

SECTOR COMMENT

11 July 2016

Rate this Research



Analyst Contacts

Marie Diron 65-6398-8310
Senior Vice President/
Manager
marie.diron@moodys.com

Anushka Shah 65-6398-3710
Assistant Vice
President - Analyst
anushka.shah@moodys.com

Christian de Guzman 65-6398-8327
Senior Credit Officer
christian.deguzman@moodys.com

Steffen Dyck 49-69-70730-942
Senior Credit Officer
steffen.dyck@moodys.com

Atsi Sheth 65-6398-3727
MD-Sovereign Risk
atsi.sheth@moodys.com

Alastair Wilson 44-20-7772-1372
MD-Sovereign Risk
alastair.wilson@moodys.com

Sovereigns – Brexit and Asia Pacific

Limited Direct Credit Impact; Some Sovereigns Exposed to Market Volatility

This is one of a series of reports on the impact of Brexit on sovereigns in different regions. Please visit [our Brexit topic page](#) to access related reports.

We do not expect the UK's (Aa1 negative) vote to leave the European Union (EU, Aaa stable) to have a significant credit impact on Asia Pacific sovereigns. In particular, although lower GDP growth in the UK will dampen demand for products from the rest of the world, Asia Pacific's direct trade linkages with the country are generally limited.

However, in the months to follow, announcements related to Brexit could trigger market volatility. While not our baseline expectation, a shift in portfolio and/or banking flows that resulted in tighter financing conditions in some Asia Pacific markets would hurt growth, especially in countries where fiscal and monetary policy space is constrained.

- » **Minimal reliance on exports to the UK** [Cambodia \(B2 stable\)](#) is most exposed to UK and EU demand. But we expect Brexit to have a limited direct impact on growth via trade.
- » **Market volatility would affect sovereigns dependent on external financing** Out of those Asia Pacific countries that have large current account deficits, [Mongolia \(B2 negative\)](#) relies in part on private sector financing flows. Mongolia and to a lesser extent [Sri Lanka \(B1 negative\)](#) have significant debt repayments due in 2016. In the event that it led to severe and prolonged market volatility, Brexit could heighten balance of payment pressures for these sovereigns.
- » **Impact on flows into Asia from UK, other European banks is uncertain** As international financial centres, [Hong Kong \(Aa1 negative\)](#) and to a lesser extent [Singapore \(Aaa stable\)](#) would be exposed if financing flows from UK and European banks ebbed. However, there is a possibility that these centres could benefit if UK and European banks aimed to diversify their asset bases.
- » **Limited policy space to offset potentially lower external flows in some countries** In Mongolia and Sri Lanka, elevated government debt would constrain fiscal policy room to offset potentially lower growth.

- » **Pronounced flows into safe havens credit negative for Japan** A sustained rise in the yen would lower [Japan's \(A1 stable\)](#) GDP growth and inflation, making it harder to achieve fiscal consolidation and inflation objectives. A stronger US dollar and hence local currency would hit Hong Kong's economy. However, the government's very strong fiscal position would provide some easing room.

Overview

Uncertainty about the domestic and global implications of the UK's exit from the EU will prevail for some time. For Asia Pacific sovereigns, the credit impact of Brexit could materialise in part through direct trade linkages. Weaker demand from the UK, and to a lesser extent the EU, will dampen exports and GDP growth across the world, including in Asia Pacific. The extent of reliance of economies in the region on exports to the UK and the rest of the EU provides a measure of the degree of exposure (see Exhibit 1).

