implied expectations of GDP growth will also emerge, which would have useful external benefits to the private sector

# But they are not without risks and complications

**Cost:** initially, there may be a high novelty, liquidity and model risk premia demanded by investors

**Adverse selection:** investors may suspect that countries facing the worst macroeconomic outlook will be most eager to issue, and correspondingly may demand high compensation.

**Moral hazard:** the possibility of enjoying reduced funding costs, or obtaining funding automatically during bad states, may reduce the incentives for countries to keep vulnerabilities at bay.

**Myopia:** Policymakers may prefer to ignore the longer-term benefits of GDP-linked bonds

**Pricing impact:** These instruments could erode the liquidity in conventional bond markets and reduce their price if they are viewed as subordinate to these instruments

**Excessive risk:** Private sector may be unable to cope with GDP risk, especially in tail-events

**Pro-cyclical investor demand:** Volatile market expectations could lead to pro-cyclical pricing

# Feedback from investors and issuers

The IMF has also undertaken extensive outreach to investors and issuers

**Investors:** Potentially supportive if properly designed. Would need to tackle data manipulation risks, and ensure that the regulatory and legal treatment was appropriate

**Issuers:** While several sovereigns recognized the potential benefits of these instruments, none had immediate plans to issue. Vulnerable sovereigns worried about signaling risks associated with GDP-linked bond issuance.

# Conditions for a market to emerge

A market for GDP-linked bonds has the potential to emerge when at least one of the following three conditions is met:

- *There is scope for diversification of risks.* Typically a sovereigns balance sheet is highly correlated to its GDP; while for (foreign) investors the correlations with wider market indices are low. This implies that the ‘GDP-volatility risk premia’ should be low.

Coverage	Benchmark portfolio	Estimated premium (bps)	Source
All Countries	S&P500	17	Staff estimates
All Countries	MSCI World bond index	36	Staff estimates
G20	Global equities	27	Bowman and Naylor (2016)
G20	US equities	24	Bowman and Naylor (2016)
United States	US equities	150	Kamstra and Shiller (2009)

- *Issuer and investor expectations on the path of, or risks surrounding, GDP growth diverge.* For example, if the investor is more optimistic on expected GDP growth than the sovereign.
- *There is differential tolerance of risk.* If the investor is less risk averse they will be more willing to hold GDP risk at a price that is acceptable to the sovereign.

# Potential issuers

Sovereigns differ in their characteristics and vulnerabilities, and thus in the extent to which they can benefit from GDP-linked bonds:

## Advanced economies:

- *Euro-area members* have relatively high debt levels and have experienced volatile interest rate-growth differentials.
- *Small-open economies* generally have lower debt levels, and face fewer constraints on monetary policy. However, some members of this group are highly exposed to external shocks.
- *Reserve currency issuers* have experienced a relatively stable interest rate-growth differential and liquid domestic debt currency markets.

## Emerging Markets:

- Commodity exporters and small states tend to experience high growth and primary balance volatility given their exposure to potentially substantial external exogenous shocks
- EMs without established local currency bond markets tend to have volatile debt often driven by exchange rate shocks
- EMs that have made substantial progress in reducing reliance on foreign currency debt generally have lower debt-to-GDP volatility



# Robust contracts and institutions

Several of the complications and issues listed above could be overcome by reliable institutions and well-designed contracts :

- Independent statistical agencies are important to attenuate concerns around data integrity and payouts
- Competent debt management offices are important to ensure transparency and to handle complex instrument designs
- Robust contracts can help set out a clear methodology to calculate the payouts on GDP-linked bond, and lay out contingencies where data availability or reliability concerns arise
- Parameters governing debt service payments can reduce the incentive for the sovereign to 'cheat' or pursue risky policies (moral hazard)
- GDP-linked bonds should not be considered senior to conventional debt instruments

# Potential Design Features

## State variables

1. Nominal GDP
2. Real GDP
3. Commodity prices
4. Trading partner GDP growth
5. Equity or financial market indices
6. Goods exports (measured abroad)

## Payout structure

- a. Link principle
- b. Link coupon
- c. Local currency
- d. Foreign currency
- e. Extendible maturity
- f. Caps and ceilings
- g. Perpetual

## Proposals

London Term Sheet - **1.a.**; Borzenstein and Mauro's (2004) – **2.b.**; Barkbu and others (2011) – **5.e.**; Shiller (1993) – **1.g.**

# A role for the official sector?

Absent intervention, there will continue to be sporadic issuance: i) targeted domestic investors; ii) countries vulnerable to large exogenous shocks; iii) official bilateral loans with state-contingent features; iv) restructurings

However, such issuances are not very likely to lead to the creation of self-sustaining liquid markets. However, official sector support could help kick-start such a market:

- Developing commonly agreed model contracts
- Technical assistance to sovereigns
- Recognition in DSAs and fiscal rules
- MDBs could underwrite and guarantee GDP-linked bonds
- Official creditors could expand or introduce state-contingent features in their lending
- More ambitiously, 'Test issuance' by a major sovereign
- Or, a coordinated issuance

**Feedback welcome**

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