NOMURA

Global Markets Research

ANCHOR REPORT

In an EM snapback, where do the risks lie?

- We use a scorecard approach to measure balance of payments and domestic credit risk for 20 EM countries. This is used as a building block for our country economists for a deeper, more granular assessment of EM vulnerabilities to external shocks.
- In the final analysis, we group Hong Kong, Malaysia, Mexico, Romania and Turkey as highly vulnerable; Chile, Hungary, Poland, Taiwan and Thailand as least vulnerable, with the others in between.
- EMFX face potential headwinds from rising US interest rates – specifically KRW, IDR, MYR, TRY, MXN and COP – while rising protectionism would be most negative for Northeast Asia FX, SGD, MYR and MXN.
- Our recommended hedges in an EM snapback would be USD/EM topside (USD/KRW, USD/TRY and USD/MXN), and receive 1y1y KRW IRS, pay 1y1y HKD IRS and 6mfwd 3s10s steepeners.

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Research analysts

EM Economics

Rob Subbaraman - NSL
rob.subbaraman@nomura.com
+65 6433 6548

EM Strategy

Craig Chan - NSL
craig.chan@nomura.com
+65 6433 6106

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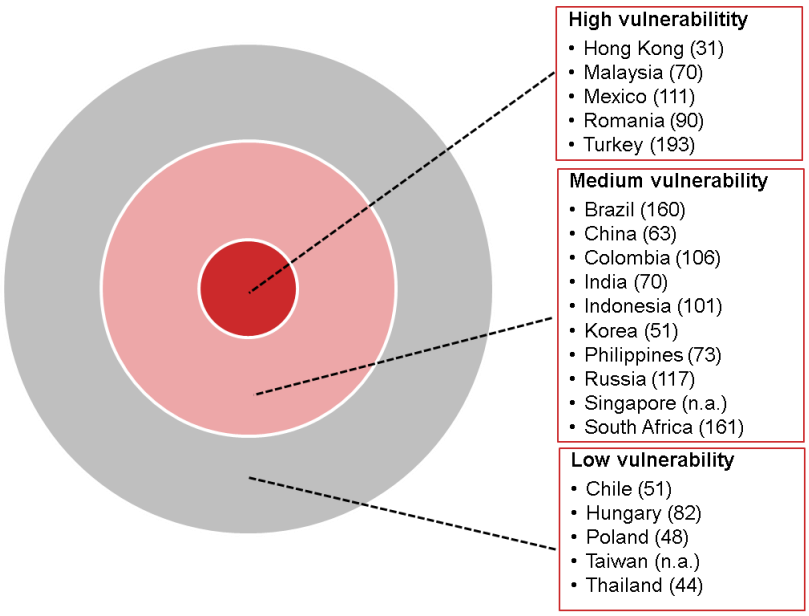
Executive summary

Continued Goldilocks economic conditions and the hunt for yield are valid reasons why EM investors can view the glass as half full, but there are also good reasons for increased caution. Our goal is to identify where the largest vulnerabilities lie in the EM universe. The global economy is sailing into unchartered waters, and we have identified four potential triggers – a US bond market selloff, a global QE unwind, a China growth slowdown and a trade war – that could result in a major market repricing of EM risk premia, sparking a painful EM snapback. February's market wobble may well be a warning shot across the bow. It is notoriously difficult to pinpoint the timing of an EM snapback, let alone the trigger, but if we were to venture our best guess, we would say Q3 2018 is the quarter when risks are highest.

We focus on two distinct stress points: 1) balance of payments risk, the traditional cause of crises in EM; and 2) domestic credit risk, the cause of recent DM crises, but which now also seems relevant to EM. We quantitatively assess BOP and domestic credit risks for 20 EM countries using a simple scorecard approach for a common set of indicators. We find that vulnerabilities in EM are no longer as uniform as in the past. A few EMs have high BOP risks, while others, notably in Asia, are more exposed to domestic credit risks. Our country economist experts then build on the scorecard results for a deeper, more granular assessment of EM vulnerabilities. They take into account idiosyncratic country-specific factors, including political risks, financial buffers and room for policy responses (for full details, see the individual country pages). In the final analysis, after taking many of these factors into account, our EM economists have settled on high-, medium- and low-vulnerability groupings for the 20 EM countries (Figure 1).

The most prominent risks facing EM FX and rates markets stem from a tightening US monetary policy and rising protectionism, exacerbated by the large build-up in foreign portfolio positioning. Extremely tight credit spreads and low volatility in FX and equity markets suggest emerging markets are broadly vulnerable to a rapid re-pricing. Our EM shock analysis of portfolio and resident outflows, including FX hoarding from corporates, reveals differing vulnerabilities across regions, with KRW, IDR, MYR, TRY, MXN and COP more vulnerable to a US-led interest rate shock. An analysis of direct and indirect exposure to US trade protectionism suggests an escalation would be most negative for Northeast Asia FX, SGD, MYR and MXN; while slower China growth would weigh broadly on Asia (Northeast Asia, SGD and MYR) and LatAm FX (CLP and PEN). Against these significant risks to EM, we highlight some hedge trades that can perform (USD/KRW, USD/TRY and USD/MXN topside via options); and in rates, receive 1y1y KRW IRS, pay 1y1y HKD IRS and 6mfwd 3s10s steepeners.

Fig. 1: Nomura EM economics team's view on where the vulnerabilities lie



Note: Values in brackets refer to the 5-year USD sovereign CDS spreads of the country as of 21 March 2018, expressed in basis points. Within each grouping there is no ranking, the countries are simply ordered alphabetically. Source: Nomura.

EM Economics

Rob Subbaraman - NSL
rob.subbaraman@nomura.com
+65 6433 6548

Young Sun Kwon - NIHK
youngsun.kwon@nomura.com
+852 2252 1370

Sonal Varma - NSL
sonal.varma@nomura.com
+65 6433 6527

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Yang Zhao - NIHK
yang.zhao1@nomura.com
+852 2252 1306

Peter Attard Montalto - NIplc
peter.am@nomura.com
+44 20 7102 8440

Inan Demir - NIplc
inan.demir@nomura.com
+44 (0) 20 710 29978

Marcin Kujawski - NIplc
marcin.kujawski@nomura.com
+44 20 710 28302

Benito Berber - NSI
Benito.Berber@nomura.com
+1 212 667 9503

Joao Pedro Ribeiro - NSI
Joao.Ribeiro@nomura.com
+1 212 667 2236

Global EM Strategy

Craig Chan - NSL
craig.chan@nomura.com
+65 6433 6106

Henrik Gullberg - NIplc
henrik.gullberg@nomura.com
+44 (0) 20 710 30163

Mario Castro - NSI
Mario.Castro@nomura.com
+1 212 667 9839

Vivek Rajpal - NSL
vivek.rajpal@nomura.com
+65 6433 6555

Albert Leung - NIHK
albert.leung1@nomura.com
+852 2252 1401

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EM Economics

Rob Subbaraman - NSL
rob.subbaraman@nomura.com
+65 6433 6548

Michael Loo - NSL
michael.loo@nomura.com
+65 6433 6296

In early February, we viewed the global equity market selloff and return of market volatility as a shot across the bow for EM (see *Asia Insights*, 12 February 2018), warning that "EM asset markets look resilient for now but hold onto your seats for later this year". In this Anchor Report, our goal is to identify where the largest vulnerabilities lie in the EM universe in the event of a larger – and broader – global asset market selloff and, based on this analysis, we consider the best EM trading and hedging strategies.

Back in February, we felt it was too early for the market wobbles to morph into a major EM sell-off and that view has proven broadly right, particularly in EM debt markets. We had two main reasons. First, Goldilocks economic conditions prevailed. The synchronous global economic expansion was intact, with new tailwinds from a global fiscal expansion and private capex revival; China has remained a beacon of stability and, for all the fears of accelerating consumer prices, the inflation genie had yet to show any strong signs of escaping the bottle. EM economies are more open than DM economies, and so EM exports tend to disproportionately benefit from solid global growth and higher commodity prices (in Asia's case, semiconductor prices).

Second was that the global hunt for yield in EM had not come to an abrupt end. While 10yr UST yields had spiked, at below 3% they were still historically low. Also, crucially, the bond yield spike was not associated with sharp USD appreciation. Indeed, credit markets – which we judge to be EMs' Achilles' heel – remained remarkably calm. One way to reconcile this is that the impact of global QE – forcing portfolio adjustments across borders as investors took on more risk in their search for yield – was very much alive and well, sustaining the hunt for yield in (relatively) high-yielding EM for a bit longer. On our back-of-the-envelope calculations, the Fed's quantitative tightening (QT) in February totalled USD20bn (USD12bn of USTs and USD6bn of MBS), but this was still dwarfed by the combined QE of the ECB (USD37bn) and BOJ (USD34bn).

Four triggers

To be sure, there are valid reasons for why EM investors see the glass as half full and want to keep partying. Goldilocks economic conditions could continue, as the long-awaited revival of productivity growth arrives and as the IT revolution and other structural forces keep inflation at bay. Chinese policymakers could well continue to deftly micro-manage the economy's macro imbalances, while EM has built-up large defences in the form of FX reserves and extensive macroprudential buffers that could help it ride out any market turmoil. However, there are also good reasons for increased caution (to enjoy the party but to stay close to the door). On the face of it, our forecast for aggregate EM GDP growth to rise from 5.0% in 2017 to 5.2% this year looks sanguine, but the goal of this report is to highlight what we see as large downside risks to this modal forecast. The fundamentals of many EM economies have deteriorated at a time when the world economy and financial markets are sailing into uncharted waters. Besides ever-present geopolitical risks, we have identified four potential triggers that could cause a painful EM snapback:

1. A US bond market selloff. This year, the 10y UST yield has risen sharply on a firming US inflation outlook, a deteriorating US fiscal outlook and the Fed winding down QE. Our forecast is for 10y UST yields to rise to 3.25% by Q3 2018, but it could easily overshoot if inflation surprises or, as the Fed steps back, private demand struggles to match the billowing supply of US bonds. Sharply higher US bond yields – the benchmark for the pricing of all global assets – could be the trigger for a fundamental reappraisal of the investment risk-reward in global credit markets, sparking a major decompression of EM credit risk premia. If sharply higher US bond yields are accompanied by USD appreciation[1] – not our base case, but a clear risk – the repricing of EM assets could be further amplified. But here's what makes it more ominous: the continued huge investor appetite for EM bonds despite worsening credit quality and declining compensation for credit risk. EM high-yield corporate bond issuance surged to a record high in 2017,[2] and

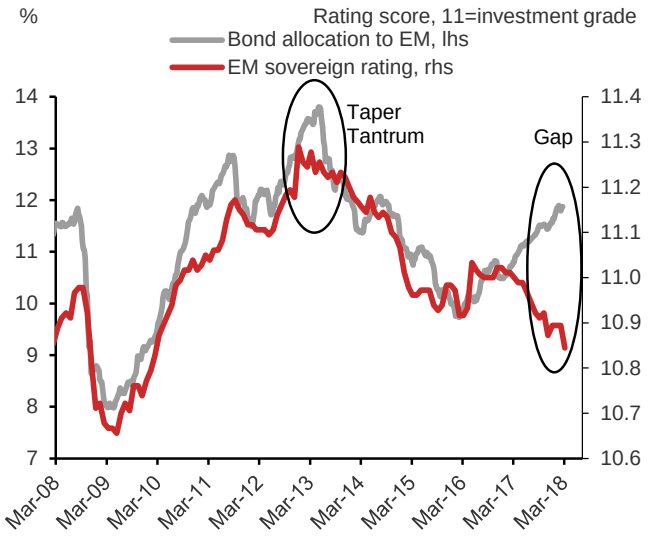
[1] A sudden USD appreciation against EM currencies could set off a vicious circle: EM central banks defend their currencies by selling FX reserves (i.e., US bond holdings) adding to the upward pressure on US bond yields and USD appreciation, which intensifies repricing of EM risk, leading to more EM capital outflows.

[2] The Institute of International Finance estimates that high-yield bond issuance from corporates of 25 EM countries hit a record high of USD140bn in 2017.

yet EM credit spreads remain compressed near multi-decade lows.[3] The Institute of International Finance has spotted a growing disconnect between declining EM sovereign credit ratings and rising investor bond allocations to EM[4] (Figure 2). Of course, there is a logical explanation for this – global QE – to which we turn next.

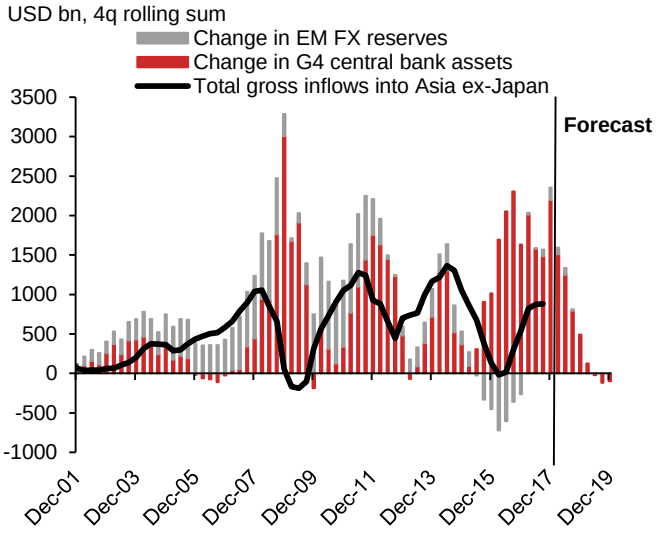
2. The global QE unwind. The simple point is that, just as QE was successful in pushing global investors into riskier, higher-yielding EM assets,[5] the unwind of QE will have the opposite effect, but potentially in a more non-linear fashion because of the large build-up of EM debt, complacency created by the unusually long period of very low interest rates[6] and considering how quickly market liquidity can evaporate. As we showed, currently, on a global scale, the Fed's QT is being more than offset by ongoing QE by the ECB and BOJ (the BOE has stopped QE but has yet to move to QT). But this will change. Based on the Fed's forward guidance (increasing the roll-off of its UST and MBS holdings each quarter), and assuming the ECB ceases its asset purchases in September, the BOJ continues buying JGBs at a *de facto* annualised rate of ~JPY45trn and the BOE continues to hold its balance sheet constant, then we estimate aggregate G4 central bank QE will turn to QT in Q4 2018. This could reverse the global portfolio rebalancing away from riskier, higher-yielding assets – indeed, we have found that the sum of quarterly changes (smoothed) in total assets of G4 central banks (the Fed, ECB, BOE and BOJ) and EM FX reserves correlates closely with gross capital inflows into emerging Asia, and our projections point to weaker inflows (Figure 3).

