BANK OF ENGLAND WORKSHOP ON GDP LINKED BONDS: MAKING IT HAPPEN

Bank of England, London, Monday 30 November, 2015

Overview

On 30 November, 2015, the Bank of England hosted a workshop on GDP linked bonds, the aim being to identify why these instruments do not exist already, to explore whether there are collective action problems that are impeding market formation, and if so, how these may be overcome.

This report offers a summary of discussion and is not intended as a verbatim record of the contributions made by each participant.[1] The meeting was conducted under Chatham House rules.

Participants included leading experts from law, academia, international institutions, asset managers, bankers and other private-sector stakeholders, and policy makers. Annex I outlines the agenda and Annex II lists the participants.

The workshop considered a range of issues, from the costs and benefits of issuing and holding GDP linked bonds, investor perspectives on pricing and performance, questions of contractual design, and thoughts on next steps. A centrepiece of the day's discussion was the presentation of a draft term sheet.

While opinions were diverse and discussions frank, participants broadly endorsed the benefits of GDP linked bonds—of fiscal policy stabilisation, contractually-agreed risk-sharing, avoidance of the deadweight costs of debt crises, and offering investors important new diversification strategies. A number of practical obstacles to the issuance and take-up of GDP linked bonds were also identified, such as data quality concerns, uncertainty about liquidity, and novelty premia. The draft term sheet was broadly welcomed as an important step towards a possible benchmark contract.

Session summaries

Session 1: Concept and context

GDP linked bonds were defined as debt instruments whose return varies with the issuing country's GDP and some historical context was offered. It was argued that while there have been instruments in the past that have had some of the features of GDP linked bonds—for instance, GDP warrants, which have been issued by Bulgaria, Bosnia, Costa Rica, Argentina, Greece and Ukraine during sovereign debt restructurings, have coupons that index to GDP, but only upwards, subject to caps, and only when growth exceeds some predetermined threshold—none has had all the features of fully fledged GDP-linked bonds, which have symmetrical risk sharing on both the upside and downside, with both the coupon and the principal linked to GDP.

[1] This summary was drafted by Mark Joy (Bank of England).

Slight variants were discussed—GDP linked bonds that link to GDP growth, and those that link to the level of GDP. Both were seen as offering similar risk-sharing benefits. Simplicity in design of the formula was seen as critical, with past failures of state-contingent sovereign debt attributed at least partly to excessive complexity and the limited investor appeal of warrant structures.

It was suggested GDP linked bonds would be more costly to issue than conventional, fixed income debt, since they would in effect be handing over to creditors the risk associated with GDP fluctuations, which creditors would probably accept only in exchange for a higher expected return. The size of this additional, GDP "risk premium", was speculated on, with participants noting that various estimates in the existing literature put it at being between 30-150 basis points. Some even argued that, in an environment of high debt, GDP linked bonds could actually be cheaper to issue than conventional fixed income bonds. It was noted that the GDP risk premium could be negative if growth in the issuing sovereign is inversely correlated with world growth.

Beyond the well-established benefits of portfolio diversification for the investor and fiscal policy stabilisation for the issuer—if GDP-indexed bonds had been issued by Mexico before the 1995 Tequila crisis, it would have reduced the government's interest bill, it was argued, by almost 2 per cent of GDP—it was also noted that, for the issuer, the more it issues GDP linked bonds, then potentially, the more its credit risk will fall and the spread on its conventional fixed income debt will decline.

There were some differences in views on which countries might benefit from issuance. Sovereigns with more volatile GDP would see the biggest welfare benefits, it was argued, while those in currency unions might find GDP linked bonds an alternative way of achieving some of the properties of a fiscal transfer union. Pooling risk was offered as an alternative to GDP linked bonds, but this was countered with the argument that risk-pooling mechanisms such as the IMF and ESM already exist. Some argued all countries would benefit from issuing GDP linked bonds.

For the system as a whole to gain from the risk-sharing characteristics of GDP linked bonds, it was argued that they need to be held primarily by foreign investors. Left unexplored, however, was the scope for risk-sharing benefits when investors are exclusively domestic with perhaps different marginal propensities to consume to the average tax-payer.