Exhibit 1

	Trade exposure		Vulnerability indicators				Policy space	
	Exports to UK	Exports to EU	Current account balance	External Vulnerability Indicator*	Gross borrowing requirement	Govt. foreign currency debt/ total govt. debt	CPI inflation	General government debt
	% of GDP (2015)	% of GDP (2015)	% of GDP (2016F)	(2016F)	% of GDP (2016F)	% (2016F)	% (2016F)	% of GDP (2016F)
ASIA PACIFIC								
Australia	0.2%	0.6%	-4.0%	-	3.7%	-	1.9%	38.1%
Bangladesh	1.3%	5.5%	0.1%	23.9%	-	44.0%	6.0%	26.9%
Cambodia	5.8%	16.9%	-10.9%	18.1%	3.6%	98.8%	2.0%	34.4%
China	0.5%	2.7%	3.0%	30.6%	5.3%	0.4%	1.8%	40.4%
Fiji	0.8%	1.0%	-6.8%	23.7%	6.8%	33.4%	2.5%	47.0%
Hong Kong	2.3%	11.7%	2.1%	-	-0.2%	-	1.8%	4.5%
India	0.4%	1.7%	-1.3%	71.0%	10.5%	6.4%	5.6%	65.3%
Indonesia	0.2%	1.6%	-2.4%	57.0%	4.5%	41.3%	4.5%	27.3%
Japan	0.3%	1.3%	2.5%	-	41.4%	-	0.1%	249.3%
Korea	0.6%	3.0%	7.1%	42.6%	2.4%	1.1%	2.6%	38.2%
Macao	0.0%	0.1%	17.3%	0.0%	-1.0%	-	3.2%	0.0%
Malaysia	0.8%	6.0%	1.3%	145.8%	10.1%	3.4%	2.5%	55.6%
Mongolia	0.1%	0.6%	-9.6%	295.9%	8.7%	73.5%	1.7%	57.0%
New Zealand	0.7%	1.4%	-3.0%	-	1.5%	-	1.1%	30.0%
Pakistan	0.5%	1.8%	-0.8%	61.7%	31.7%	30.1%	4.2%	65.3%
Papua New Guinea	0.9%	3.7%	11.5%	161.6%	13.6%	26.9%	6.5%	29.9%
Philippines	0.2%	2.3%	1.3%	24.9%	7.4%	34.2%	1.5%	37.0%
Singapore	1.1%	8.7%	14.9%	-	0.0%	-	0.1%	26.8%
Solomon Islands	1.6%	4.5%	-7.3%	9.1%	-0.3%	79.5%	2.5%	11.5%
Sri Lanka	1.1%	2.3%	-2.5%	140.2%	19.2%	41.5%	7.5%	78.2%
Taiwan	0.7%	3.8%	14.1%	35.2%	6.1%	-	1.6%	40.4%
Thailand	1.0%	4.5%	6.5%	44.0%	10.7%	1.8%	1.2%	34.4%
Vietnam	3.1%	12.7%	0.6%	58.1%	5.0%	45.6%	1.0%	49.8%
Minimal vulnerability, considerable flexibility			Moderate vulnerability, moderate flexibility				Elevated vulnerability, diminished flexibility	

The credit implications of Brexit will also channel through potential shifts in capital flows as investors reassess the risk-return trade-off of investments. Dependence on external funding to finance current account deficits or external debt repayments indicates vulnerability to a slowdown in portfolio inflows.

In particular, when a government's borrowing requirements are large, there is a risk that lesser availability of external funding will heighten liquidity pressure. Moreover, marked shifts in capital flows would imply sharp changes in currency values. Sizeable depreciations in emerging market currencies would raise the cost of servicing foreign-currency debt.

Where there is room for monetary and/or fiscal policy easing, the domestic authorities may take actions that would partially offset the negative shocks. Unless currencies depreciate significantly and stoke inflationary pressures, moderate inflation provides space to lower policy interest rates and ease domestic financing conditions. Meanwhile, moderate government debt limits the increase in servicing costs due to tighter financing conditions and creates room to support the economy through fiscal policy stimulus.

In this report, we assess the exposure of Asia Pacific sovereigns to lower exports and tighter external financing conditions and consider the degree to which domestic policy space may offset negative shocks in the more negative scenarios.