Fig. 2: EM sovereign ratings and investors' bond allocation



Note: EM sovereign rating refers to the simple average of S&P, Moody's and Fitch's credit ratings for 30 EM countries with AAA/Aaa/AAA given a score of 20 and Ca/CC/DD given a score of 1. Source: IIF, EPFR, Bloomberg and Nomura Global Economics.

Fig. 3: The change in total G4 central bank assets and EM FX reserves versus capital inflows to Asia



Note: G4 central banks assets are total assets of the Fed, ECB, BOE and BOJ. EM FX reserves are for 20 large EM economies and are adjusted for exchange rate valuation and coupon effects. Total gross inflows into Asia ex-Japan are the net increase in liabilities of FDI, portfolio investment, other investments. Forecast is based on the Fed's forward guidance (increasing the roll-off of its UST and MBS holdings each quarter), and assuming the ECB ceases its asset purchases in September, the BOJ continues buying JGBs at a *de facto* annualised rate of ~JPY45trn and the BOE continues to hold its balance sheet constant. We assume EM FX reserves are constant. Source: Macrobond, Bloomberg, CEIC and Nomura Global Economics.

3. A China growth slowdown. In the past year, China's economy has been a bastion of stability, and "China risk" has faded from the radar screen. However, we believe its growth slowdown will soon resume – our GDP growth forecast is 6.3% y-o-y by Q4 2018

[3] The latest IMF Financial Stability report (October 2017, p. 26) estimates that for credit default risk adjusted returns to return to average levels over 2000-04, market term premia would need to rise by ~375bp for EM bonds.

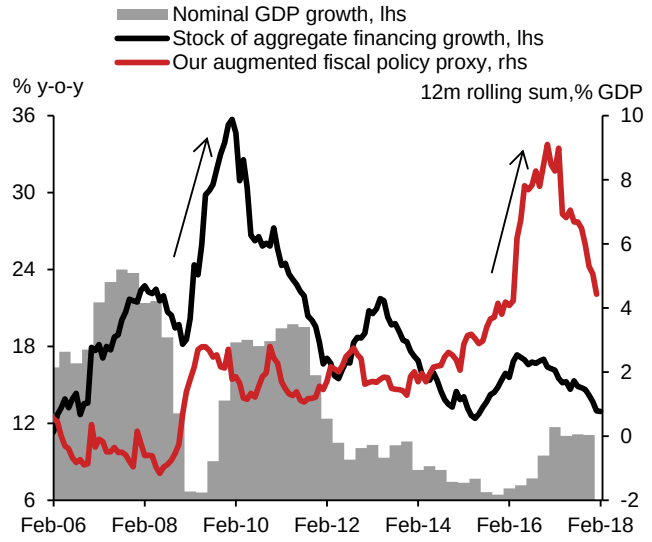
[4] The Institute of International Finance quantifies the average sovereign credit rating given by S&P, Moody's and Fitch for 30 EM countries and estimates the EM bond allocation share of investors using EPFR data on mutual funds and ETFs.

[5] The latest IMF Financial Stability report (October 2017, p.23) puts some numbers on just how successful QE has been in driving the hunt for yield: "In 2007, about 80% of the fixed income index (USD15.8trn) yielded over 4% (the approximate required return for many absolute return investors such as pension funds and insurance companies), but the proportion has now shrunk to less than 5% (USD1.8trn)". Model estimates indicate that about USD260bn in portfolio inflows to EM since 2010 can be attributed to the push of QE by the Fed alone (p. 21).

[6] Since 2008, the QE-induced robust capital inflows to EM have brought into focus EMs' so-called "impossible trinity", which states that only two of the following three can be held at any one time: exchange rate flexibility, free capital flows and an independent monetary policy. By and large, EMs have maintained flexible exchange rates and free capital flows but have therefore kept interest rates likely lower than they would have otherwise been.

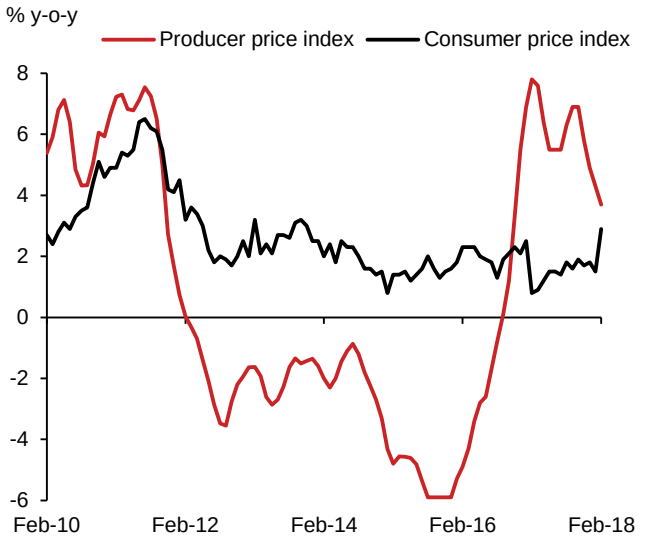
– for three main reasons. First, the unrelenting crackdown on shadow financing, market speculation, corruption and pollution represents an increasing drag on growth. Even though the benchmark 1yr lending rate is unchanged, banks have raised their commercial lending rates, and growth in the broadest measure of credit – aggregate financing – has slowed. Also, this unrelenting top-down regulatory crackdown could overshoot if, after the National People's Congress, local government officials who would normally push their new pet projects to better reach their growth targets instead do the opposite – focus more on austerity to please a leadership that has consolidated power. Second, our augmented measure of the overall fiscal stance – which includes the People's Bank of China loans to policy development banks, our proxy of "back-door fiscal stimulus" – points to less-accommodative fiscal policy (Figure 4). Third, the surge in producer price inflation last year that boosted the profits of struggling upstream state-owned enterprises is fading (Figure 5). EM is more exposed than DM to a China growth slowdown, both directly through exports (Figure 6) and indirectly through declining commodity prices.

Fig. 4: Gauging China's fiscal and monetary policy stances



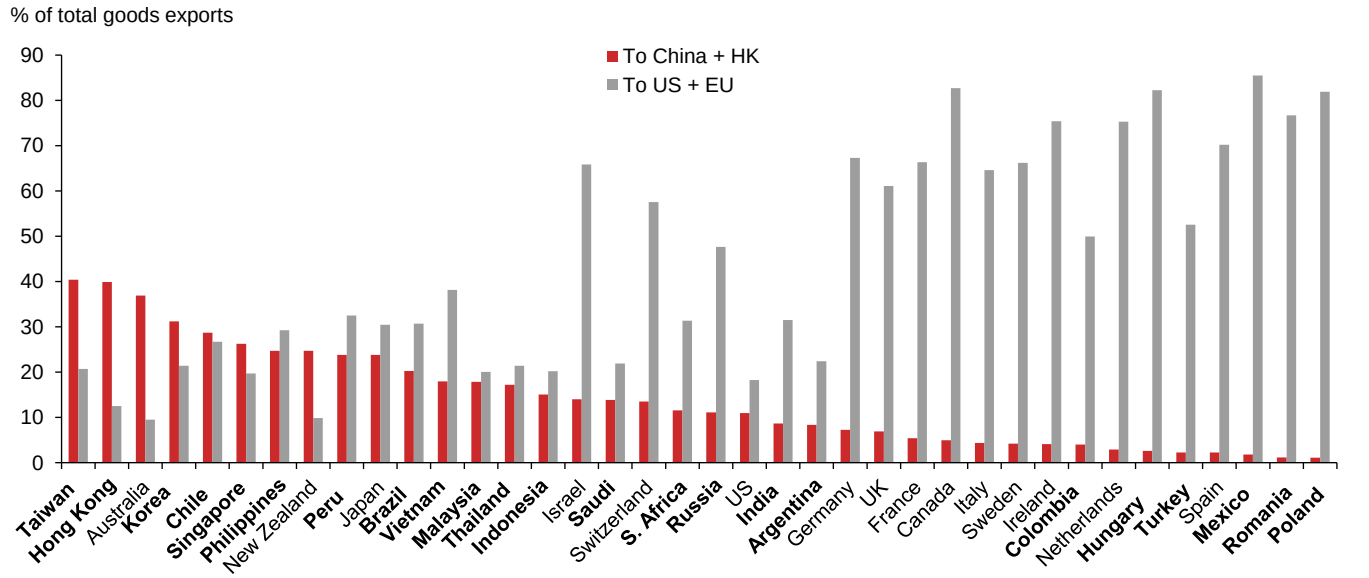
Note: Our fiscal policy proxy is the 12m rolling sum of the change in policy banks' liabilities to the PBoC (data available up to 2009; subsequently we calculate this series by subtracting the change in four state-owned banks' borrowing from the PBoC from the change in total domestic bank borrowing from the PBoC) and the general government's fiscal position, where an increasing deficit is expressed as a larger positive number. The sum is expressed as a share of the 4Q rolling sum of nominal GDP. For TSF prior to 2015, only annual outstanding data are available, so we calculate each month's stock of TSF prior to 2015 by taking the year-end's stock of TSF and adding the year-to-date net increase (flow) in TSF (available monthly since 2002). We added local government bond financing to the final series to allow for the loans for bond-swap program. Source: WIND, CEIC and Nomura Global Economics.

Fig. 5: China's CPI and PPI inflation



Source: CEIC and Nomura Global Economics.

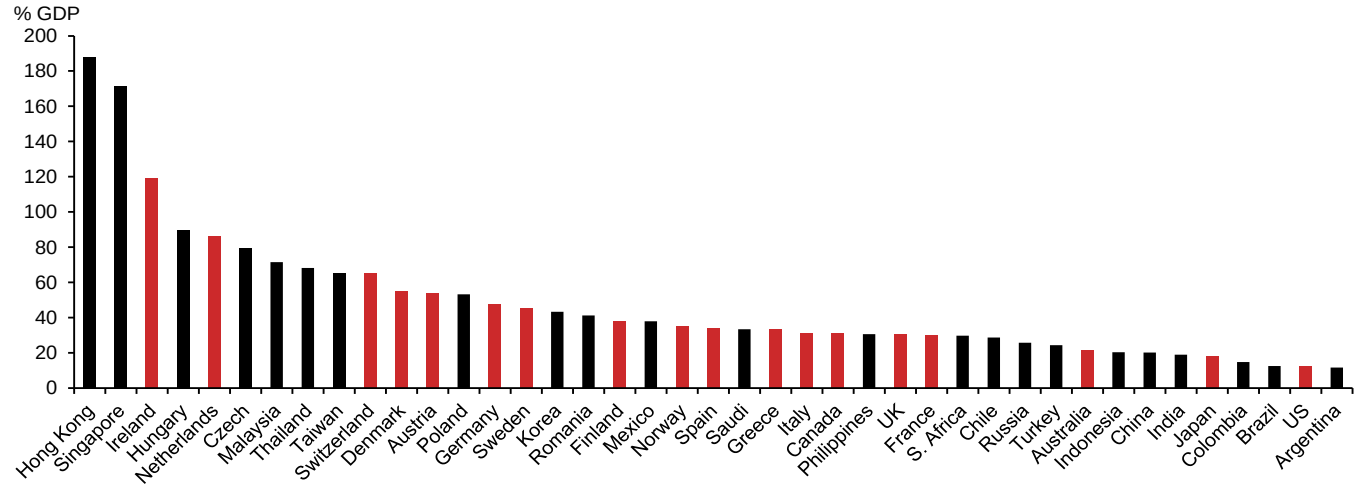
Fig. 6: 2017 share of goods exports to China (and HK) vs combined exports to US and EU



Note: EM countries are denoted in bold. For Hong Kong we use domestic exports and Singapore non-oil domestic exports. Latest export shares are used wherever available (2017 for most countries, 2016 for the following: Sweden, Vietnam, Poland, Romania, Saudi, Brazil, Chile, Colombia and Peru).
Source: IMF, CEIC and Nomura Global Economics.

4. Trade war. This year, the Trump administration has taken a more aggressive stance on trade, and we expect the Section 301 investigation to reveal that China has committed some significant intellectual property right violations. This, plus the US trade deficit with China ballooning in January to a record high of USD380bn, together with the US midterm elections approaching, heightens the risk of growing tit-for-tat trade protectionism between the US and China that, in the worst case, could flare up into a full-blown trade war. After decades of trade liberalisation that has driven the fragmentation of production across countries – a full one-third of the value-added in China's exports is sourced from other countries – growing trade restrictions by the world's two largest economies is bound to hurt exports of other countries, and probably in unexpected ways[7] given sophisticated global value chains (see *Asia Special Report: The impact of US trade protectionism, centring on China*, 23 March 2017). Here again, EM is more exposed than DM, given EM economies are generally more open – of the world's major economies, seven out of 10 of the most open to trade are in EM (Figure 7).

Fig. 7: 2017 exports of goods and services



Note: EM countries in black. Source: CEIC and Nomura Global Economics.

[7] Recall the tragic tsunami in Japan in 2011 that caused much greater than expected havoc to global supply chains. The global auto industry was crippled due to a sudden shortage of automobile microcontrollers, a sophisticated, customised semiconductor for cars that was heavily produced in Northeast Japan.

Timing the snapback

Any one, or a combination, of the four triggers could prompt a major market repricing of EM risk premia, sparking a painful EM snapback. The Nomura house view has been that the USD effective exchange rate will continue to weaken this year but, in the event of a major EM setback, USD could appreciate, particularly against EM. A painful EM setback associated with USD appreciation would likely cause commodity prices to decline and, in this scenario, we assume oil prices drop by 10%, though it could be by more.

It is notoriously difficult to pinpoint the timing of an EM snapback, let alone the trigger, but if we were to venture our best guess, we would say Q3 2018 is the high-risk quarter. We chose Q3 for four reasons. First, it is likely the quarter before G4 aggregate central bank assets start to shrink outright, and we would expect markets to react ahead of time. Second, it will be around the time that President Trump will need to shore up his core support base ahead of midterm elections in November by following through on some of his campaign pledges, notably pushing harder on the trade protectionism button. Third, by Q3, several new members of the FOMC will have settled in, and a continued diminishing of economic slack could start to tilt US monetary policy towards a more hawkish bias. Fourth, and finally, as China growth slows, it could be around Q3 that we see some dead wood in the corporate sector rise to the surface.