On the drawbacks of GDP linked bonds, it was argued that the GDP risk premium that creditors charge the issuer may be so large that the issuer may be loath to pay it. Another point raised was that, because they make debt relief automatic in a downturn, GDP linked bonds assume the relief provided is precisely the type required. This may not be the case, it was argued. Conventional sovereign debt restructurings may provide better calibrated relief. Countering this, it was noted that conventional restructurings often do too little, arrive too late, incur large deadweight costs and can generate financial contagion.

There was some divergence in views on the extent to which we can draw lessons from previous experiences with sovereign debt instruments that have offered state-contingent repayments. In some of the Brady Plan restructurings in the 1980s and after, creditors were offered "value recovery rights", in which the sovereign promised additional upside conditional on certain macroeconomic benchmarks being met, typically GDP, exports or commodity prices. It was said that creditors wanted a way of clawing back the returns they

had seen written down in the restructuring, and value recovery rights were a way of providing this. Unlike fully-fledged GDP linked bonds, it was argued that risk sharing was one-sided: investors shared in the upside, but not in the downside. Further, these instruments varied widely in design, were poorly drafted and left scope for misinterpretation. Despite this, it was considered that past experiences do show that issuing debt indexed to GDP is feasible.

Another question raised and discussed was, why is now an appropriate time, internationally, to start issuing GDP linked bonds? First, it was argued that currently gross government debt globally is very high globally. The IMF expects the median (unweighted) advanced economy debt-to-GDP ratio to approach 90% of GDP in the next five years, a post-war high. For EMEs, where GDP tends to be more volatile and where extensive links to indebted state-owned enterprises exist, the median ratio looks set to hit 50% of GDP, the highest level since the 1980s. Against this backdrop, it was argued that many highly indebted sovereigns were looking to de-lever through rapid fiscal consolidation, which was weighing on growth. An alternative way to de-lever, if it were available, would be to issue equity, where for sovereigns the analogy would be GDP-linked bonds. The extra fiscal space that GDP-linked bonds offer in the event of a downturn, could be particularly useful today, it was argued, with many central banks operating at or near the lower bound to policy rates; were a deep downturn to occur, a broader range of stimulus measures might be required.

Session 2: Contractual design

In this session participants were asked to discuss a draft term sheet (the "London term sheet"), drafted by a working group comprising representatives from the investor community, the legal profession and the Bank of England.

The discussion began with working group members highlighting that the suggested term sheet provisions were framed to address those most relevant for an emerging market sovereign issuer. Terms under which advanced economy sovereigns might issue would likely be simpler; and, as with other new debt instruments, contract provisions for GDP linked bonds issued by individual sovereigns would inevitably need to be adapted to investor and market preferences.

Against this background, a number of critical design choices were discussed. On the economics of the model instrument, it was proposed that (i) the instrument be denominated in local currency so that it provides protection to the issuer from exchange rate risk; (ii) indexation be to nominal rather than real GDP because it is both inflation and GDP growth that support the government's ability to pay; (iii) both the coupon and the accrued principal link to GDP so that the debt-to-GDP ratio will be stable regardless of GDP shocks (absent automatic stabilisers). Importantly, the draft term sheet delivers an instrument for which both coupon and principal repayments remain a constant proportion of repayment capacity (nominal GDP).

Discussion of more granular aspects of design included the choice of frequency of the coupon payment. The draft term sheet suggests annual payments, paid in arrears once full-year GDP data became available. It was argued that this reduces the impact of GDP data revisions, which tend to trail off after a few quarters. However, it was acknowledged that semi-annual coupons could be more appropriate for advanced economy sovereigns where data revisions were less of a concern. Also noted was the possibility that paying interest a year in arrears

could reduce the space for countercyclical fiscal actions that GDP linked bonds are intended to facilitate. This again argued for more frequent coupon payments.

Also highlighted was the importance—for some investors, for tax reasons—of the instrument being priced at par on the day of issue. To address this concern, the draft term sheet allows for a "principal factor" adjustment, the magnitude of which would be determined prior to issue, to ensure the GDP linked bond prices at par. However, both this and broader aspects of the tax treatment of GDP linked bonds, plus their regulatory treatment, were acknowledged as open issues not addressed in the draft term sheet. It was noted that payment of a smaller coupon could obviate or at least lessen the need for a principal factor adjustment.

