



BANK OF ENGLAND

Sovereign GDP-linked bonds

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This presentation draws on work ongoing by the Ad Hoc Working Group on GDP-Linked Bonds comprising Starla Griffin (Slaney Advisers), Yannis Manuelides and Peter Crossan (Allen & Overy), Christian Kopf (Spinnaker Capital), David Beers, James Benford and Mark Joy (Bank of England)

Why are we here? – motivation for making a practical reality of GDP-linked bonds today

- **Debt levels are high**
 - Government debt as a share of GDP is at its highest since WWII in advanced economies (109%) and since the debt crises of the 1980s in emerging markets (49%)
- **Concerns about a secular stagnation**
 - Investors in fixed income securities locked in to very low rates of return. GDP-linked bonds offer exposure to a more optimistic view.
 - Conversely, if fears of weak growth are realised, GDP-linked debt offers automatic debt-relief that could help to avoid a protracted and costly debt restructuring. Wider benefits for economy and price of other risky assets in that scenario and so for both investors and potential issuers.
 - For those where the risk of default is material, there is something for both issuer and the investor
- **Time ripe to take on board the lessons from GDP-linked warrants**
 - Warrants have had a unhappy history. Highly complex, with multiple triggers, and no two-way risk sharing.
 - A simpler and standardised product could offer a better alternative for debt restructurings
- **Commission from Chengdu Communique:** “to explore the technicalities, opportunities, and challenges of state-contingent debt instruments, including GDP-linked bonds”.



What are we talking about? - Payment structure for a simple and standardised GDP-linked bond

- **Coupon and principal indexed to nominal GDP**
 - Indexed to cumulative GDP growth since issuance
 - When the level of GDP falls the debt-to-GDP ratio is stabilised
- **Indexation is to nominal GDP**
 - Correlated closely with issuer's nominal repayment capacity (tax receipts)
 - Inflation-protection of a different nature to inflation-linked debt given link to GDP-deflator rather than CPI. For issuer debt servicing costs no longer rise following eg. exchange rate depreciations, or energy price increases.
- **Issued in local currency; long-term in maturity**
 - Issuer receives exchange-rate risk protection
 - 10-20 years
- **Timing of payments modelled as closely as possible to inflation-linked bonds**
 - 6 month indexation lags to match data release timetable

Coupon and redemption value are indexed to the level of nominal GDP, such that the semi-annual coupon payment in quarter t and final principal repayment in quarter T , per 100 face value, given a coupon of c per cent and issuance in period 0, evolve according to the following formula:

$$\begin{aligned}\text{Coupon}_t &= c/2 \times 100 \times \text{Lag}(\text{GDP}_{t,6m}) / \text{Lag}(\text{GDP}_{0,6m}) \\ \text{Redemption}_T &= 100 \times \text{Lag}(\text{GDP}_{T,6m}) / \text{Lag}(\text{GDP}_{0,6m})\end{aligned}$$

For example, consider a GDP-linked bond issued on 6 October 2016 with coupon of 0.1 per cent and a maturity date of 6 October 2026. Allowing for an indexation lag of 6 months, if the level of nominal GDP in the reference base quarter is 105 and GDP in the relevant reference quarter in 2026 is 160, then final coupon and principal repayment per 100 face value will be:

$$\begin{aligned}\text{Coupon} &= 0.001/2 \times 100 \times 160 / 105 = 0.076 \\ \text{Redemption} &= 100 \times 160 / 105 = 152.4\end{aligned}$$

ICMA consultation now live:

<http://www.icmagroup.org/resources/Sovereign-Debt-Information/>



Completing the term-sheet – dealing with data revisions

- **Indexing to lagged data**
 - The term sheet indexes to quarterly GDP data, lagged by six months, which ensures that the third (and typically first full) estimate of GDP is usually available.
 - This compares to a 3-month lag for inflation-linked bonds, which use higher frequency data that is typically not revised.
- **Decision on whether back-data should be the latest, or frozen at the third release**
 - Indexing to the latest data is simple to articulate contractually and payments would be based on the most up-to-date measure of cumulative GDP.
 - But against this, the latest data may mean back-data, including the base index, change with subsequent revisions, which may complicate pricing.
 - Indexing to a series made up of third-release estimates would require a calculation agent to produce but would take away one source of uncertainty affecting future pay-outs.
 - Steer from investors to date is a strong preference for an unrevised series.
- **Need also to think about process for policing methodological changes**
 - Same issue exists for inflation-linked debt – what to do if methodological changes affect the average for recorded GDP growth?
 - A need here to take stock on the lessons from inflation-linked debt