Minimal reliance on exports to the UK

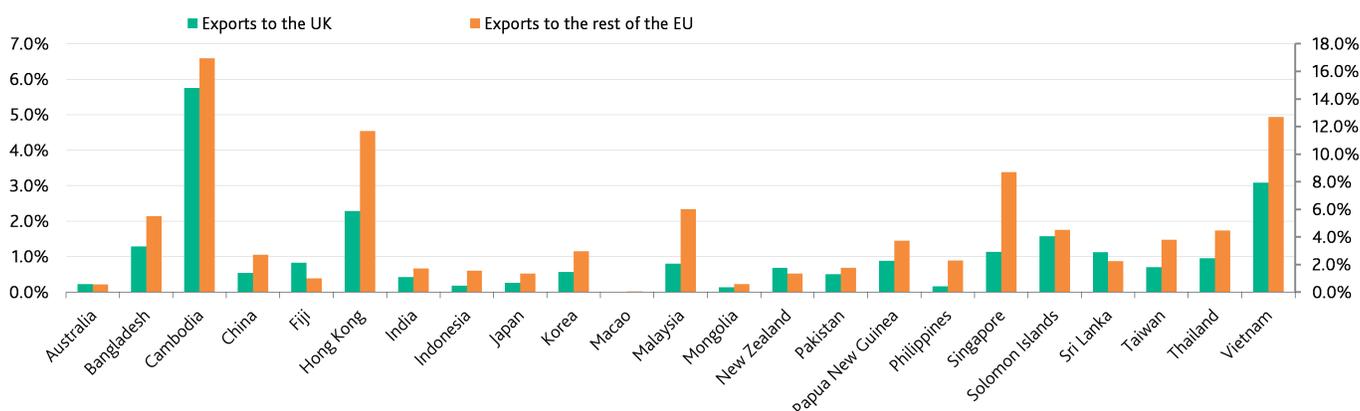
We assume that UK GDP growth will slow to 1.2% in 2017, from 1.6% this year, as uncertainty over future trade relations with the EU results in lower investment and potentially household consumption.¹ In our base case scenario, we do not expect Brexit to have a significant impact on the EU economy as a whole. Also considering the limited exposure of Asia Pacific sovereigns to UK demand, we do not foresee a large impact on trade or GDP growth in the region.

Cambodia is most reliant on exports to the UK, which amounted to 5.8% of its GDP in 2015 (see Exhibit 2). The revisions to our UK GDP growth forecast point to lower UK imports than would have been the case had the UK remained in the EU. This would not substantially dent Cambodia's GDP growth. However, a sharper UK slowdown than we currently expect would pose greater risks to Cambodia's economy.

Exports from **Cambodia, Hong Kong** and **Vietnam (B1 stable)** to the rest of the EU amounted to 16.9%, 11.7% and 12.7% of GDP respectively last year. Only in severe downside scenarios involving a sharp and prolonged negative confidence shock to the EU economy would lower shipments materially affect GDP growth in Asia Pacific.

Exhibit 2

Exports to the UK and the Rest of the EU (Merchandise exports, % of GDP, 2015)



Source: Haver Analytics

Market volatility would affect sovereigns dependent on external financing

Capital flows are another potential transmission channel. In particular, investors' response to elevated uncertainty could be a prolonged retrenchment favouring safe haven markets.

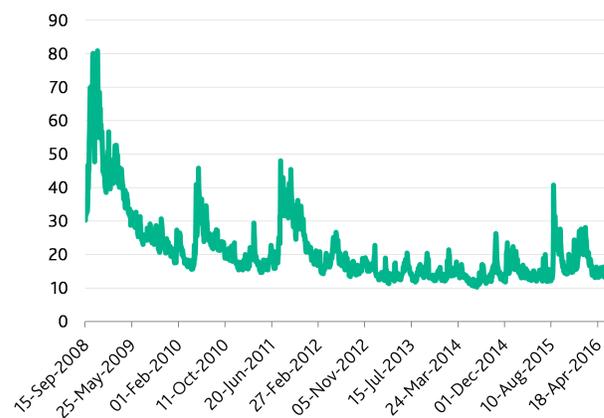
Most market-based measures of global risk aversion have retraced their immediate increases following the announcement of the referendum results on 24 June 2016. For instance, the J. P. Morgan Emerging Market Bond Index (EMBI) fell back to 404.15 basis points on 5 July 2016, fully unwinding the spread widening in the two market days after the UK vote (see Exhibit 3). Emerging market currencies have not depreciated markedly. Similarly, the Chicago Board Options Exchange SPX Volatility Index (VIX) only increased moderately on the day of the referendum results, and has since decreased to levels typical of non-crisis periods (see Exhibit 4).