Identifying the vulnerabilities

One of our key messages is that the vulnerabilities in EM are no longer as uniform as in the past. We would highlight two distinct stress points:

1. Balance of payments risk – the traditional cause of crises in EM;
2. Domestic credit risk – the cause of recent DM crises, but which now also seems relevant to EM.

Balance of payments risk

A good example of a full-blown balance of payments (BOP) crisis occurred in Asia 20 years ago. A BOP crisis usually follows a period of sustained strong gross capital inflows during which foreign investors focus on return and turn a blind eye to the build-up of economic vulnerabilities – such as a large current account deficit, high inflation and domestic asset price bubbles – until a point is reached where they reassess the risk-return trade-off and suddenly pull out their investments *en masse*. After a large cumulative build-up, the abrupt exodus of money by foreign investors (reduced gross capital inflows) could easily dwarf any repatriation of foreign assets by residents (reduced gross capital outflows)[8] which can prompt sharp currency depreciation, especially if the current account is in a large deficit. This currency depreciation can set off a vicious spiral, as it greatly inflates the local value of foreign currency debt and generates (imported) inflation, driving down the real interest rate and leading to even larger capital outflows. A classic example was Indonesia in 1997-98. The central bank would step in to defend the currency by selling FX reserves, raising interest rates or imposing draconian capital controls, but this is often done at the cost of a deep recession.

Asia in particular seems to have learned valuable lessons from the 1997 crisis (see *Appendix 1: 20 years on from the Asian crisis*). Exchange rate regimes have become much more flexible (Hong Kong the notable exception), most countries have built up large FX reserves, run sizable current account surpluses and have limited external debt. Collectively, countries in Asia have also developed a large safety net through a network of bilateral currency-swap arrangements, as well as a multilateral currency-swap arrangement known as the Chiang Mai Initiative Multilateralization, which totals USD240bn. More recently, the Fed's 2013 announcement of plans to taper its asset purchases sparked the EM risk-off "taper tantrum" and a sudden end to capital flows to the so-called "Fragile Five": Brazil, India, Indonesia, South Africa and Turkey. This was another wake-up call, and some EM countries actively strengthened their BOP positions, notably India and Indonesia, but not all of the Fragile Five learnt their lesson (see *Box 1: The Fragile Five after five years*).

8 For example, according to Institute of International Finance data, gross capital inflows into all of EM plunged by USD606bn in 2008, while gross capital outflows (i.e., resident repatriation) fell by only USD89bn, resulting in net capital outflows of USD517bn.

Box 1: The Fragile Five after five years

EM Economics

Sonal Varma - NSL
sonal.varma@nomura.com
+65 6433 6527

Aurodeep Nandi - NSL
aurodeep.nandi@nomura.com
+91 22 4037 4087

EM Economics

Joao Pedro Ribeiro - NSI
Joao.Ribeiro@nomura.com
+1 212 667 2236

It will be five years this May since former Fed Chairman Ben Bernanke's testimony to congress about gradually reducing the pace of bond purchases triggered the 'taper tantrum', which clumped the economies of Brazil, India, Indonesia, South Africa and Turkey into the infamous "Fragile Five" grouping. As DM monetary policy normalisation gathers pace, a look at the fundamentals of these economies suggests a few common themes: all five economies today have much narrower current account deficits as a share of GDP (they are on an average lower by 2 percentage points) and most have managed to lower inflation and build FX reserves (Figure 8). Yet, beneath these similarities, there is growing heterogeneity. Some have learned a lesson, others have not.

From fragile to fit – India and Indonesia
India and Indonesia stand out at the top of the pack with much improved fundamentals since 2013 due to three commonalities: 1) external buffers are much stronger, with FX reserves at over nine months of import cover in 2017 from less than seven months in 2013; 2) both the Modi and Jokowi administrations are undertaking structural reforms, which have started to lift estimated potential growth rates; and 3) both central banks are much more prudent today, with the Reserve Bank of India now committed to flexible inflation targeting.

Hope floats – South Africa
South Africa today is not very different to 2013 on inflation and marginally worse off on growth and fiscal parameters, although the new government under Cyril Ramaphosa and a market-friendly economic team has generated optimism and hopes of economic reform. While prospects are surely better than under the Zuma administration, we remain structurally bearish as we are still sceptical of any real reforms due to a very split ANC.

A new vulnerability – Brazil
Inflation remains low and FX reserves high. Yet, Brazil is struggling to revive growth amid political turmoil and a very concerning fiscal outlook: the fiscal deficit is likely to deteriorate to 9.2% of GDP in 2017-18 from 2.7% in 2012-13 and, over the same period, public debt has risen to 85.5% of GDP from 61.2%, on IMF estimates. A pension crisis is in the making, and upcoming elections mean the reform agenda is nearing its end.

In dire waters – Turkey
Turkey it seems has learned little from 2013: insipid growth, higher inflation, FX reserves at only 4.2 months of import cover and a still-high current account deficit. The credibility of the central bank (TCMB) and even the judiciary is in question; political risks are higher as a constitutional referendum in April 2017 led to further consolidation of President Erdogan's power; and relationships with Western allies have deteriorated. Risks abound.

Overall, while all five current account deficit economies remain vulnerable to capital flight, India and Indonesia stand out as relatively much fitter and Turkey as even more vulnerable. In EM, economic policy is often subservient to politics.

Fig. 8: The Fragile Five: Then and now

	GDP growth, % y-o-y		CPI inflation, % y-o-y		Fiscal balance, % GDP		Public debt, % GDP		Current Account Balance, % GDP		FX reserves, months of imports	
	2012-13	2017-18	2012-13	2017-18	2012-13	2017-18	2012-13	2017-18	2012-13	2017-18	2013	2017
Brazil	2.5	1.8	5.8	3.2	-2.7	-9.2	61.2	85.5	-3.0	-1.0	17.5	28.6
India	5.8	7.0	9.8	4.0	-7.3	-6.3	68.8	67.9	-3.8	-1.4	6.9	10.3
Indonesia	5.8	5.4	6.4	3.9	-1.9	-2.6	23.9	28.9	-2.9	-1.8	6.0	9.4
South Africa	2.4	1.3	5.7	5.2	-4.3	-4.4	42.6	54.3	-5.5	-2.6	4.9	6.2
Turkey	6.6	4.3	7.7	10.7	-1.7	-2.8	32.0	27.9	-7.2	-5.6	5.2	4.2

Note: Fiscal balance and Public Debt are taken from IMF's World Economic Outlook Database. Other variables are from Global Nomura Economics databases and forecasts. 2012-13 denotes average of data over 2012 and 2013; 2017-18 denotes average of data over 2017 and forecasts for 2018.
Source: CEIC, IMF and Nomura Global Economics estimates.

To quantitatively assess BOP risk for 20 EM countries,[9] we chose six vulnerability indicators, and applied a simple scorecard approach:

- Current account, as a percentage of GDP
- FX reserves, in number of months of imports
- External debt, as a percentage of GDP
- Gross cumulative portfolio and "other" capital inflows over 2010-17 less FX reserves
- Real (CPI-adjusted) 10y government bond yield
- Local 10y government bond yield less 10y US Treasury yield

The last two interest rate indicators were selected to capture the amount of compensation, or premium, for BOP risk. For the first four indicators, the higher the value, the greater the BOP risk, while it is the opposite for the interest rate indicators. To arrive at an overall summary measure for each country, we first convert the values for vulnerability indicators into standardised Z-scores. We then take a weighted average of the six Z-scores for each country (we assign higher weightings to the current account and FX reserves) to arrive at our overall summary statistic (final column in Figure 9).[10] The higher the Z-score, the larger the BOP risk.

Fig. 9: BOP risks scorecard of 20 EM economies

Balance of payments risks							
	Current account balance	FX reserves	External debt	Capital inflows less FX reserves	Real 10-year government bond yield	Local 10y govt bond yield - 10y UST	Z-score
	2017e	End-2017	Q3 2017	Q1 10 - Q3 17	Feb-18	Feb-18	
	% GDP	Months of imports	% GDP	% GDP	%	%	
Hong Kong	4.1	8.9	n.a.	180.0	-0.2	-1.4	**1.1**
Romania	-3.5	6.8	51.2	-0.2	0.2	1.6	**1.0**
Turkey	-5.6	4.2	51.8	34.8	1.6	9.1	**0.9**
Hungary	3.5	3.1	109.7	-23.7	0.5	-0.3	**0.8**
Poland	-0.3	5.8	69.4	0.4	1.4	0.5	**0.8**
Chile	-1.5	7.4	62.1	23.5	2.4	1.7	**0.7**
Mexico	-1.8	4.7	39.8	23.5	2.1	4.8	**0.5**
Malaysia	3.0	5.9	65.3	19.1	1.3	1.2	**0.4**
Philippines	-0.8	9.0	23.4	-4.2	0.1	1.2	**0.4**
S. Africa	-2.5	6.2	47.8	43.4	4.4	5.9	**0.4**
Colombia	-3.3	12.4	40.9	24.2	2.9	3.7	**0.3**
Indonesia	-1.7	9.4	35.1	8.7	3.4	3.8	**0.1**
India	-1.5	10.3	20.9	2.3	2.7	4.9	**-0.1**
Korea	5.1	9.5	27.5	1.1	1.7	-0.1	**-0.3**
China	1.4	20.5	14.2	1.0	2.3	1.0	**-0.7**
Thailand	10.8	9.8	35.9	1.1	1.7	-0.5	**-0.8**
Russia	2.5	18.3	35.2	7.1	4.9	4.3	**-1.0**
Brazil	-0.5	28.6	15.3	14.1	4.7	6.7	**-1.4**
Taiwan	14.7	20.9	31.3	13.1	0.1	-1.9	**-1.5**
Singapore	18.8	10.2	n.a.	104.3	2.4	-0.5	**-1.6**

Note: The Z-score of a country is calculated as a weighted average of the Z-scores for the variables within that scenario (weights – CA 0.4; FX reserves 0.2; external debt, capital inflows, real interest rate, local bond yield 0.1 each). The higher the z-score the more vulnerable the country is. Current account balances are 2017 actuals if available and otherwise Nomura forecasts. FX reserves refer to end-2017 FX reserves divided by the 2017 average monthly imports. External debt in Hong Kong and Singapore is excluded because it is largely trade finance-related. Capital inflows less FX reserves refer to the cumulative gross portfolio and other investment inflows from Q1 2010-Q3 2017 minus the accumulation (or reduction) of FX reserves during the same period. Real 10yr government bond yields are month-end local government bond yields less headline CPI inflation. Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Fig. 10: BOP risk word cloud of 20 EM economies

Note: Asian economies in red, Latin American economies in green and EEMEA economies in blue. Word cloud is generated from comparing the Z-scores of 20 EM economies in the adjacent table. The bigger the font, the higher the Z-score, indicating higher risk. Source: Nomura Global Economics.

[9] Strictly speaking, Hong Kong and Singapore are DMs, but we have included them as they are major trade and financial entrepôts for EMs in Asia, and so highly exposed to EM.

[10] Specifically, we applied the following weightings to the Z-scores: 0.4 for the current account, 0.2 for FX reserves and 0.1 for the other four indicators. These weightings are admittedly subjective, but applying a simple average to the six indicators does not materially change the overall ranking of countries.

This simple scorecard approach highlights that, of the 20 EMs, the most exposed to BOP risk are Hong Kong, Romania, Turkey, Hungary and Poland, and for varying reasons. For example, Hong Kong's exposure is due to its massive cumulative capital inflows since 2010 and low interest rate compensation for BOP risk; in Romania and Turkey, it is because of their large current account deficits and low FX reserves; in Hungary and Poland, it is due to high external debt and relatively low FX reserves. A word cloud of the summary Z-scores, which we have colour-coded by region (Asia is red, EEMEA is blue and LatAm is green), quite vividly shows that BOP risks are highest in EEMEA and, with the exception of Hong Kong, relatively low in the other Asian countries, a major change from back in 1997 (Figure 10). The least-exposed countries to BOP risk are Singapore, Taiwan, Brazil and Russia.

Domestic credit risk

Since the late 1980s, there has been an increase in the frequency of domestic financial crises – 2008 being an extreme example – in line with the boom in shadow banking, more complex financially engineered products and central banks' steadfast commitment to CPI inflation targets, come hail or shine – which means that, as long as inflation was below target they, unwittingly, downplayed oversized financial cycles (i.e., credit and asset price booms) until it was too late.

Historically, BOP crises have been more common in EM, while domestic credit crunches and financial crises have been more of a DM phenomenon, but since 2008 the unusually long period of unusually low interest rates and QE has driven a massive hunt for yield in EM, and played a major role in loosening EMs financial conditions.[11] This has played a major role in fuelling EM credit booms; indeed, in the past decade, the private sector debt build-up has been broader and larger in EM than DM (Figure 11). To underline just how large, consider this abnormal phenomenon in Asia: despite interest rates falling since 2007 in all countries, the cost of servicing private sector debt has risen in all countries (Figure 12).[12] The seeds of this more novel EM vulnerability – domestic credit risk – have been sown in other more subtle ways as well. More zombie companies in EM have managed to stay afloat due to the low cost of refinancing debt. Tighter macroprudential measures have tried to stop this, but the low cost of debt has also fuelled property market speculation. Also, rising property prices can inflate collateral – and hence borrowing capacity – amplifying the debt build-up.

[11] In trying to limit excessive currency appreciation from robust capital inflows, EM monetary policy has, at times, been held hostage (the so-called impossible trinity) and the cost has been too-low policy interest rates. In their search for yield, global asset managers have driven down longer-term interest rates in EMs' relatively less liquid bond markets. Overall, the entire yield curve in many EMs has shifted lower since 2008.