Seniority of the instrument was also discussed. The draft term sheet includes what is, in effect, a *pari passu* clause (while avoiding the use of that contentious term), with the implication that the instrument should be considered, *legally*, as being equally senior to all the other unsecured obligations of the issuer. However, it was argued that, on the perhaps more material question of *commercial* seniority—whether we would expect, if the issuer were to experience distress, that it would continue to honour its GDP linked debt even if it restructures its conventional debt—the answer would, at least for the instrument in the draft term sheet, be probably yes. Payments on the GDP linked bond, because they adjust downwards as nominal GDP falls, remain as affordable as they were before the economic downturn.

Governing law was also discussed. The term sheet proposes an instrument that would be governed under English law to respond to investor concerns about legal uncertainties in a number of emerging market jurisdictions. But a number of participants suggested that many issuers would also opt to issue under New York law, while others suggested that investors could be comfortable buying issues governed under local law for some emerging market sovereigns and for most advanced economy sovereigns.

However, it was argued that the possibility of GDP linked bonds being restructured could not be excluded. For such circumstances, it was suggested that a cross-default clause be included in the draft term sheet. A formulation is adopted whereby the GDP linked bond cross-defaults only with other GDP linked bonds, and not with the issuer's conventional debt. Collective action clauses were also discussed. The draft term sheet allows for a two-limb collective action clause. There was some push-back against this, noting that the two-limb formulation is not consistent with the model CAC recently endorsed by both the IMF and the International Capital Market Association, with some participants arguing that the interests of different classes of GDP linked bondholders were sufficiently aligned to be accommodated through a single-limb CAC.

To address potential investor concerns over data integrity, the draft term sheet relies for GDP data provision on the sovereign state's statistical agency, with a fall-back option, should the agency not provide data of sufficient integrity, being the central bank. If the central bank does not publish, then there is a further fall-back option of the use of IMF projected nominal GDP data, with the final fall-back mechanism being to take the previous year's GDP and multiply it by a penalty factor (of 1.1). A grace period is allowed for, to accommodate the scenario whereby the statistical agency has been unable to publish due to unforeseen circumstances (such as a natural disaster). It was noted that different investors may have different preferences for fall-backs, depending for instance on geography of the issuer and trusted regional or multilateral statistical institutions.

Supporting this chain of fall-back options, the creditor is able, in the draft term sheet, to avail of a number of put events, where it can demand early redemption, such as the issuing sovereign fails to publish GDP data by the agreed date and in a manner agreed (again, subject to a grace period).

Session 3: Investor perspectives

This session offered an opportunity for investors to share views on pricing, portfolio diversification and lessons from GDP warrants.

GDP warrants, it was argued, offer a number of lessons on design flaws to avoid rather than good examples to follow. Multiple layers of GDP growth and level criteria to be met in order to trigger payments have frequently left warrants difficult to price and out of the money, with low or close to zero value. Key design lessons, it was argued, are to prefer simplicity over complexity and to draft carefully.

It was suggested that correlations between GDP growth in advanced economies has increased from the pre-crisis levels and this may diminish the diversification benefits of GDP linked bonds. However, if emerging markets are included in the portfolio, GDP risk is far less correlated: 0.1 on a quarterly basis.

On pricing, a novelty premium premium may apply initially. For the first advanced economy inflation linked bonds it was argued this was at most 100 basis points. Research suggests that novelty premia decline quickly. The GDP risk premium would be low, it was argued, if the sovereigns that issue them are sufficiently different in terms of GDP characteristics.

Session 4: Making it happen

The final session turned to how to overcome obstacles to issuance and lay out alternative roadmaps to starting a market. Some parallels were drawn from the take-up of inflation-linked bonds, which were first issued by a small group of advanced economies, and have since developed into a global market. It was argued that the case for GDP linked bonds could be stronger now than it was for inflation linked bonds.

On the importance of forging a consensus between the private and official sectors as a means to delivering both market-acceptability and legal enforceability, lessons were drawn from the recent experience of drafting stronger collective action clauses for foreign-law government bonds. Success on this issue was attributed to a clear, consultative process, with engagement from all sides, accommodating some highly heterogeneous positions from investors, ranging from those highly sensitive to contractual design, to those buy-and-hold investors who are largely indifferent, sensitive only to credit ratings. Going into consultations with a near-final draft contract helped, it was said. It was stressed that design must offer certainty of outcome for the investors. Also stressed was the importance of having a creditworthy first-mover to issue the new contract, lowering the bar for others to follow suit. For the new collective action clauses, the leading example was offered by Mexico.