Completing the term-sheet – treatment in a debt restructuring relative to conventional debt

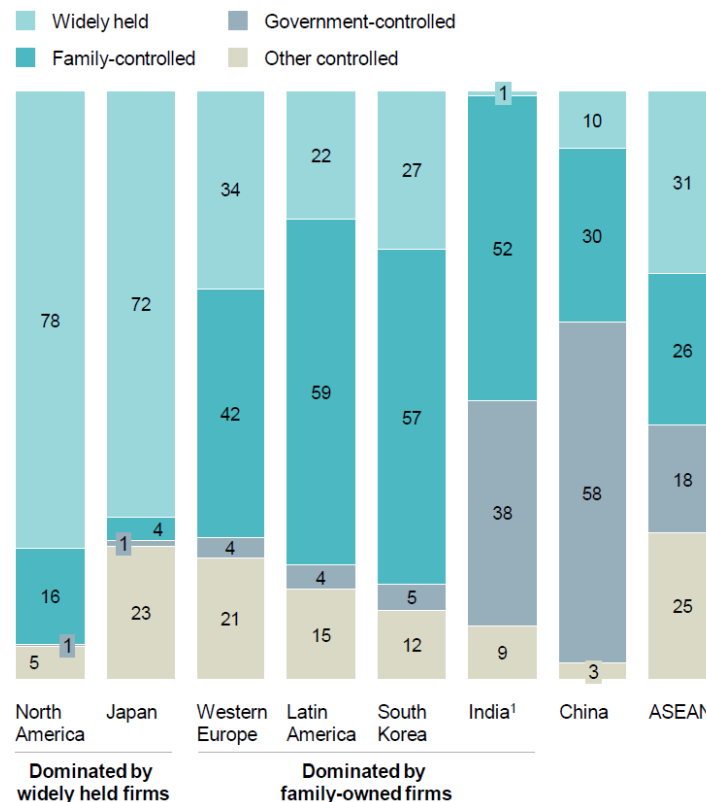
- **Option for GDP-linked debt to be treated differently to conventional debt in a restructuring**
 - The *London Term Sheet* gives issuer the possibility of remaining current on GDP-linked bonds through a restructure of conventional debt.
 - Rationale for this is that, in a downturn, the issuer should be more able to stay current on its GDP-linked obligations, due to the nominal payments on them declining as growth does. And investors already taking a hit through indexation.
 - Contractually, the GDP-linked bond "cross-defaults" only with the sovereign's other GDP-linked securities, which allows the issuer to cease payments on fixed rate government bonds, loans or other borrowed money without risking an involuntary acceleration of the GDP-linked bond
 - Net practical effect would be to create an instrument that is more likely to continue to perform when the sovereign finds itself in a challenging economic situation.
 - This should facilitate growth in the market for the instruments



What is in it for investors?

- **Conversations so far have been positive. There is interest in an instrument like this.**
 - Natural investor base likely long-term investors
- **Exposure to labour income**
 - Labour income accounts typically for more than 60% of GDP
- **Exposure to firms not traded publicly**
 - Which account for a large share of corporate revenue, especially in emerging markets
- **Meet institutional needs for those with link to earnings**
 - Attractive to defined benefit pension funds with future commitments linked to nominal earnings. (Though these in decline).
- **Still need to work out regulatory treatment**
 - Insurers an important class of long-term investor
 - Banks may be needed to make the market

Corporate revenues by ownership type, per cent of total 2006-11



Source: McKinsey (2015) "Global competition for corporate profits"



Next steps

- **Feedback so far suggests, tentatively, it is possible to design an instrument that is of interest to investors. Strong sense that instrument should be simple and standardised.**
 - Need to get investors comfortable with the link to GDP-data.
 - Consultation with ICMA underway; engagement with IIF, EMTA planned.
 - Need to flesh out regulatory treatment of GDP-risk for banks and insurance companies
 - And need to gather views and commission research on pricing, including likely ‘new issue’ premia
- **The official sector now needs to set out what these instruments are for**
- **Principles guiding the use of GDP linked bonds in restructurings**
 - Build on the lessons from warrants
- **Principles guiding the use of GDP linked bonds outside restructurings**
 - Identifying sovereigns that would benefit most from issuance
 - IMF working in this area