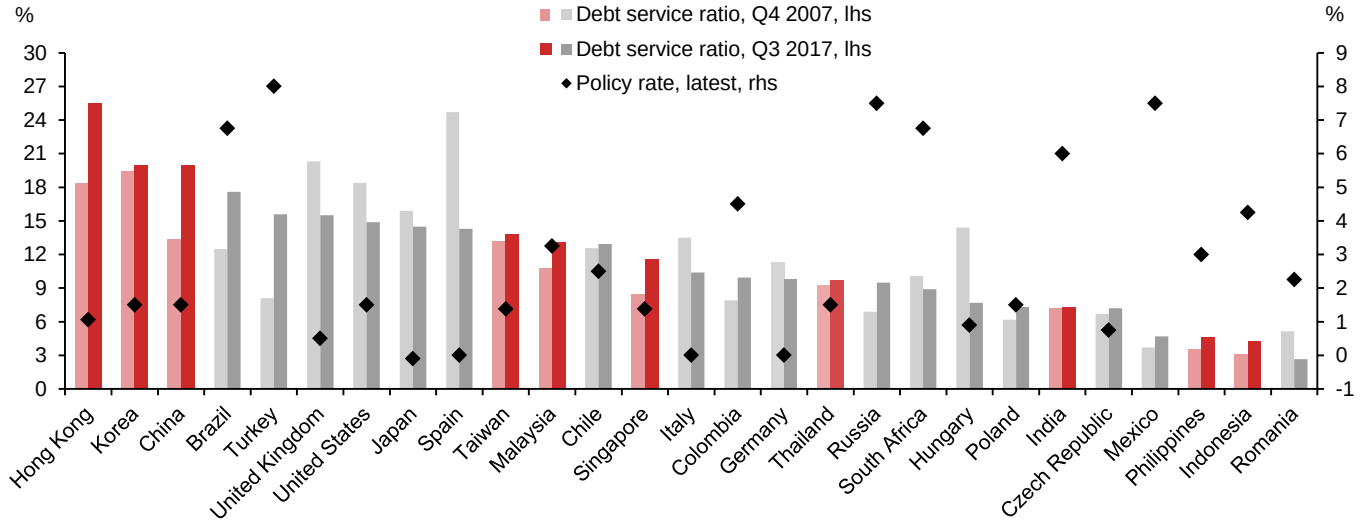
[12] The private debt-service ratio (DSR) is a macro measure estimated by the Bank for International Settlements for the household and non-financial corporate sectors. The DSR is defined as the ratio of interest payments plus amortisations to income. Asia's private DSRs look ominously high compared with other EMs, once consideration is given to Asia's much lower interest rates (the diamonds in Figure 12) than in, for example, Brazil, Turkey, Russia and South Africa.

Fig. 11: Credit to the private and general government sectors, % GDP

10 DM economies	Australia	Canada	France	Germany	Greece	Ireland	Japan	Sweden	UK	US
Credit to private non-financial sector										
Q4 2007	188.5	164.6	150.4	117.0	101.8	225.2	161.4	190.8	187.6	167.7
Q3 2017	196.7	213.3	191.7	107.5	120.1	130.2	160.3	234.5	170.0	151.7
Credit to general government										
Q4 2007	8.4	52.8	65.8	63.9	105.6	24.4	146.2	41.7	44.5	60.7
Q3 2017	39.5	75.9	111.0	70.9	175.4	78.2	212.2	41.1	109.7	99.2
10 EM Asia economies	China	Hong Kong	India	Indonesia	Malaysia	Philippines	Singapore	Korea	Taiwan	Thailand
Credit to private non-financial sector										
Q4 2007	115.6	176.2	52.8	26.3	110.5	28.9	115.3	160.8	144.8	90.8
Q3 2017	210.5	298.0	56.8	39.1	134.1	46.5	172.6	193.8	170.1	115.6
Credit to general government										
Q4 2007	29.3	20.9	73.6	32.8	39.0	16.7	86.3	22.4	36.8	22.6
Q3 2017	46.3	70.8	67.9	29.0	51.9	15.5	112.0	38.9	40.1	32.5
10 EEMEA + LATAM economies	Brazil	Chile	Colombia	Hungary	Mexico	Poland	Romania	Russia	S. Africa	Turkey
Credit to private non-financial sector										
Q4 2007	49.7	94.6	43.2	109.2	28.5	57.0	33.7	49.5	76.6	41.0
Q3 2017	63.0	141.7	64.7	87.3	41.6	83.0	27.3	66.1	72.5	84.7
Credit to general government										
Q4 2007	63.1	4.9	33.8	65.5	20.5	44.7	12.7	8.3	28.5	39.8
Q3 2017	81.5	24.9	49.3	80.3	35.7	53.9	38.9	16.0	55.2	28.3

Source: BIS, IMF, CEIC and Nomura Global Economics.

Fig. 12: Private debt service ratios in Q3 2017 versus Q4 2007



Note: The columns show the BIS estimated private debt-service ratios (DSR) with Asia ex-Japan in red and others grey. Private DSRs are estimated by the BIS for the household and the non-financial corporate sectors. The DSR is defined as the ratio of interest payments plus amortisations to income. As such, the DSR provides a flow-to-flow comparison – the flow of debt-service payments divided by the flow of income. Source: BIS, CEIC and Nomura Global Economics.

During his 1987-2006 tenure, former Fed Chairman Greenspan famously claimed that it was impossible in practice to identify asset bubbles before they burst but, starting in 2002, the Bank for International Settlements (BIS) has pioneered studies on early warning indicators (EWIs) of domestic financial crises with increasing sophistication to the point where it is now possible to recognise, with reasonable confidence, the build-up of vulnerabilities that foreshadow domestic credit and financial distress, even though the precise timing of crises remains unpredictable. We have drawn on the work by the BIS and found that EWI combinations of five gap measures (deviation from trend) work best:

- Private (non-financial corporate and household) credit-to-GDP
- Private (non-financial corporate and household) debt-service ratio
- Real effective exchange rate (REER)
- Real (CPI adjusted) property prices
- Real (CPI adjusted) equity prices

Using a noise-to-signal methodology (see *Appendix 2: Nomura's early warning indicators of financial crises*), when our EWIs breach a predefined threshold, they flash a warning signal that a crisis could occur within the next 12 months.[13] The results drive home the point that, since 2008, EM has become more exposed than DM to domestic credit risk. The latest data for Q3 2017 show 247 out of 1,200 possible signals, or 21%, were flashing red (i.e., above their thresholds) in the 20 EMs compared with just 26 out of 720 possible signals flashing, or just 4, in the 12 major DMs. This is a major change from conditions just before the global financial crisis when, in Q2 2008, the 12 DMs had a whopping 241 (33%) EWI signals flashing red while the 20 EMs had 71 (6%).

Similar to how we quantitatively assessed BOP risk, we again employ a simple scorecard approach for our 20 EMs. We convert each of the above five EWIs into standardised Z-scores and then take a simple average for each country to arrive at our overall summary statistic (Figure 13). The results show that the most exposed to domestic credit and risk are Hong Kong, China, South Korea, Thailand and Taiwan. All five have high ratios of private credit to GDP and, in Hong Kong and China, the build-up has been rapid, as indicated by the large, positive credit gaps. Hong Kong, China and Korea have very high private debt-service ratios, while Hong Kong, China and Thailand have real property prices significantly above the long-run trend. Interestingly, as in our BOP risk assessment, the same two countries – Brazil and Russia – appear among the least exposed to domestic credit risk. A glance at the word cloud of the summary Z-scores shows a lot of big red font, indicating that Asia is the region most exposed to domestic credit risk (Figure 14). Overall, our results are broadly similar to those in the BIS's latest *Quarterly Review* update (March 2018, p.41) of its EWIs.

[13] Equipped with data back to the early 1990s, we have a sample of 50 past financial crises from which we optimise the threshold for each EWI that minimises the noise-to-signal ratio (i.e., minimises the trade-off between having too many false alarms – too low threshold – and missing crises altogether – too high threshold). Our preferred single and combined EWIs can predict at least two-thirds of the 50 crises since 1990 with reasonable accuracy.

Fig. 13: Domestic credit risk scorecard of 20 EM economies

	Domestic credit risks					
	Private credit	Credit gap	Debt service ratio	Property gap	Equity gap	Z-score
	Q3 2017	Q3 2017	Q3 2017	Q3 2017	Q3 2017	
	% GDP	pp deviation	%	% deviation	% deviation	
Hong Kong	298.0	30.8	25.5	17.0	0.8	**1.6**
China	210.5	16.6	20.0	32.0	-2.1	**1.1**
Korea	193.8	-1.2	20.0	3.1	7.4	**0.5**
Thailand	115.6	6.0	9.7	9.5	23.5	**0.4**
Taiwan	170.1	3.1	13.8	-0.6	12.9	**0.4**
Chile	141.7	6.3	12.9	2.8	4.0	**0.2**
Malaysia	134.1	4.0	13.1	9.8	-5.7	**0.1**
Singapore	172.6	11.1	11.5	-8.5	-3.8	**0.1**
Turkey	84.7	5.4	15.6	0.4	0.7	**0.0**
Philippines	46.5	9.0	4.6	11.5	18.1	**0.0**
Poland	83.0	-5.9	7.3	10.8	13.1	**-0.1**
Hungary	87.3	-32.5	7.7	15.0	32.8	**-0.1**
Indonesia	39.1	-0.7	4.2	12.0	5.4	**-0.3**
Romania	27.3	-11.3	2.7	25.7	4.6	**-0.4**
Colombia	64.7	5.4	10.0	12.9	-29.3	**-0.5**
India	56.8	-7.8	7.3	3.0	-0.8	**-0.5**
Mexico	41.6	5.7	4.7	2.3	-7.5	**-0.5**
S. Africa	72.5	-2.3	8.9	-10.7	-4.0	**-0.6**
Brazil	63.0	-5.6	17.6	-23.8	-8.2	**-0.6**
Russia	66.1	-4.0	9.5	-26.8	-13.5	**-0.9**

Note: The z-score of a country is calculated as a simple average of the Z-scores for the variables within that scenario. The higher the z-score the more vulnerable the country is. Private credit refers to total loans and debt securities outstanding of private non-financial corporations and households. Credit, property and equity gaps are deviations of actual data from a long-run average calculated using an HP filter (lambda 400,000). A positive gap indicates that actual data is above-trend, and vice versa for a negative gap. Debt service ratios indicate the debt service burden (interest payments and amortisations to income) for a country's private non-financial sector. Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Fig. 14: Domestic credit risk word cloud of 20 EM economies

Note: Asian economies in red, Latin American economies in green and EEMEA economies in blue. Word cloud is generated from comparing the Z-scores of 20 EM economies in the adjacent table. The bigger the font, the higher the Z-score, indicating higher risk. Source: Nomura Global Economics.

Of course, EWIs should be interpreted with caution. They are based on historical relationships and are not tailored to the uniqueness of individual economies, nor do they take into account the scope for policy responses. But EWIs do let the data speak.

Some argue that "this time is different" in the sense that, even for those EM countries with signs of vulnerability, provided local policy interest rates stay low, crises will be averted. Granted, financial crises are often precipitated by policy rate hikes, but in many ways the world economy is sailing into unchartered waters and a sudden market reassessment of the risk-return trade-off in EM credit could be sparked by any of the four triggers we identified. Whatever the trigger, global investors could start to reduce their EM portfolio allocations, setting in motion a market-driven vicious spiral that could go something like this: Wider credit spreads and FX debt mismatch force some corporate defaults. This, in turn, leads to credit rating downgrades, equity and property market corrections and local banks to tighten lending standards which, together with an evaporation of market liquidity, causes a further widening of credit spreads and a repeat of the loop.[14]

A clear example of the tightening of market credit conditions despite unchanged policy rates was the 2008 global financial crisis. If the US financial crisis is benchmarked as having begun with the collapse of Bear Sterns in March 2008, then this started 21 months after the Fed's final rate hike in June 2006 (fed funds hiked from 5.00% to

[14] There could be other amplifying effects as well. Will algorithmic trading and passive investment strategies lead to more herding behaviour in EM markets in a large risk-off phase? Might global asset managers be pro-cyclical, responding to their ultimate retail investor redemptions not by drawing on cash holdings but by increasing them?

5.25%). A good, more recent example is China. China's traditional benchmark 1y bank lending rate was unchanged throughout 2017, yet last year amid financial deleveraging many Chinese banks opted to raise their lending rates above the benchmark, lifting the average commercial bank lending rate by 50bp while the AAA corporate bond yield surged by nearly 150bp. Empirically, we do find that movements in the private debt-service ratio are usually better explained by changes in the commercial bank lending rate than the policy rate (see *Box 2: Estimating the sensitivity of the debt-service ratio to interest rates*).

Box 2: Estimating the sensitivity of the debt-service ratio to interest rates

We ran OLS regressions of each country's private debt-service ratio against a constant, the ratio of private credit-to-GDP and an interest rate variable. The data are quarterly over Q1 2000 to Q3 2017 and all variables are expressed as quarterly changes. For the interest rate variable, we tried two measures, the policy interest rate and the commercial bank lending rate. The results show that the R-bar squared is generally higher for the commercial lending rate than the policy interest rate, and the coefficient of the commercial lending rate is mostly statistically significant at the 1% level (highlighted in bold).

Fig. 15: OLS regression results: Private sector debt-service ratio vs private sector credit and policy rate/lending rate

	CN	HK	IN	ID	MY	PH	SG	KR	TW	TH	BR	CL	CO	HU	MX	PO	RO	RU	ZA	TR
Adjusted R^2 (Policy rate regression)	0.92	0.87	0.76	0.73	0.80	0.51	0.40	0.58	0.33	0.85	0.73	0.41	0.52	0.85	0.56	0.78	0.59	0.71	0.77	0.49
Adjusted R^2 (Lending rate regression)	0.94	0.87	0.76	0.76	0.85	0.69	0.43	0.59	0.99	0.87	0.89	0.96	0.98	0.86	0.59	0.82	0.81	0.74	0.77	0.50
Coefficient of lending rate	**0.9**	**0.4**	0.1	0.1	**0.5**	**0.3**	0.6	0.2	**0.9**	**0.3**	**0.4**	**1.0**	**0.4**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**

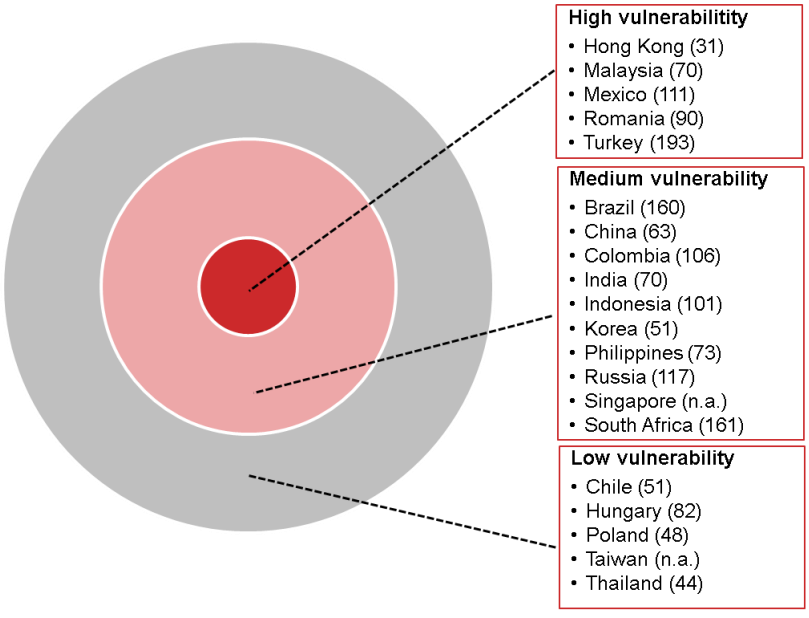
Note: Private non-financial sector debt service ratio data are from the BIS; for countries where DSR data are not available, we estimated them following the BIS methodology (see *BIS database for debt service ratios for the private non-financial sector*). Commercial bank lending rates are mostly from the IMF's IFS. The policy rate for China refers to the 1-year deposit rate, for Hong Kong and Singapore the 3-month HIBOR and 3-month SIBOR rate respectively.
Source: BIS, IMF, CEIC and Nomura Global Economics.