International official institutions that provide lender of last resort type facilities to sovereigns may, it was argued, have a keen interest in seeing GDP linked bonds gain traction because international official sector financing is not designed to address solvency crises, whereas

GDP linked bonds are. What is more, GDP linked bonds, because they adjust continually, rather than trigger only beyond some threshold distress value, offer debt relief that is timely, and free of the too-little, too-late problem that can limit the effectiveness of sovereign debt restructurings. It was argued that perhaps international official institutions could subsidise the cost of the GDP risk premium given the benefits these instruments provided to the international monetary and financial system.

On what role international official institutions can play in facilitating market formation, a number of roles were seen: first, coordination and convening, through fora such as the IMF's Debt Management Forum and the IMF-OECD-World Bank Global Bond Market Forum; second, technical assistance and outreach to national debt managers; third, establishing best-practice treatment of GDP linked bonds in debt sustainability analysis; fourth, playing a role in establishing design principles and benchmark contracts, in particular adhering to principles of flexibility, proportionality, symmetry and limited liability; fifth, data quality validation (the IMF, for instance, categorises its low-income member states, if warranted, as having weak debt management capacity as part of its debt limits policy); and sixth, advocacy.

Three different models for ways forward were offered: (i) top down, with advanced economies leading the way; (ii) bottom-up, where pre-market access countries might combine with the international official sector, such as the World Bank, to issue; and (iii) the "messy middle", where emerging markets that already have market access are the starting point for GDP linked bonds.

In the top-down route, it was argued that advanced economies would build on previous debt-market innovations (eg, inflation linked bonds), offering an instrument that would appeal to a large cross-section of the prospective investor base, beyond existing fixed income funds. It was suggested that in the bottom-up approach, the international official sector could put itself between potential issuers and the market to catalyse issuance. Reference was made to previous World Bank proposals to have international development agencies issue debt in local markets indexed to national GDP.

A number of obstacles to the third way, where emerging market sovereigns take the lead on issuance, were cited, including the fact that so far the only GDP indexed instruments have been issued by emerging markets—GDP warrants—have been issued in debt restructurings, and have therefore acquired an association with sovereign distress, and stigma. Four areas were seen as needing to be addressed to support emerging market issuance, all of which were claimed to have been addressed, to a lesser or greater degree, in the term sheet presented earlier in the day. First, any GDP linked bond needs to be able to deal transparently with lack of data integrity, and offer clear, ex ante outcomes when integrity fails—in the draft term sheet this is addressed with a holder "put" option. Second, index eligibility is important. Some investors will only invest in index-eligible assets, especially foreign, real money funds investing in emerging market GDP linked bonds. Others, such as hedge funds, are less constrained. It was argued that index providers, in determining eligibility of an asset, "follow the market", endeavouring to capture in their indices what the market is doing, not the other way around. The implication of this is that if there was large emerging market issuance of GDP linked bonds outside of an index, it may not be long before those issues were included in one. Third, most investment in emerging markets is ratings-driven, and so the stance of credit rating agencies (CRAs) would be important. There was some speculation that GDP linked bonds may receive a higher rating than equivalent fixed income debt issued by the same sovereign, but there would be further factors to consider, such as the amount issued in

relation to conventional debt and the need by some CRAs to develop ratings criteria to rate obligations with no fixed nominal or real-terms redemption principal amounts. Fourthly, tradeability, it was argued, is key, and this would be governed among other things by the simplicity of contract design, and transparency of outcomes in all conceivable states of the world.

The importance of overcoming short-term political horizons was emphasised. It was argued that debt managers and finance ministers often have a short term horizon, whereas the welfare gains GDP linked bonds these are likely to accrue over two or more political cycles. It was also argued that GDP linked bonds are only more expensive to issue than traditional debt if the issuer believes it will not run into harder times. It was argued that one way of aligning the incentives of debt managers would be to emphasise that GDP linked bonds would appeal particularly to foreign investors, widening the investor base and circumventing the constraints of home bias. Also, it was argued, appeals should be made to the argument that increased issuance of GDP linked bonds should lower the credit spread charged on existing conventional debt. The benefits to the system as a whole would, it was said, be higher if sovereigns were not expected to be bailed out by international official institutions when they hit trouble.