Exhibit 3
Bond Spreads Don't Signal a Large Shift from Emerging Markets
 (EMBI global spread, basis points)



Source: Bloomberg

Exhibit 4
Stock Market Volatility well below Crisis Levels
 (VIX, standard deviations)

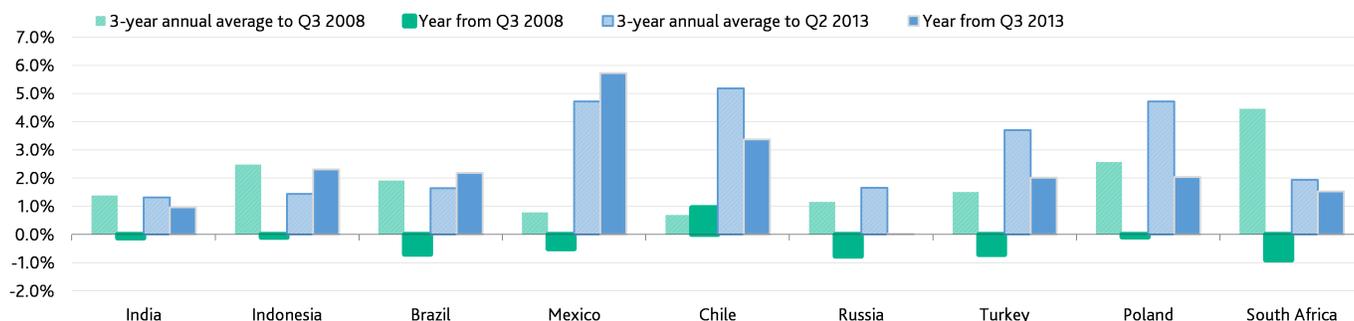


Source: Haver Analytics

Consistent with our baseline assumption of no significant impact of Brexit on the EU as a whole, we do not expect a resurgence of broad-based and prolonged risk aversion, although temporary spikes may occur as negotiations between the UK and the EU evolve.

However, Brexit could be a trigger for idiosyncratic tapering of portfolio flows to specific markets. Economies dependent on external financing to finance current account deficits and/or external debt are most vulnerable. In previous episodes of risk aversion shocks, portfolio flows have not always moved in sync across emerging markets. Portfolio flows decreased across the board in the aftermath of the collapse of Lehman Brothers (see Exhibit 5).

Exhibit 5



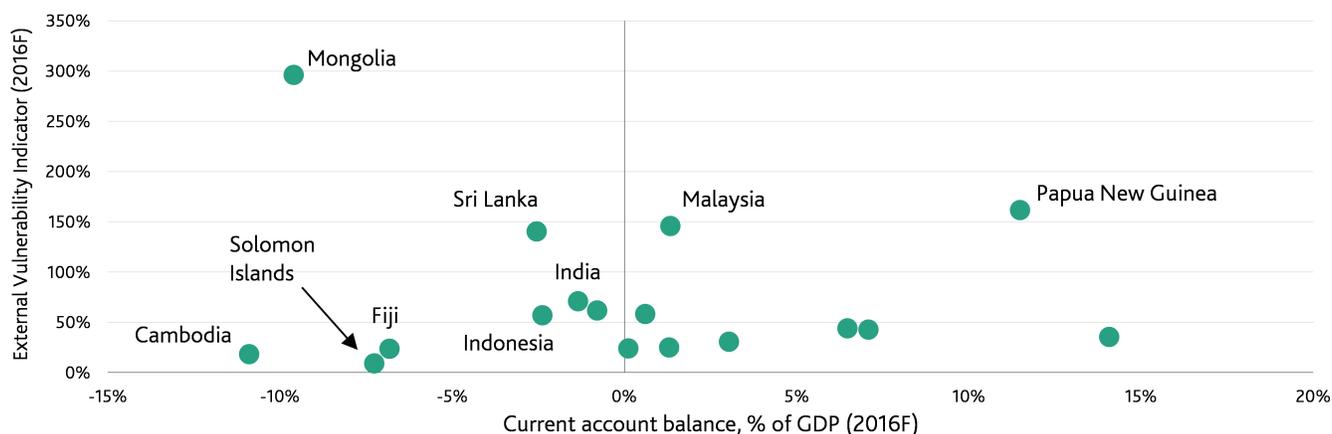
However, notwithstanding a short-lived immediate fall, inflows to a number of emerging markets were resilient during the 'taper tantrum' episode after the US Federal Reserve pointed to the forthcoming tapering of quantitative easing.

In Asia Pacific, Cambodia, [Fiji \(B1 positive\)](#), Mongolia and the [Solomon Islands \(B3 stable\)](#) have sizeable current account deficits of more than 5% of GDP to finance this year.