A building block

Our BOP and domestic credit risk scorecards should be viewed as a useful starting point for a more granular assessment of EM country vulnerabilities. Our scorecards use a standard set of indicators across countries to help assess relative vulnerabilities, and we are under no illusion that, in reality, the world is more complicated. We have not taken into account idiosyncratic country-specific factors, notably political and geopolitical risks; we have not drilled down to assess the distribution of debt between households and corporates, nor its concentration among low-income households or unprofitable companies; and we also have not fully considered financial vulnerability buffers and room for policy responses – since 2008, EM has built-up more macroprudential buffers than DM, and generally has more fiscal space and room to cut interest rates.[15]

Therefore, our country economist experts build on the scorecard results for a deeper, more granular assessment of EM vulnerabilities (see the individual country pages). In the final analysis, after taking many of these factors into account, our EM economists have settled on the following high-, medium- and low-vulnerability groupings for the 20 EM countries which, in some cases, are quite different to the simple scorecard rankings (Figure 16). Hong Kong has built up large buffers, especially its banking sector, but the BOP and domestic credit risks are so high that we still view it as a high vulnerability. The other four countries in the high vulnerability group were chosen because, on top of the score card results, our country experts see other vulnerabilities: Malaysia (trade protectionism), Mexico (politics and trade protectionism), Romania (high share of FX-denominated debt; a current account deficit financing exuberant private consumption) and Turkey (domestic politics and geopolitics). On the other hand, despite high credit risk, we put China in the medium vulnerability camp, given its healthy BOP position and considerable state control. In the medium group, Colombia is our greatest concern, as a sovereign credit rating cut to below investment grade could spark a reversal of the large capital inflows in recent years. The economic fundamentals in Brazil and Russia have improved, but the political/geopolitical situations leave us cautious. Poland and Hungary have high external debt but, given a large share reflects FDI-related inter-company lending and government borrowing in local currency, we are less concerned.

Fig. 16: Final analysis: Nomura EM economics team's view on where the vulnerabilities lie



Note: Values in brackets refer to the 5-year USD sovereign CDS spreads of the country as of 21 March 2018, expressed in basis points. Within each grouping there is no ranking, the countries are simply ordered alphabetically.
Source: Nomura Global Economics.

[15] Macroprudential measures can include caps on loan-to-value ratios, debt-to-income ratios, countercyclical capital requirements on banks and stamp duties on property sales. For a comparison between EM and DM, see "What are the effects of macroprudential policies on macroeconomic performance", *BIS Quarterly Review*, September 2017.

EM strategy around growing vulnerabilities

The build-up in foreign portfolio positioning, extremely tight credit spreads and low volatility in FX and equity markets highlights the risks to EM as some signs of a souring in the 'sweet spot' emerge. As we highlighted in our *EM Strategy: Top trades into 2018* (1 December 2017) and *Asia Economic Outlook - Stretching the sweet spot; beware of snapback risk* (6 December 2017) reports, US rate hikes and protectionism could intensify through Q2 2018 and beyond. In particular, a faster pace of US rate hike pricing is emerging in fed funds futures (in part from the significant fiscal stimulus), while US trade protectionism has also materialised and could intensify. Overall, US rate hikes and a faster pace of global policy normalisation present significant risks to EM given high levels of foreign portfolio positioning and the build-up of local debt, while trade protectionism could negatively impact growth and raise inflation. Were this not enough, Nomura Economics still forecasts China growth to slow.

We believe the most vulnerable FX markets to an interest rate shock, leading to foreign portfolio outflows and corporate USD hoarding are **KRW**, **IDR**, **MYR**, **TRY**, **MXN** and **COP**. An intensification of trade protectionism would negatively impact **Northeast Asia** currencies, **SGD**, **MYR** and **MXN** the most, while slower China growth will weigh broadly on **Asia FX** (primarily **Northeast Asia**, **SGD**, **MYR**) and **LatAm FX** (**CLP**, **PEN**) through lower commodity prices. Taking these risks into consideration and placing a larger weight on risks around higher US rates and protectionism, there are a number of hedges in a scenario in which these risks intensify.

In Asia, KRW is likely to underperform in both a higher US rates and trade protectionism scenario, and a hedge would be to initiate a long 6M USD/KRW call spread (Figure 17). On rates, we believe a receive 1y1y KRW IRS would work in a scenario of trade protectionism, while an interest rate shock would see pay 1y1y HKD IRS and a 6mfwd3s10s THB steepener perform. In LatAm, MXN would underperform in these risk scenarios and a 3M USD/MXN call spread would benefit. In EMEA, deteriorating risk sentiment (especially led by US rates) would lead to TRY underperformance and support a long 6M USD/TRY call spread.

Global EM Strategy

Craig Chan - NSL
craig.chan@nomura.com
+65 6433 6106

Vivek Rajpal - NSL
vivek.rajpal@nomura.com
+65 6433 6555

Mario Castro - NSI
Mario.Castro@nomura.com
+1 212 667 9839

Henrik Gullberg - NIplc
henrik.gullberg@nomura.com
+44 (0) 20 710 30163

Albert Leung - NIHK
albert.leung1@nomura.com
+852 2252 1401

Dushyant Padmanabhan - NSL
dushyant.padmanabhan@nomura.com
+65 6433 6526

Wee Choon Teo - NSL
weechoon.teo@nomura.com
+65 6433 6107

Prashant Pande - NSL
prashant.pande@nomura.com
+65 6433 6547

David Wagner - NSI
david.wagner@nomura.com
+1 212 667 2396

Farhaad Mallu - NIplc
farhaad.mallu@nomura.com
+44 20 710 20341

Fig. 17: EM FX and rates hedge trades

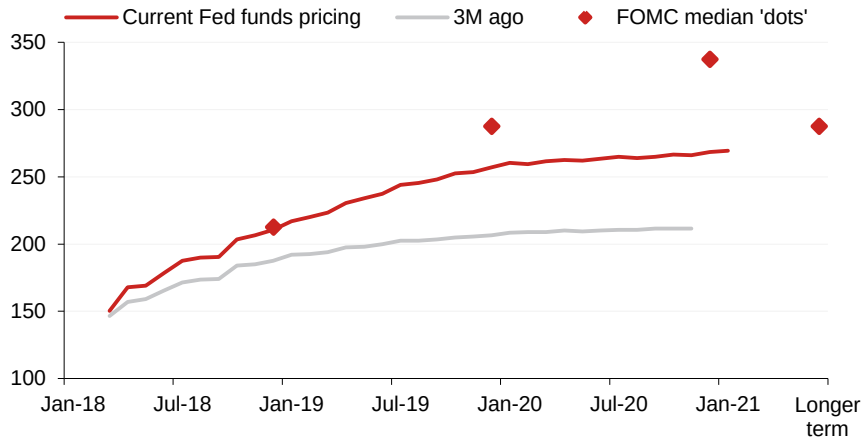
	Trade	Current price	Rationale
Asia	Long 6M USD/KRW 1110/1150 call spread	62bp (spot ref 1076.7)	- Performs in both higher US rate and trade protectionism risk events - Dependence on electronics/semi-conductor exports and on China - Large local portfolio outflows (primarily KPNS) to add to pressure on KRW
	Receive 1y1y KRW IRS	2.22%	- Expect to perform in the scenario of trade protectionism
	Pay 1y1y HKD IRS	2.58%	- In the scenario of an interest rate shock along with risks of capital outflows, we expect HKD rates to move higher. Thailand curve should steepen in this scenario given the vulnerability of back-end to global rates amid stable domestic monetary policy.
	6mfwd 3s10s THB steepener	68bp	
EMEA	Long 6M USD/TRY 4.50/5.0 call spread	106bp (spot ref 3.9223)	- Hedges against potential deterioration in risk sentiment - Substantial political risks, including Turkey fighting US-backed Kurdish forces close to Russia-backed pro- Assad forces in Syria; fine/sanction risks from Halkbank case - Elevated inflation, no output gap, tough to see real rates rise enough to offset C/A deficit
LatAM	Long 3m USD/MXN 19.6/21.0 call spread	75bp (spot ref 18.47)	- Performs in both higher US rate and trade protectionism risk events - MXN used as EM proxy + heavy foreign bond ownership - NAFTA risks + sensitivity to ongoing presidential elections with strong performance of leftist candidate (AMLO)

Source: Nomura, Bloomberg.

US rate hike risks present a significant challenge to EM FX given foreign portfolio positioning…

Although the market has over the last three months been repricing towards a higher fed funds rate – an additional 19bp (to 2.13%, or around a total of three hikes for 2018) for the January 2019 contract and 44bp (to 2.54%, or just under an additional two hikes in 2019) for the January 2020 contract – we believe there are still some upside risks. In particular, Nomura Economics forecasts a further three hikes in 2018 (taking the Fed funds rate to 2.375%), with the risk that the FOMC median dot for 2018 could rise at the June meeting. Indeed, if core PCE inflation rises to the Fed's 2% target in Q2 2018 (Nomura forecast), this could also see some convergence in market expectations with the FOMC's median dots beyond end-2018 (Figure 18).

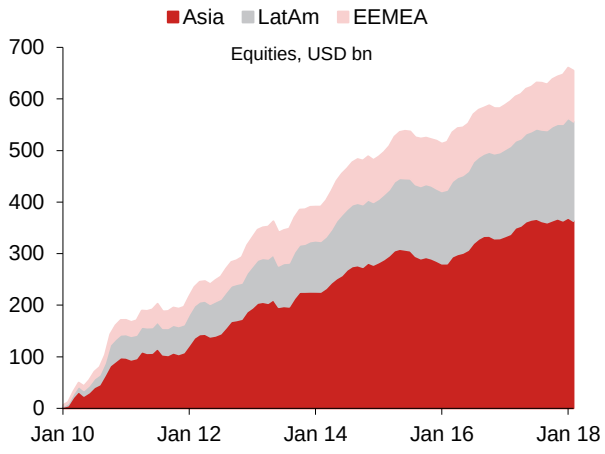
Fig. 18: Fed funds pricing and the FOMC dots



Source: Bloomberg, Nomura.

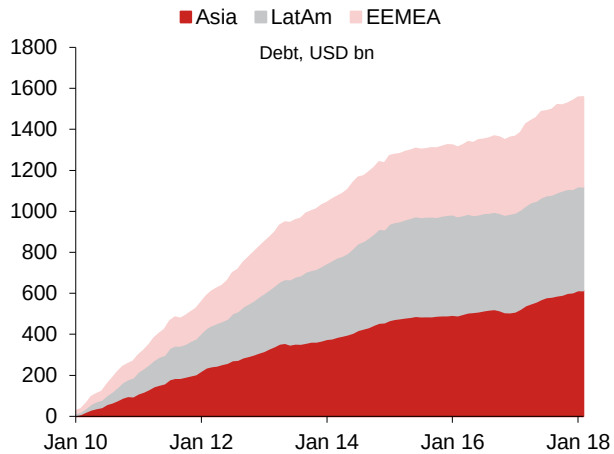
As such, there are still vulnerabilities in EM from the build-up in foreign bond/equity positioning and high levels of local debt. Data from the Institute of International Finance shows that portfolio inflows into EM local markets totalled USD2.2trn[16] (USD1.56trn into debt and USD655bn into equities) from January 2010 to February 2018. Specifically in this period, portfolio inflows into Asia were most significant, totalling USD977bn (USD614bn into debt and USD363bn into equities). Foreign portfolio inflows into LatAm were also strong at USD700bn (USD506bn into debt and USD193bn into equities), while EMEA saw USD536bn of inflows (USD437bn into debt and USD99bn into equities; Figures 19 and 20).

Fig. 19: IIF – EM equity inflows



Source: IIF, Nomura.

Fig. 20: IIF – EM debt inflows



Source: IIF, Nomura.

In Asia, the build-up of foreign portfolio positions stands out in Indonesian bond markets (39.8% of outstanding, or ~USD61.9bn) and Korean equities (33% of market cap in January 2018, or USD618bn) – up from 13.7% of outstanding and 25.8% of market cap, respectively, in December 2008. In LatAm, there has been a broad-based rise in foreign portfolio positioning, with Mexico seeing a significant rise in foreign bond ownership (to 32% of outstanding, or USD110bn) and equity positioning (to 27% of market cap, or USD104bn) – up from 11.7% of outstanding and 25.7% of market cap, respectively, in December 2008. Lastly, in EMEA, foreign ownership of South Africa bonds stands at 41.1% of outstanding, or USD79bn, rising from 21.8% of outstanding or USD27.6bn in December 2010, and foreign ownership of equities is at 25% of market cap, or USD157bn, from around 20.3% or USD49.4bn at the end of 2008.

[16] EM debt and equity flow data from Institute of International Finance.

… which could see some unwind along with corporate hoarding of USD

In our EM shock simulation – where we take a scenario of 25% of the maximum quarterly portfolio and resident outflows seen during the US financial crisis and corporate hoarding of foreign-currency earnings (similar to China's experience in the year after 11 August 2015) – notable vulnerabilities emerge. In Asia, USD hoarding would impact basic balance positions, but Malaysia and Indonesia are also vulnerable to foreign debt outflows, while Korea is vulnerable to both foreign equity and debt outflows (Figure 21). Although these central banks have ample reserves to offset these potential outflows, Asia is generally in a position (if needed) to instigate financing from bilateral swap lines, the Chang Mai initiative and IMF credit facilities.