It was argued that one scenario in which resistance from issuers might be eroded would be in an environment of rising interest rates where debt managers face a stronger compulsion than now to think about safer debt structures. Another possibility offered was one where the greater share of a sovereign issuer's outstanding debt is held by the international official sector, which would be in a position, if it so wanted, to swap the debt it holds into GDP linked instruments. Also, Paris Club debt has, in the past, found its way back into the market, thereafter trading actively, offering another route whereby the official sector takes the lead in catalysing marketability. It was noted that for bank CoCos, it was favourable regulatory treatment that helped initiate issuance. Finally, the possibility of tapping demand for Islamic financial products was raised given that GDP linked bonds may be suitable as sharia-compliant investments.

BANK OF ENGLAND

Making GDP Linked Bonds a Reality
Workshop Agenda

Date: Monday 30 November
Venue: Bank of England, Moorgate Auditorium, 20 Moorgate, London, EC2R 6DA
Chair: Phil Evans, Director, International (Bank of England)

08:30 - 09:00 Registration and coffee

09:00 - 09:15 Introductory Remarks
Mark Carney (Governor, Bank of England)

09:15 - 09:45 Keynote speech
The case for GDP linked bonds. Eduardo Borensztein (IADB)

09:45 - 11:00 GDP linked bonds: Concept and context
What do we mean by GDP linked bonds and how do they compare with warrants? What are the costs and benefits to the issuer? What is the history of state-contingent sovereign debt and what can we learn from it?
GDP linked bonds: the costs and benefits. Oliver Bush (Bank of England)
Growth indexed bonds. Paolo Mauro (Peterson Institute)
Sovereign debt restructurings and state-contingent debt. Lee Buchheit (Cleary Gottleib)
Chair: Kristin Forbes (External MPC Member, Bank of England)

11:00 - 11:30 Coffee Break

11:30 - 12:30 Contractual design
How should the commercial aspects of GDP-linked bonds be designed? What might a term sheet look like?
Critical choices in the design of GDP-linked bonds. Christian Kopf (Spinnaker Capital)
A draft term sheet for GDP linked bonds. Yannis Manuelides (Allen & Overy)
Chair: Kristin Forbes (External MPC Member, Bank of England)

12:30 - 13:30 Lunch

13:30 - 14:30 Investor perspectives
What are the benefits of GDP linked bonds to a diversified portfolio? How might they perform relative to fixed-income and equity? What are the lessons from previous innovations?
How might GDP linked bonds perform and price? Sri Kumar (Sri Kumar Global)
Lessons from GDP warrants. Pijus Virketis (HBK Capital)
Discussant: Gabriel Sterne (Oxford Economics)
Chair: Phil Evans (Director, International, Bank of England)

14:30 - 15:00 Coffee Break

15:00 - 16:30 Making it happen
How can we kick-start a market? How do we solve the first-mover problem? How can international institutions and fora help?
Lessons from inflation-indexed bonds. Charles Goodhart (LSE)
Lessons from collective action clauses. Leland Goss (ICMA)
What can international institutions do to help? Ali Abbas (IMF)
Investor perspectives. Starla Griffin (EMTA / Slaney Advisors)
Chair: Minouche Shafik (Deputy Governor, Bank of England)

16:30 - 16:45 Robert Shiller (Yale), by videolink

16:45 - 17:00 Closing Remarks
Phil Evans (Bank of England)

Making GDP Linked Bonds a Reality
Participants List

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Venue: Bank of England, Moorgate Auditorium, 20 Moorgate, London, EC2R 6DA
Chair: Phil Evans, Director, International (Bank of England)