Mongolia's current account deficit is partly financed by private sector financing flows. This makes it vulnerable to a market-specific slowdown in inflows, which could occur if investors shifted away from riskier assets. The country's foreign exchange reserves, which stood at \$1.4 billion in May 2016, down 9.4% from a year earlier, are also low in relation to external debt repayments due in the short term (see Exhibit 6). Weaker inflows would intensify balance of payment pressures, unless offset by higher official funding, possibly from [China \(Aa3 negative\)](#).

Exhibit 6

Reliance on External Funding Exposes Some Sovereigns to Shifts in Investor Sentiment



Moody's External Vulnerability Indicator measures the ratio of short-term external debt and long-term external debt repayments due over the next year to foreign exchange reserves. A higher score indicates greater vulnerability.

Source: Moody's Investors Service

The other countries are better insulated from any market volatility by their more stable financing sources: **Fiji's** current account deficit is largely funded by foreign direct investment (FDI), while for **Cambodia** and the **Solomon Islands** concessional financing is key.

Sri Lanka is also dependent on portfolio inflows to refinance its external debt, albeit to a lesser extent than Mongolia. Funding from the International Monetary Fund (IMF) under an Extended Fund Facility (EFF) and other international lenders, combined with FDI inflows, will relieve pressure on foreign exchange reserves. However, they will not fully cover Sri Lanka's external financing requirements in the next few years.

Impact on flows into Asia from UK, other European banks is uncertain

UK banks face a potentially weaker operating environment.² Brexit is also credit negative for European banks.³ Although not our baseline assumption, with a more challenging environment in their home markets, UK and European banks could reduce their activities abroad. Lower banking flows pose a limited risk for most Asia Pacific economies: UK and European banks' claims are small, typically amounting to less than 5% of GDP (see Exhibit 7).

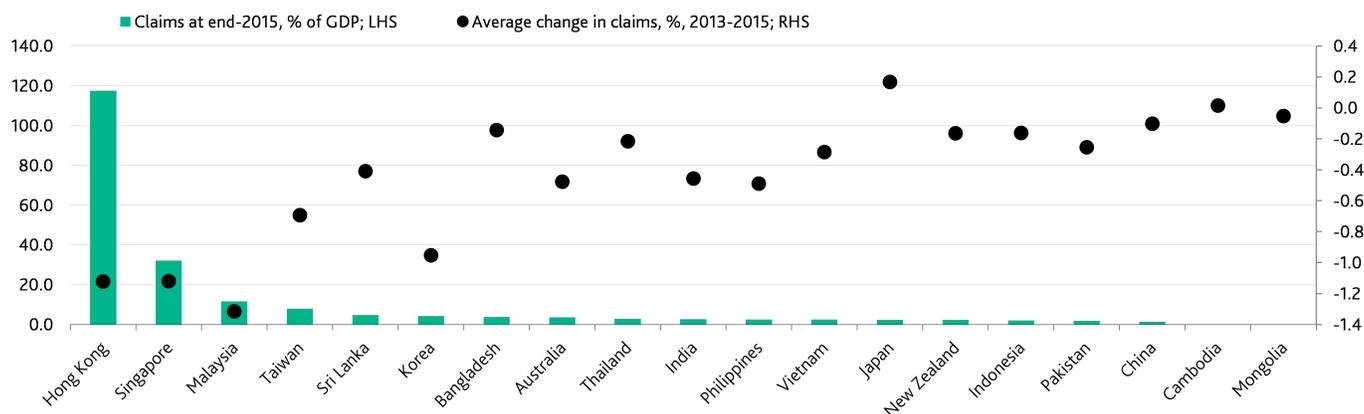
The main exception is **Hong Kong**, where UK banks' claims amounted to 117.5% of GDP at the end of 2015. In **Singapore**, UK banks' claims were worth 32.2% of GDP last year. For both centres, other European banks' claims represent around 15% of GDP.

The bulk of UK banks' claims are accounted for by the activities of HSBC Bank plc (Aa2 negative) and Standard Chartered Bank (Aa3 negative), for which Hong Kong and Singapore are core markets. These two banks largely fund their operations in Hong Kong and Singapore through local customer deposits, and have limited reliance on external funding.