In EMEA, South Africa and Turkey are vulnerable to foreign debt outflow risk (and resident outflows in South Africa). The simulation implies a potential for substantial outflows at around 36% of reserves for South Africa and 18.3% for Turkey (Figure 21). Given limited FX reserves in both countries, we believe both central banks would have to rely on aggressive rate hikes to attract inflows and/or defend their currencies. That said, we do see scope for South Africa to be more resilient than our shock analysis implies given its shrinking current account deficit, limited external debt, already relatively high real rates, and an orthodox central bank. The political transition that is underway should also mean South Africa will be more resilient than it has been in the past. In Turkey, real rates are low as a result of high and sticky inflation and there is political pressure on the TCMB to reduce rates, while short-term external debt is high, the current account deficit is widening and FX reserves are low.

In LatAm, Mexico, Chile and Colombia appear most vulnerable to our shock analysis on portfolio outflows, resident flows and USD corporate hoarding (Figure 21). That said, Chile's resilience has improved recently following the positive terms of trade shock coupled with healthy FDI inflows after Mr Piñera's election victory and as the economy recovers. However, Colombia is vulnerable given its twin deficits and the meaningful participation of foreign investors in its local market. We believe the main lines of defence in Mexico are its international reserves, a program of swaps settled in MXN, and the emergency credit line with the IMF of ~USD80bn. Chile's main defense is its international reserves.

Fig. 21: Simulation of portfolio flows and FX hoarding

Country	Sim (25% of crisis)			BOP: 4Q average				A: BB +	B: Adj BB +	A %	B %
USD bn	Equity	Debt	Res	CA	FDI	BB	Adj BB	sim	sim	reserves	reserves
Malaysia	-0.9	-6.9	-0.6	2.3	0.5	2.8	-8.2	-5.6	-16.6	-5.8%	-17.3%
Indonesia	-0.1	-4.9	-0.7	-3.3	4.5	1.2	-8.6	-4.5	-14.3	-3.7%	-11.5%
Korea	-5.8	-3.8	-0.2	21.0	-5.1	15.8	-21.4	6.0	-31.2	1.6%	-8.2%
Thailand	-2.1	-0.3	-0.6	11.8	-1.7	10.1	-3.7	7.1	-6.7	3.7%	-3.5%
China	1.5	-0.5	-9.6	30.4	14.0	44.4	-96.4	35.8	-105.0	1.1%	-3.3%
Taiwan	-4.0	-0.7	-3.7	18.5	-1.6	16.9	-5.8	8.5	-14.2	1.9%	-3.1%
India	-2.8	-0.8	-0.01	-8.4	8.6	0.2	-4.0	-3.5	-7.6	-0.9%	-2.0%
Total	-14.2	-17.9	-15.4	72.3	19.0	91.3	-148.1	43.9	-195.6	0.9%	-4.1%
S. Africa	-1.7	-2.6	-3.1	-1.8	-1.5	-3.3	-7.9	-10.6	-15.2	-25.1%	-36.0%
Turkey	-0.4	-2.5	-0.3	-9.9	2.2	-7.6	-11.8	-10.9	-15.1	-13.3%	-18.3%
Hungary	-0.4	-0.8	-0.5	1.3	0.3	1.6	-3.4	0.0	-5.0	-0.1%	-17.3%
Poland	-0.5	-1.6	-0.6	0.2	0.0	0.2	-10.5	-2.5	-13.2	-2.3%	-12.2%
Romania	0.0	-1.2	0.0	-1.4	1.4	-0.1	-2.2	-1.4	-3.5	-3.3%	-8.4%
Czech Rep	-0.1	-1.8	-0.58	0.2	1.2	1.4	-6.2	-1.1	-8.8	-0.8%	-5.9%
Russia	-2.4	-3.7	-1.6	8.2	4.0	12.2	-12.5	4.5	-20.2	1.2%	-5.6%
Israel	-0.2	-0.1	-0.8	2.6	1.1	3.6	1.5	2.5	0.4	2.1%	0.3%
Total	-5.8	-14.3	-7.5	-0.7	8.6	8.0	-53.1	-19.7	-80.8	-2.1%	-8.7%
Chile	0.2	-1.2	-2.2	-1.1	0.0	-1.1	-4.8	-4.3	-8.0	-11.7%	-21.8%
Mexico	-1.1	-3.6	-5.8	-4.0	5.8	1.8	-17.3	-8.8	-27.9	-5.3%	-16.7%
Colombia	-0.1	-0.6	-0.4	-2.8	2.2	-0.6	-1.9	-1.7	-3.0	-3.7%	-6.6%
Peru	0.0	-1.0	-0.1	-1.3	1.6	0.3	-1.7	-0.9	-2.9	-1.4%	-4.6%
Brazil	-3.0	-3.8	-0.30	-3.2	18.6	15.4	0.3	8.3	-6.9	2.2%	-1.9%
Total	-11.6	-28.5	-19.4	-16.4	36.8	20.4	-88.7	-39.0	-148.1	-5.7%	-21.8%

Source: CEIC, Bloomberg, Nomura. Note: Equity and debt flow refers to foreigner outflows; Res. is resident outflows (BOP PI asset-side). Crisis period is largest qtly outflow in 2008. Simulation is 25% of foreigner outflow (during the crisis) as a % of IIP liabilities (equity and debt) and IIP assets for resident outflows applied on latest available IIP data (Q3 2017). Adjusted BB assumes more extreme case of FX-hoarding from exporters and importers, similar to that of China from Q3 2015 to Q2 2016, and based on 49.7% of exports and 69.6% of imports (average).

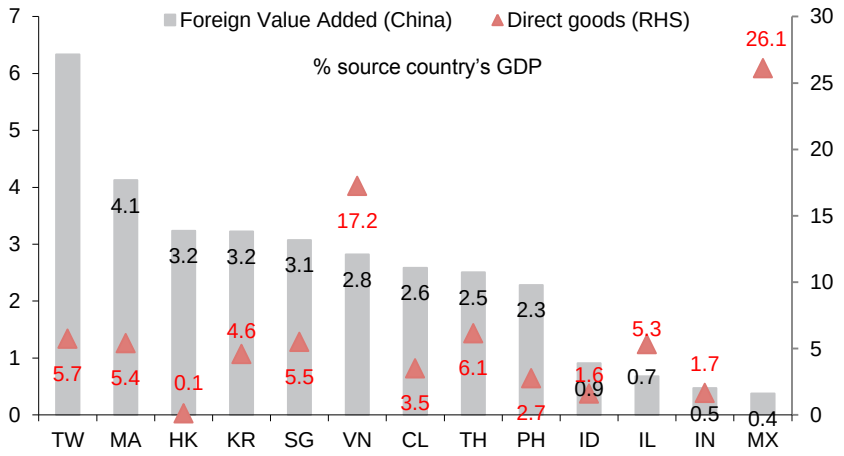
Trade protectionism is a substantial risk

The other substantial risk for EM – especially for Asia and LatAm – is trade protectionism, given direct and indirect trade channels with the US (Figure 22) Indeed, following the January imposition of US tariffs on solar panels and washing machines, and the more recent steel and aluminium tariffs (effective 23 March), risks include further US action in response to the Section 301 investigation of China over intellectual property rights violations (with a potential ~USD50bn of tariffs).

China's response has been somewhat restrained, with Premier Li Keqiang saying China would open up its services and manufacturing sectors to foreign investors and lower tariffs to increase imports (21 March). Additionally, China announced it is planning impose tariffs on 128 US products (import value of USD3bn) in response to the US decision to impose a tariffs on aluminium and steel.

Overall, there is still a material risk that continued US action eventually leads China to take significant retaliatory steps. China's Ministry of Commerce[17] has warned of "strong" measures to protect its own interests, and measures will be based on the potential losses from US trade actions. This has since been followed by the Ministry of Foreign Affairs[18] (21 March) saying that if China is forced into a trade war, it would "not be afraid" and "would not hide." Indeed, there have been press reports[19] that China could be relatively aggressive in its targeting of US products, from agriculture to Boeing aircraft, to even US corporates based in China.

Fig. 22: Direct and indirect exposure to US trade protectionism



Source: CEIC, Bloomberg, OECD TiVA, Nomura.

[17] China Warns of 'Strong' Measures to Counter Trump Trade Tariffs, *Bloomberg*, 9 March 2018.

[18] China 'Not Afraid' to Fight Trade War With U.S., *Bloomberg*, 22 March 2018.

[19] For example, "US forgets tariff policies run both ways", *Global Times*, 24 January 2018.

High-vulnerability countries

Hong Kong: Highly vulnerable

The economy is highly vulnerable to capital outflows or asset quality deterioration but, as in 1998, its banking sector is well positioned to withstand a higher interest rate shock.

Asia Economics

Young Sun Kwon - NIHK
youngsun.kwon@nomura.com
+852 2252 1370

Minoru Nogimori - NIHK
minoru.nogimori@nomura.com
+852 2252 6462

We liken Hong Kong's financial profile to that of a bank – i.e., large liabilities and large assets, with little capital – that is vulnerable to capital outflows (e.g., a bank run) or asset quality deterioration (e.g., a housing bubble bursting or credit events in China). The well-functioning Linked Exchange Rate System (LERS) means that market forces (e.g., weaker HKD) will eventually move HIBOR higher to converge with LIBOR. Since the economy is naturally vulnerable to external shocks, the Hong Kong Monetary Authority (HKMA) has implemented a series of macroprudential measures to enhance banking capital adequacy and maintain adequate liquidity so that the financial system can withstand macroeconomic shocks. According to the HKMA, bank credit losses under stress-test scenarios of a 300bp rise in HIBOR and a 2 percentage point decline in annual GDP would be 1.20% and 2.74%, respectively; this is smaller than the estimated loan loss of 4.39% following the 1997 Asian financial crisis and back then the banks remained resilient. Hong Kong's banks are well capitalised and the city has large FX and fiscal reserves, large macroprudential buffers and very flexible prices to deal with shocks (see *Asia Special Report: Hong Kong: Flush liquidity to ebb*, 14 July 2017).

On the other hand, the property market looks frothy, debt levels are high and the exchange rate is fixed, leaving the real economy vulnerable to credit events amid corporate deleveraging in China or an accelerated Fed hiking cycle. A major depreciation of trading-partner currencies (notably RMB) would push up the real effective HKD to extremely overvalued levels, which would likely stretch domestic asset price valuations for Chinese investors, possibly triggering a major profit-taking sell-off. In the event of significant capital outflows due to sharply higher US interest rates, we believe the HKMA would allow HIBOR to spike to defend the USD/HKD peg, which could trigger a major property market correction given the large deviation of domestic credit and house prices from their trends. Indeed, housing affordability has been stretched further, with a house price-to-income ratio of 19x in 2017 – exceeding the 1997 peak of 14x. In this case, we would expect the government to deploy its massive fiscal reserves to mitigate the negative impact on the local economy.

Fig. 23: Hong Kong: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	6.8	4.8	1.7	3.1	2.8	2.4	2.0	3.8	3.4
CPI inflation, % y-o-y	2.3	5.3	4.1	4.3	4.4	3.0	2.6	1.5	2.3
Room for policy response									
Fiscal balance, % GDP	4.1	3.8	3.1	1.0	3.6	0.6	4.4	5.2	1.2
Public debt, % GDP	0.6	0.6	0.5	0.5	0.1	0.1	0.1	0.1	0.1
Policy interest rate, %	0.28	0.38	0.40	0.38	0.38	0.39	1.02	1.31	2.05
External vulnerabilities									
Current account balance, % GDP	7.0	5.6	1.6	1.5	1.4	3.3	4.0	4.1	
External debt, % GDP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Capital inflows less change in FX reserves, % GDP	64.3	38.8	20.6	53.5	50.2	-25.0	2.6	16.2	
Real 10-year government bond yield, %	0.0	-4.3	-3.1	-2.0	-3.1	-0.8	0.7	0.0	
10y government bond yield - 10y US treasury yield, pp	-0.4	-0.4	-1.2	-0.7	-0.3	-0.7	-0.5	-0.7	
FX reserves, months of imports	7.1	6.8	7.3	6.9	7.0	8.0	8.7	8.9	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	212.8	223.9	226.3	248.9	269.5	269.4	277.5	298.0	
Private non-financial sector debt service ratio, %	18.1	18.9	19.0	21.0	22.8	22.8	23.5	25.5	
Credit gap, pp deviation from trend	-3.6	0.3	-4.6	10.5	23.4	15.7	16.1	30.8	
Property gap, % deviation from trend	-2.8	-3.0	11.7	9.7	13.1	8.1	10.2	17.0	
Equity gap, % deviation from trend	19.5	-11.4	3.0	-0.2	-5.4	-15.6	-17.7	0.8	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics estimates.

Malaysia: Exports the bigger vulnerability

While heavy foreign positioning in government bonds shows that the exposure to capital outflows is high, we see US trade protectionism or a China slowdown as bigger risks.

Asia Economics

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Brian Tan - NSL
brian.tan@nomura.com
+65 6433 6930

Charnon Boonnuch - NSL
charnon.boonnuch@nomura.com
+65 6433 6189

With exports accounting for 71% of GDP, the main sources of vulnerability to Malaysia's highly open economy are US trade protectionism and a sharper slowdown in China. We estimated its ultimate exposure to the US – including via intermediate goods to China for assembly into final products destined for the US – at 10% of GDP, about half of which is in electronics products (see *Asia Special Report - The impact of US trade protectionism, centring on China*, 23 March 2017). Another 8% is exposed to China's final demand.

The level of foreign ownership in Malaysia government securities (MGS) remains relatively high, falling only slightly to 45% of outstanding from a high of 47% in 2016. The overall level of external debt stands at 65% of GDP. That said, much of the remaining foreign currency portion is hedged naturally with export earnings or financial instruments, as indicated by Bank Negara Malaysia (BNM) in its 2016 annual report.

Any decline in oil prices should be manageable. We estimate every USD10 decline in the price of oil would narrow the trade surplus by 0.4% of GDP, mainly via exports of liquefied natural gas (LNG), which make up 4% of total exports. That said, a more broad-based commodity price decline that includes palm oil (8% of total exports) would still pose a significant negative terms-of-trade shock.