Surname	First Name	Institution
Abbas	Ali	International Monetary Fund
Ardagna	Silvia	Goldman Sachs
Beers	David	Bank of England
Beck	John	Franklin Templeton
Begum	Jay	Bank of England
Benford	James	Bank of England
Best	Thomas	Bank of England
Bishop	Graham	Graham Bishop Consultancy
Boldt	Matthew	Canada Department of Finance
Borensztein	Eduardo	Inter-American Development Bank
Buchheit	Lee	Cleary Gottleib Steen & Hamilton LLP
Bush	Oliver	Bank of England/LSE
Cabrillac	Bruno	Banque du France
Cailloux	Geoffroy	France Tresor and Paris Club
Cao	Patty	Aberdeen Asset Management
Castro	Alvaro	Queen Mary University
Cenedese	Gino	Bank of England
Chen	Irene	Bank of England
Chordia	Aditya	JP Morgan
Collier	Paul	University of Oxford
Coppola	Frances	Independent Consultant
Coulton	Brian	Fitch Ratings
Crosby	John	University of Glasgow
Crossan	Peter	Allen & Overy LLP
Crowe	Christopher	Capula Investment Management
Culverhouse	Stuart	Exotix
Daly	Kevin	Aberdeen Asset Management Plc
Darvas	Zsolt	Bruegel
Das	Arnab	Invesco
de Ferra	Sergio	London School of Economics
de Haas	Ralph	European Bank for Reconstruction and Development
Demirhan	Hasan	Islamic Development Bank
Ebrahim	Zoheir	The Commonwealth
Eich	Frank	Bank of England
El-Sayed	Sherine	Financial Markets Law Committee
Galli	Carlo	University College London
Garrard	Alex	BTP Pactual

Garzarelli	Francesco	Goldman Sachs
Gibbs	Sonja	Institute of International Finance
Gnanasambanthan	Loga	Department for International Development
Goodhart	Charles	London School of Economics
Goss	Leland	International Capital Markets Association
Gray	Robert	International Capital Markets Association
Griffin	Starla	Slaney Advisors
Griffith-Jones	Stephany	IPD, Columbia University
Howe	Melendes	Asian Development Bank, Retirement Fund Unit
Joy	Mark	Bank of England
Kim	Glenn	LJ Capital
Kim	Brian	LJ Capital
Kopf	Christian	Spinnaker Capital
Kreplin	Eike	Federal Ministry for Economic Affairs, Germany
Krusec	Dejan	Bank of England
Lastra	Rosa	Queen Mary University
Ledward	William	Franklin Templeton
Lee	Harry	HM Treasury
Legler	Peter	Ministry of Finance, Greece
Lejoly	Marc	National Bank of Belgium
Lober	Theresa	Bank of England
Lombardo Muñoz Ledo	Juan Carlo	Mexican Embassy London
Manuelides	Yannis	Allen & Overy LLP
Martos	Sofia	Cleary Gottleib Steen & Hamilton LLP
Mauro	Paolo	Peterson Institute
Milla	Sergio	Nafinsa
Miller	Marcus	University of Warwick
Bao	Mingyou	People's Bank of China
Molina	Francisco	Queen Mary University
Morgon	James	Milken Institute
Morris	Chris	Amundi
Nielsen	Claus Tofte	Norges Bank Investment Mgt.
Olivares	Rodrigo	Queen Mary University
Pálsson	Sturla	Iceland Finance Ministry
Papaioannou	Michael	International Monetary Fund
Patel	Neeraj	HM Treasury
Rahman	Arshadur	Bank of England
Reichlin	Lucrezia	London Business School
Relleen	Jonathan	Bank of England
Richards	Mark	Berwin Leighton Paisner
Richardson	George	World Bank
Riley	David	BlueBay Asset Management

Robinson	Robert	Bridge Court and Co
Rogers	Paul	BT
Rojas	Juan	European Stability Mechanism
Sadeesh	Soniya	Deutsche Bank
Saleheen	Jumana	Bank of England
Salford	Gianluca	JP Morgan
Salveson	Dustin	US Embassy
Santor	Eric	Bank of Canada
Shafik	Minouche	Bank of England
Sheedy	Kevin	London School of Economics
Sri Kumar	Komal	Sri Kumar Global
Sterne	Gabriel	Oxford Economics
Stracca	Livio	European Central Bank
Trow	Stuart	European Bank for Reconstruction and Development
Tsapouris	Georgios	Government Investment Corp., Singapore
Uluc	Arzu	Bank of England
van de Velden	Teun	Dutch State Treasury
Velpi	Gabriele	Ministry of Economy and Finance, Italy
Virketis	Pijus	HBK Capital
Walshe	Brendan	UK Pensions Regulator
Zhang	Yi	People's Bank of China
Yihan	Fang	Monetary Authority of Singapore