As both Hong Kong and Singapore are important regional financial centres, HSBC and Standard Chartered are unlikely to scale back their operations in either market. Indeed, there is a possibility that UK and other European banks could increase their exposure to Asia Pacific as a way to diversify their asset bases, at a time when the domestic operating environment is uncertain.

Exhibit 7

Hong Kong, Singapore Exposed to Lower Flows from UK Banks



Source: Bank for International Settlements

Weaker financial flows into Asia could weigh on growth in some countries

A prolonged period of lower portfolio or banking flows would imply tighter financing conditions and hurt GDP growth for the affected economies. Where monetary and/or fiscal room is available, policy easing could act as a buffer.

For most sovereigns in Asia Pacific, inflation has moderated on the back of lower commodity prices. Unless currencies depreciated sharply and on a sustained basis, moderate inflation would preserve room for monetary policy easing. In the region, inflation is somewhat higher in [Bangladesh \(Ba3 stable\)](#), [Papua New Guinea \(B2 stable\)](#) and **Sri Lanka**, highlighting possible constraints facing those countries' central banks.

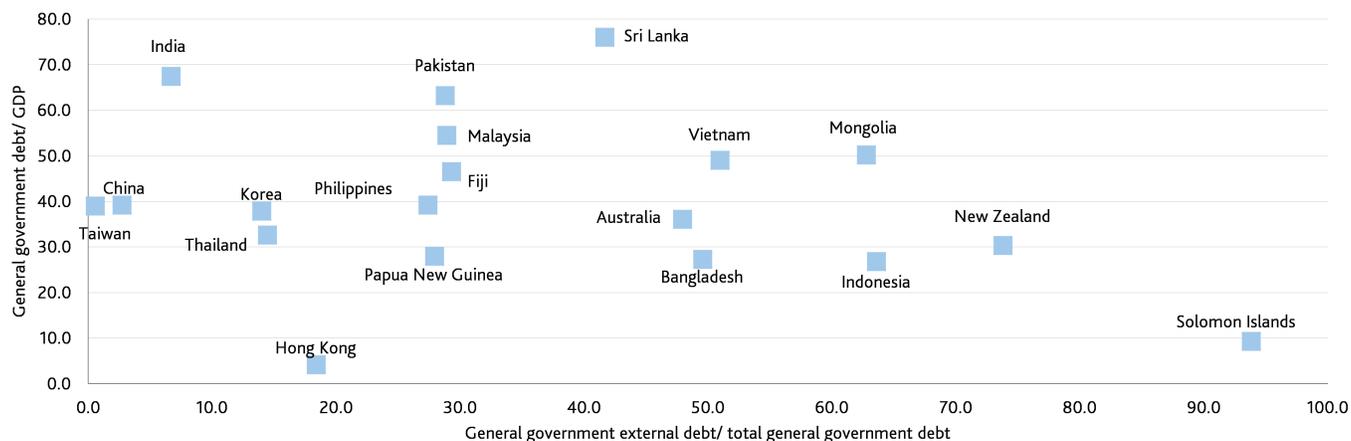
Meanwhile, out of those sovereigns that are vulnerable to a shift in portfolio flows, government debt is elevated in **Sri Lanka** and has risen significantly in **Mongolia** in the last five years (see Exhibit 8). In both cases, fiscal space to buffer negative shocks is limited.

In **Sri Lanka**, government debt increased to 76.0% of GDP in 2015, significantly higher than similarly rated sovereigns. Under the IMF's EFF, the government aims to reduce the budget deficit significantly, in particular through higher revenue collection.⁴ Tighter financing conditions that hamper GDP growth would make the fiscal consolidation goals more challenging. Weakening fiscal metrics, which could lead to renewed balance of payment pressure, were one of the drivers of our change in the outlook on Sri Lanka's B1 rating to negative from stable in June 2016.⁵

In **Mongolia**, the government's debt burden is more moderate. However, at 57.0% of GDP this year according to our forecast, it will stand 32.9 percentage points higher than five years earlier. Limited fiscal space to implement stimulus should the economy slow fed into our decision to maintain a negative outlook on Mongolia's rating in January 2016.⁶

In [India \(Baa3 positive\)](#) and [Pakistan \(B3 stable\)](#), too, room for fiscal policy easing is constrained by a high debt burden, but the two sovereigns' exposure to external financing is limited.