In terms of policy responses, we think market concerns over whether BNM imposes more administrative measures on the currency may persist because of its limited FX reserve buffer; Malaysia's import cover is among the lowest in ASEAN at just 6.1 months of imports of goods and services, by our estimates. That said, we believe authorities are more likely to allow MYR to adjust to boost export competitiveness. There is some room for BNM to adjust its monetary policy stance. With still-solid GDP growth of 5.5% likely this year, underpinned by robust domestic demand, we see scope for another 25bp policy rate hike if necessary. Cuts to the statutory reserve requirement ratio (currently at 3.50%) to offset the impact of capital outflows on domestic liquidity are also possible. Fiscal policy is more hamstrung, with public debt to GDP at 51% against a self-imposed ceiling of 55%. We do not expect the government to deviate from its medium-term fiscal consolidation agenda, although it could adjust the pace of consolidation.

Fig. 24: Malaysia: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	7.5	5.3	5.5	4.7	6.0	5.0	4.2	5.9	5.5
CPI inflation, % y-o-y	1.7	3.2	1.7	2.1	3.2	2.1	2.1	3.7	3.0
Room for policy response									
Fiscal balance, % GDP	-5.3	-4.7	-4.3	-3.8	-3.4	-3.2	-3.1	-3.0	-2.8
Public debt, % GDP	49.6	50.0	51.6	53.0	52.7	54.5	52.7	50.8	50.7
Policy interest rate, %	2.75	3.00	3.00	3.00	3.25	3.25	3.00	3.00	3.25
External vulnerabilities									
Current account balance, % GDP	10.1	10.9	5.2	3.5	4.4	3.0	2.4	3.0	
External debt, % GDP	52.9	58.9	62.0	68.4	67.6	72.3	74.5	65.3	
Capital inflows less change in FX reserves, % GDP	5.0	-3.2	6.8	4.3	3.5	5.2	-0.3	-3.3	
Real 10-year government bond yield, %	1.9	0.7	2.2	0.9	1.4	1.5	2.5	0.4	
10y government bond yield - 10y US treasury yield, pp	0.7	1.8	1.7	1.1	1.9	1.9	1.8	1.5	
FX reserves, months of imports	7.0	7.7	7.7	7.1	6.1	5.9	6.2	5.9	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	120.0	121.9	124.2	130.4	132.8	138.7	138.8	134.1	
Private non-financial sector debt service ratio, %	11.1	11.5	11.7	12.3	12.8	13.5	13.5	13.1	
Credit gap, pp deviation from trend	-10.0	-8.0	-5.7	0.5	2.9	8.7	8.8	4.0	
Property gap, % deviation from trend	-10.9	-7.0	1.7	4.6	7.2	7.9	10.2	9.8	
Equity gap, % deviation from trend	12.0	6.8	13.7	19.4	7.2	-1.7	-8.1	-5.7	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Mexico: Open to election and NAFTA risks

Mexico is highly vulnerable given a complicated electoral process, NAFTA renegotiations and the high level of foreign participation in its local market.

LatAm Research

Benito Berber - NSI
Benito.Berber@nomura.com
+1 212 667 9503

Mexico ranks among the countries with a high level of vulnerability to external shocks, in our view. We identify NAFTA renegotiations and a potentially complicated electoral process as the main sources of vulnerability, particularly given sizable foreign investor positions in the local markets. In addition, we believe there is very little fiscal leeway to absorb shocks. Mexico is more vulnerable than our scorecards suggest.

Mexico's current account deficit has been narrowing since mid-2017 but remains at ~2% of GDP, or double the long-term average before 2015 when it became a net importer of oil and gasoline. The capital account has remained somewhat strong, with foreign direct investment (FDI) at ~2% of GDP. However, foreign investor holdings of government bonds and equities amount to USD118bn, or 11% of GDP – thus putting it at risk of capital outflows. FDI inflows may also be at risk due to NAFTA renegotiations and a potential increase in political noise around this year's presidential election.

The probability of a NAFTA break-up remains 40%, in our view. President Trump sees some value in keeping the treaty and exempted Mexico from recently applied steel tariffs. At the same time, the Mexican government seems more flexible on accepting, at least partly, some of the US's protectionist proposals, particularly regarding rules of origin. Together, this suggests that the likelihood of the treaty surviving has improved.

While we believe Andres Manuel Lopez Obrador – the left-leaning MORENA party candidate who leads in the polls by 10% – would be a pragmatist, his economic plan would undoubtedly lean to the left. We also recognize that electoral noise could trigger outflows in the run up to the 1 July election day.

Mexico's public debt-to-GDP ratio increased significantly between 2008 and 2016, but recently started to fall as the government delivered on a primary fiscal surplus in 2017 for the first time in many years and has targeted a surplus for 2018. However, there is little room to cushion additional negative shocks, at least on the fiscal front.

In its favor, the pro-market reforms passed in 2013, including the opening of the energy sector, should continue to be positive. In addition, MXN will likely continue to play a key role as a shock absorber should any of the above-mentioned risks actually materialize.

Fig. 25: Mexico: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	5.1	4.0	4.0	1.4	2.3	2.7	2.3	2.0	2.2
CPI inflation, % y-o-y	4.2	3.4	4.1	3.8	4.0	2.7	2.8	6.8	3.6
Room for policy response									
Fiscal balance, % GDP	-3.9	-3.4	-3.8	-3.7	-4.6	-4.1	-2.9	-1.5	-2.5
Public debt, % GDP	42.2	43.2	43.2	46.4	49.5	53.7	58.4	53.3	52.0
Policy interest rate, %	4.50	4.50	4.50	3.50	3.00	3.25	5.75	7.25	7.00
External vulnerabilities									
Current account balance, % GDP	-0.5	-1.1	-1.3	-2.5	-1.8	-2.5	-2.2	-1.7	
External debt, % GDP	23.1	23.9	28.7	31.1	32.5	35.8	38.5	39.8	
Capital inflows less change in FX reserves, % GDP	3.2	1.9	4.1	2.9	2.9	3.1	2.4	2.4	
Real 10-year government bond yield, %	2.6	2.7	1.8	2.5	1.8	4.1	4.1	0.9	
10y government bond yield - 10y US treasury yield, pp	3.7	4.6	3.6	3.4	3.7	4.0	5.0	5.3	
FX reserves, months of imports	4.6	4.7	5.0	5.3	5.5	5.1	5.2	4.7	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	29.8	31.8	32.1	35.2	36.7	40.0	43.1	41.6	
Private non-financial sector debt service ratio, %	3.4	3.5	3.5	3.7	3.7	4.0	4.5	4.7	
Credit gap, pp deviation from trend	-2.1	-0.6	-0.9	1.6	2.5	5.2	7.6	5.7	
Property gap, % deviation from trend	-1.6	-0.4	-2.5	-3.1	-3.3	-0.1	2.9	2.3	
Equity gap, % deviation from trend	24.0	9.2	17.6	5.8	-2.0	-8.5	-9.7	-7.5	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura.

Romania: Mounting vulnerabilities

Romania looks increasingly vulnerable because of its twin deficits and low real rates.

EEMEA Economics

Marcin Kujawski - NIplc
marcin.kujawski@nomura.com
+44 20 710 28302

Romania is the most exposed to an EM risk-off move in CEE space. Although both public and external debt seem to be at reasonable levels, twin deficits, which have significantly widened in the past few years as a result of ultra-loose fiscal policy, running the risk of being corrected if the global backdrop sours.

In addition, CPI inflation in the country has topped 4%, but it has brought a very modest reaction from the central bank. Although the Banca Nationala a Romaniei has hiked the main policy rate by a total of 50bp to 2.25% since the beginning of the year, the liquidity surplus in the banking sector means the impact on monetary conditions was minor, with the 3-month interbank rate rising by a mere 7bp. Hence, real short-term interest rates remain deeply negative, providing no shield for the country in times of distress.

Despite weak fundamentals the market has been giving Romania the benefit of the doubt, mainly due to its impressive GDP growth, which averaged 6.9% in 2017. However, as *we have highlighted in the past,* we think the market is overlooking the close link between economic growth and loose fiscal policy.

EM risk-off sentiment could cause a negative feedback loop. In 2017 the general government deficit was just shy of 3% of GDP, which is the threshold mandated by the EU. Even a relatively small rise in debt servicing costs should push the budget gap over the 3% handle, which could result in suspension of EU cohesion funds. Hence there is a risk of a vicious circle: a rise in interest rates causes the fiscal deficit to breach the 3% threshold, forcing austerity measures, slower economic growth and worsening public debt dynamics. This could drive a further rise in interest rates and a repeat of the loop.

Separately, the current account deficit primarily reflects exuberant private consumption. As a result, a stop in capital inflows could exert depreciation pressures on the currency, leading to a growing debt burden for both the state (50% of public debt is FX denominated) and the private sector (high share of EUR credit in lending). A stop in capital flows could also be the trigger of the negative feedback fiscal loop.

Fig. 26: Romania: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	-0.8	1.1	0.6	3.5	3.1	3.9	4.8	6.9	3.5
CPI inflation, % y-o-y	6.1	5.8	3.3	4.0	1.1	-0.6	-1.6	1.3	4.2
Room for policy response									
Fiscal balance, % GDP	-6.3	-4.2	-2.5	-2.5	-1.9	-1.5	-2.4	-3.0	-3.5
Public debt, % GDP	30.5	33.9	37.7	38.9	40.5	39.4	39.1	36.0	37.5
Policy interest rate, %	6.25	6.00	5.25	4.00	2.75	1.75	1.75	1.75	2.75
External vulnerabilities									
Current account balance, % GDP	-5.1	-4.9	-4.8	-1.1	-0.7	-1.2	-2.3	-3.5	
External debt, % GDP	73.1	74.2	75.7	68.0	63.0	57.6	54.8	51.2	
Capital inflows less change in FX reserves, % GDP	4.0	2.0	2.1	-3.4	-2.0	-0.2	-1.4	-0.9	
Real 10-year government bond yield, %	n.a.	4.2	1.4	3.7	2.7	4.6	4.0	1.0	
10y government bond yield - 10y US treasury yield, pp	n.a.	5.5	4.6	2.3	1.4	1.4	1.0	1.9	
FX reserves, months of imports	14.6	13.4	11.4	12.8	10.9	7.5	7.0	6.8	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	39.1	39.1	37.5	33.9	31.1	29.9	28.2	27.3	
Private non-financial sector debt service ratio, %	5.8	5.7	5.3	4.2	3.5	3.1	2.8	2.7	
Credit gap, pp deviation from trend	9.1	7.7	4.8	-0.2	-4.1	-6.6	-9.5	-11.3	
Property gap, % deviation from trend	0.7	-15.3	-16.2	-13.0	-9.0	1.0	15.8	25.7	
Equity gap, % deviation from trend	-11.9	-31.3	-23.7	-7.3	-1.9	-3.6	-3.8	4.6	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.

Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics

Turkey: On thin ice

The Turkish economy is displaying classic symptoms of overheating, and the size of external financing needs makes Turkey highly vulnerable to shifts in risk appetite.

EEMEA Economics

Inan Demir - NIplc
inan.demir@nomura.com
+44 (0) 20 710 29978

2017 growth performance was very strong … Since the short-lived soft patch in economic activity after the failed coup attempt of Q3 2016, policymakers' focus has strictly been on keeping growth strong. This unwavering focus on growth delivered the result the authorities desired with GDP growing at 7.4% year-on-year in January – September 2017. Even with a slowdown in the final quarter of the year, FY 2017 GDP growth is likely to be around the 7% mark.

… but it bears the hallmarks of overheating in the shape of higher inflation … However, this strong growth performance came with textbook consequences. Inflation, which stood around 7% after the coup attempt, exceeded 10% by February 2017 and has remained in double-digits since then. In late 2017, both headline and core inflation hit their highest levels since 2004, and as of February they stand at 10.3% and 11.9%, respectively, well above the Central Bank of Turkey's (TCMB) inflation target of 5%.

... and a much wider current account deficit. Perhaps more important is the deterioration in the external balance. The current account deficit widened from 3.8% of GDP in 2016 to about 5.6% of GDP in 2017. The fact that this deterioration occurred despite 2017's average real effective exchange rate being some 10% weaker than that of 2016 is testament to the extent of overheating in the Turkish economy. Indicators for early 2018 suggest that by the end of Q1, the deficit may exceed 6% of GDP, which is in excess of USD50bn in absolute terms. Moreover, external debt maturing in 2018 stands at USD177.4bn, pointing to a total external financing requirement of around USD230bn, which corresponds to more than 25% of GDP. Since 2010, the accumulated gross non-FDI capital inflows have substantially exceeded the increase in FX reserves, to the tune of 35% of GDP, another warning sign of capital outflow risk.

Geopolitical risks are looming large. Against this substantial external financing requirement, Turkey is facing idiosyncratic risks stemming from its strained relationship with its traditional Western allies, especially the US. In late 2017, the visa crisis and court case regarding the role of Turkey's state-owned Halkbank on the evasion of sanctions on Iran led to a stop in capital inflows and put significant pressure on TRY. The

Fig. 27: Turkey: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	8.5	11.1	4.8	8.5	5.2	6.1	3.2	6.8	4.0
CPI inflation, % y-o-y	8.6	6.5	8.9	7.5	8.9	7.7	7.8	11.9	9.5
Room for policy response									
Fiscal balance, % GDP	-3.4	-0.7	-1.8	-1.5	-1.4	-1.3	-2.3	-1.5	-2.1
Public debt, % GDP	40.1	36.5	32.7	31.3	28.7	27.5	28.1	27.9	28.1
Policy interest rate, %	6.50	9.04	5.55	7.10	8.52	8.81	8.31	12.75	12.75
External vulnerabilities									
Current account balance, % GDP	-5.8	-8.9	-5.5	-6.7	-4.7	-3.7	-3.8	-5.6	
External debt, % GDP	37.7	36.5	38.8	41.1	43.0	46.2	47.0	51.8	
Capital inflows less change in FX reserves, % GDP	5.0	5.0	4.5	5.0	4.5	3.8	2.5	4.6	
Real 10-year government bond yield, %	2.2	-0.5	0.5	3.0	-0.1	1.9	2.9	-0.2	
10y government bond yield - 10y US treasury yield, pp	5.3	8.0	4.9	7.4	5.8	8.5	8.9	9.3	
FX reserves, months of imports	5.1	3.8	5.0	5.2	5.2	5.3	5.5	4.2	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	56.2	61.6	63.0	72.0	74.9	79.9	85.1	84.7	
Private non-financial sector debt service ratio, %	6.9	10.3	9.7	10.3	11.5	14.3	14.3	15.6	
Credit gap, pp deviation from trend	1.5	3.3	1.1	6.5	5.7	7.0	8.5	5.4	
Property gap, % deviation from trend	1.8	-2.3	-3.4	-2.8	-1.6	2.9	2.6	0.4	
Equity gap, % deviation from trend	24.7	-13.0	22.0	-3.4	10.4	-16.1	-16.4	0.7	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts).
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

disagreements between the two sides have yet to be resolved, and a re-escalation of tensions could weigh on the external financing outlook, particularly if it coincides with a deterioration in broader EM sentiment.