Exhibit 8

High Government Debt, Financed Externally, Is a Vulnerability for Some Sovereigns

Note: Excludes Japan

Source: Moody's Investors Service

Pronounced flows into safe havens are credit negative for Japan

The currency changes implied by a shift in portfolio flows to safe havens could also have negative credit implications for **Japan**, and to a lesser extent **Hong Kong**.

As of 7 July 2016, the Japanese yen had risen 3.9% against the dollar compared to its average level for the five business days prior to the announcement of the UK referendum result. This brings its appreciation since the beginning of the year to 19.4%. A sustained strengthening would lower GDP growth further, making it even harder for the government to meet its fiscal consolidation objective. A stronger yen would also dampen inflation, taking it further away from the central bank's target. The effectiveness of any additional monetary policy easing in countering these capital flows and their implications for inflation is uncertain.

A stronger US dollar – also a safe haven currency – would hit Hong Kong's economy. Given the local currency's peg to the US dollar, Hong Kong would be importing tighter financing conditions at a time when its economy is slowing, house prices are falling and its financial sector faces heightened uncertainty. GDP growth, which weakened to 0.8% year-on-year in January-March 2016, would cool further. However, Hong Kong's very low government debt, which we do not expect to rise from less than 5% of GDP last year, and large fiscal reserves, which the government projects to stand at 35.2% of GDP by March 2017, provide ample buffers.

A marked appreciation in the US dollar would also present difficult choices to policy makers at [China's \(Aa3 negative\)](#) central bank: should they preserve a broadly stable renminbi and stem potential renewed capital outflows, or face the risks of a substantial depreciation. At this stage, we do not expect a resumption of pronounced capital outflows. However, such risks and the policy difficulties that they would pose were among the drivers of our change in the outlook on China's Aa3 rating to negative from stable in March 2016.⁷

Moody's Related Research

Issuer In-Depth

- » [Government of the United Kingdom: Key Drivers of Outlook Change to Negative on Aa1 Rating](#); June 2016
- » [Government of Sri Lanka: Reform Implementation Key to Ensure Lasting Fiscal, External Improvement from IMF Program](#); June 2016
- » [Government of Mongolia: Near-Term External Pressures Weigh on Credit Profile](#); February 2016

Sector In-Depth

- » [Sovereigns – Asia Pacific: High Public, Private Sector Leverage Poses Credit Risks Across the Region](#); April 2016
- » [Sovereigns - Asia Pacific: Falling Remittances from the Gulf Dampen Benefits of Lower Oil Prices](#); April 2016

Outlook

- » [Sovereigns – Asia Pacific: Policy Effectiveness Amid High Leverage and China's Rebalancing To Drive Outlooks](#); April 2016

Contributors

Author

Marie Diron

Senior Vice President - Manager

Contributor

Amelia Tan

Associate Analyst

Research Writer

Natasha Brereton-Fukui

Assistant Vice President - Research Writer

Endnotes

- 1 See [Government of the United Kingdom: Key Drivers of Outlook Change to Negative on Aa1 Rating](#), June 2016, and [UK Vote to Exit EU Is Credit Negative for It, but Manageable for EU](#), June 2016
- 2 See [Moody's changes outlook on 12 UK banks and building societies following UK vote to leave the EU; ratings of 16 UK banks and building societies affirmed](#), June 2016
- 3 See [UK Vote to Leave European Union Is Credit Negative for European Banks](#), June 2016
- 4 See [Issuer In-Depth: Government of Sri Lanka: Reform Implementation Key to Ensure Lasting Fiscal, External Improvement from IMF Program](#), June 2016
- 5 See [Moody's changes outlook on Sri Lanka's rating to negative from stable; affirms government bond rating at B1](#), June 2016
- 6 See [Moody's affirms Mongolia's B2 sovereign rating; negative outlook](#), January 2016
- 7 See [Moody's changes outlook on China's Aa3 government bond rating to negative from stable; affirms Aa3 rating](#), March 2016

© 2016 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND CREDIT RATINGS AND RESEARCH PUBLICATIONS PUBLISHED BY MOODY'S ("MOODY'S PUBLICATIONS") MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJJK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJJK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJJK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJJK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJJK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJJK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJJK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody.com for the most updated credit rating action information and rating history.

REPORT NUMBER 1033285