The central bank is constrained in using the interest rate tool and its reserve position is weak. In such an adverse scenario, an added concern for investors would be the credibility gap that the TCMB suffers from because it has been reluctant to tighten in a timely manner during previous episodes of FX market stress. The policy interest rate, at 12.75%, is high but adjusted for inflation the real rate is very low, giving investors little compensation for the high risk premium. In addition to the political constraints that limit room to use the interest rate tool, the TCMB is also hamstrung by inadequate reserves, which cover only about 4 months of imports (less than two months in the case of net reserves).

Healthy public sector balance sheet is a key strength. One mitigating factor among these negatives is the soundness of the public sector's balance sheet. Turkey's external financing risks are mostly private sector problems with banks borrowing from abroad to "on-lend" to corporates which carry large short FX positions to the tune of USD212.6bn as of end-2017. Experience in other economies suggests that corporate sector balance sheet problems can cascade onto banks' balance sheets and then onto the public sector's balance sheet. The fact that the government debt/GDP ratio is below 30% in Turkey means the public sector can (indirectly) assume private sector liabilities and absorb substantial pressure if an exchange rate shock wreaks havoc with corporate balance sheets.

Despite this silver lining, the fact remains that a capital account shock would force an abrupt adjustment in Turkey's current account via a combination of a much weaker TRY and much slower domestic demand. The size of the current account deficit means the magnitude of this forced adjustment would be large and Turkey is one of the economies highly vulnerable to a snapback in EM sentiment.

Medium-vulnerability countries

Brazil: No easy solution to fiscal fragilities

Brazil is moderately vulnerable to external shocks – despite faring well in our score card analysis – given the fragile fiscal outlook and uncertain political coordination to solve it.

LatAm Research

Joao Pedro Ribeiro - NSI
Joao.Ribeiro@nomura.com
+1 212 667 2236

Brazil's macroeconomic standing has improved meaningfully over the past 12-18 months. However, despite this recent improvement, the fiscal outlook is still quite concerning and continues to be Brazil's main (and a serious) vulnerability. This will have to be addressed by the next government, which will be elected in October and take power in January 2019. However, there remains significant uncertainty regarding the make-up of the next government, given unclear electoral conditions.

Helped by the recovery in commodity prices and judicious monetary policy, the economy has experienced a marked turnaround since 2015-16 on several fronts, which has increased its resilience to shocks. A few years ago the economy was in a very fragile state, suffering a deep recession, a wide current account deficit, significantly above-target inflation, a very deep fiscal deficit and quickly rising debt.

As a broad summary of the improvements: 1) growth is back in positive territory and set to accelerate in 2018; 2) inflation has fallen to below-target (unusually low) levels and is likely to remain there through the near future; 3) in this environment of low inflation and ample slack in the economy (despite growth recovery), the central bank has cut rates to historically low (and below neutral) levels; 4) external accounts have improved markedly and stand as the clearest source of strength; 5) some structural reform has been accomplished in congress, with a likely long-lasting impact on the economic environment.

Among all these factors, the main strengths still lie on the external accounts front. Historically high trade surpluses – spurred both by a pick-up in exports and by very weak domestic demand – have contributed consistently to narrowing the current account deficit, which steadily improved from -4.4% of GDP, in mid-2015, to -0.4% of GDP currently, the narrowest deficit since 2008. We expect the deficit to widen this year as domestic demand picks up. However, even in a scenario in which the current account deficit rises to around 1.5% of GDP this year, it would still be very easily covered by FDI flows, which have averaged 4.0% of GDP over the last three years, despite negative GDP growth (on average).

Fig. 28: Brazil: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	7.5	4.0	1.9	3.0	0.5	-3.5	-3.5	1.0	2.5
CPI inflation, % y-o-y	5.0	6.6	5.4	6.2	6.3	9.0	8.7	3.5	3.3
Room for policy response									
Fiscal balance, % GDP	-2.7	-2.5	-2.3	-3.0	-6.0	-10.2	-9.0	-7.8	-7.4
Public debt, % GDP	63.0	61.2	62.2	60.2	62.3	72.5	78.3	83.4	85.0
Policy interest rate, %	10.75	11.00	7.25	10.00	11.75	14.25	13.75	7.00	6.25
External vulnerabilities									
Current account balance, % GDP	-3.4	-2.9	-3.0	-3.0	-4.2	-3.3	-1.3	-0.5	
External debt, % GDP	11.6	11.8	13.3	12.7	14.4	18.6	18.2	15.3	
Capital inflows less change in FX reserves, % GDP	2.8	0.2	1.0	3.0	3.6	2.5	-0.7	-0.7	
Real 10-year government bond yield, %	5.9	6.4	4.8	5.4	6.1	7.3	5.9	5.0	
10y government bond yield - 10y US treasury yield, pp	8.9	9.7	7.4	9.2	10.2	14.2	9.0	7.9	
FX reserves, months of imports	18.2	18.2	19.5	17.5	18.6	24.4	30.9	28.6	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	63.0	64.0	67.1	71.2	70.4	71.3	66.4	63.0	
Private non-financial sector debt service ratio, %	15.0	17.3	14.8	16.2	17.1	21.2	21.4	17.6	
Credit gap, pp deviation from trend	2.7	2.5	4.4	7.2	5.2	4.9	-1.2	-5.6	
Property gap, % deviation from trend	16.9	20.3	18.9	16.3	8.8	-7.1	-18.8	-23.8	
Equity gap, % deviation from trend	45.7	9.9	9.3	-13.9	-22.5	-40.2	-23.8	-8.2	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Further strengthening Brazil's external accounts, FX reserves currently sit at roughly USD380bn (nearly 20% of GDP). Additionally, the central bank's FX swaps intervention program, which amassed to nearly USD115bn in 2015, has been dramatically reduced and now stands at a much more modest USD24bn.

On the growth front, Brazil slowly exited a very deep recession from 2015-2016, in which real GDP had fallen, on average, by 3.5% y-o-y. The return to positive growth of 1.0% in 2017, albeit a mediocre recovery when compared to the depth of the drop, should gain more momentum this year – even if amid still-ample spare capacity.

We also highlight the very big drop in inflation (from a peak of 10.7% y-o-y in 2016 to around 3% currently), which offers some support to real interest rates – an important investor compensation for the fiscal risk premium - even in a period of lower nominal rates. We also believe that inflation is likely to remain at below-target levels throughout 2018.

Despite these improvements, the country's fiscal standing has not been sufficiently addressed and medium-term debt sustainability is still very much a concern.

The current government has passed important legislation over the last twelve months. The expenditures cap bill was particularly important, as it limits the expansion of government primary expenditures in year T to the inflation rate of year T-1. However, pension reform – the key to improving fiscal finances – was not approved and will likely be a key item in the agenda for the government that takes over in 2019.

In the near term, the public debt-to-GDP ratio should benefit from a pick-up in growth, low real interest rates and one-off improvements (such as the restitution of funds from the BNDES national development bank). However, in the medium term, the country will have to tackle reforms aimed at containing spending that put the viability of the expenditures cap bill – and requires congressional coordination – at risk. Without those, the public debt ratio, which has risen by over 20pp since 2013, will continue to grow and threaten macro conditions.

Therefore, the October election result is, naturally, a very relevant factor for the reform agenda outlook and, with it, the fiscal outlook. There remains significant uncertainty, as candidacies are starting to take shape but are still largely unclear. The probability of former President Lula participating now seems low, as his legal ability to run is in question, although he still has legal means of recourse. The polls have been largely unchanged over the past few months and still lack a strong centrist candidate. More clarity on the potential candidacies should be available after the 7 April deadline for party affiliations.

In sum, conditions in Brazil have improved significantly over the past year or so, and the economy has important strengths (particularly within external accounts) in place to face eventual external shocks. However, fiscal fragilities remain very much a vulnerability, and this will have to be tackled by the incoming government (2019) after the 2018 election.

China: Risks rooted at home

We view China as moderately vulnerable – and more to local risks than external ones.

Asia Economics

Yang Zhao - NIHK
yang.zhao1@nomura.com
+852 2252 1306

Wendy Chen - NIHK
wendy.chen@nomura.com
+86 21 6193 7237

Lisheng Wang - NIHK
lisheng.wang@nomura.com
+852 2252 2057

We assess China's vulnerability to be medium in the EM pack. Monetary policy normalisation in DMs, a steep rise in US bond yields and increased trade protectionism combined with the domestic slowdown story may dampen investor sentiment towards Chinese assets, exerting depreciation pressures on RMB, increasing domestic financial market volatility, and intensifying capital outflows, or even triggering capital flight.

That said, China is relatively well positioned to withstand external risks. It has imposed restrictive capital controls on outflows, and has room to do more if required. In addition, the current account remains in surplus, external debt is low and FX reserves – while off their mid-2014 peak – remain high at over 20 months of import cover.

The main risks in China are from domestic financial imbalances, in our view. The growth rebound in 2017 was driven partially by rapid credit expansion in 2016 and a subsequent property market boom. Private non-financial sector debt has risen quickly, hitting 210% of GDP in 2017, which is higher than most other EM economies. High macro leverage (debt-to-GDP) has triggered policymakers' drive to curb long-term risks and deleverage both the financial sector and the economy as a whole. We believe the financial cycle, as measured by growth of aggregate money or liquidity, has peaked, but financial deleveraging will be a multi-year effort to contain systemic risks (see *China: PBoC reiterates neutral monetary policy stance*, 21 February 2018).

The risks of a trade war, although limited thus far, have risen after the US imposed substantial tariffs on certain imports and talked about taking further action not only on imports but also on inbound investment (see *China: No one wins in a trade war*, 9 March 2018). An escalation of Sino-US trade tensions would weigh on China's export outlook and could exacerbate depreciation pressures on RMB.

Overall, if negative shocks hit China and given it's still large financial imbalances we believe the risk of a full-blown crisis is low given the substantial buffers in place. With a banking sector mostly government-owned, the possibility of a major financial institution failing is low, in our opinion. China's state control and still-large room for fiscal stimulus are important buffers against large negative shocks.

Fig. 29: China's vulnerability table

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	10.6	9.5	7.9	7.8	7.3	6.9	6.7	6.9	6.5
CPI inflation, % y-o-y	3.3	5.4	2.6	2.6	2.0	1.4	2.0	1.6	2.4
Room for policy response									
Fiscal balance, % GDP	-2.4	-1.7	-1.6	-1.8	-1.8	-3.4	-3.8	-3.7	-4.0
Public debt, % GDP	33.7	33.5	34.4	37.2	40.2	41.7	44.5	46.3	47.8
Policy interest rate, %	2.75	3.50	3.00	3.00	2.75	1.50	1.50	1.50	1.50
External vulnerabilities									
Current account balance, % GDP	3.9	1.8	2.5	1.5	2.2	2.7	1.7	1.4	
External debt, % GDP	9.0	9.2	8.6	8.9	17.0	12.6	12.7	14.2	
Capital inflows less change in FX reserves, % GDP	-3.7	-1.7	-1.2	-2.4	1.2	1.5	3.5	2.7	
Real 10-year government bond yield, %	-0.7	-0.7	1.1	2.1	2.2	1.3	1.0	2.1	
10y government bond yield - 10y US treasury yield, pp	0.6	1.6	1.8	1.6	1.5	0.6	0.6	1.5	
FX reserves, months of imports	24.5	21.9	21.9	23.5	23.5	23.8	22.7	20.5	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	147.9	147.6	160.3	173.8	185.6	201.6	210.8	210.5	
Private non-financial sector debt service ratio, %	15.5	16.2	17.0	18.4	19.2	19.3	20.1	20.0	
Credit gap, pp deviation from trend	-5.6	-11.6	-4.7	2.8	8.5	18.4	21.5	16.6	
Property gap, % deviation from trend	2.4	-5.8	-4.7	1.3	-7.4	4.9	31.7	32.0	
Equity gap, % deviation from trend	8.9	-19.9	-20.4	-29.1	5.1	11.6	-5.7	-2.1	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Policy rate is 1yr bank deposit rate. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Colombia: Investment grade at risk

Colombia is moderately vulnerable to external shocks given fairly weak fiscal accounts and a wide current account deficit relative to peers. Further downgrade risks exist.

LatAm Research

Joao Pedro Ribeiro - NSI
Joao.Ribeiro@nomura.com
+1 212 667 2236

We see Colombia's vulnerability level to an external shock as moderate, with its main fragilities stemming from the fiscal accounts in an environment of slowing potential growth. It also has the widest current account deficit in LatAm (albeit narrowing at the margin). We also highlight that further downgrades to S&P's current BBB- rating (the lowest investment grade level) cannot be ruled out.

Colombia seems poised to enjoy improved growth in 2018 (2.6%) compared to the past two years (1.9% on average), ending the sequence of four years (2014-17) of slowing growth. However, we do not expect it to recover to anywhere near the 4% pace seen during 2011-14. Structurally lower growth has had a negative impact on the fiscal accounts, with widening deficits also exacerbated by lower oil prices than during the peaks.

These fragilities on the fiscal front were somewhat reflected in S&P's December downgrade (taking its ratings on Colombia to BBB-, the lowest investment grade notch). On this front, marginal rating agency movement may be highly relevant given the possible implications of agencies moving the credit rating to junk – foreign ownership of government debt currently stands at around 25%.

The impact from the S&P downgrade was very much contained (for example, the central bank was able to resume its rate cutting cycle after only a very short one-meeting pause) as the decision itself was unsurprising – if, for no other reason, because of S&P's already Negative Outlook. In addition, the (not unexpected) downgrade was accompanied by a Stable (and no longer Negative) Outlook, which also seemed to lend some relief to the scenario entering 2018. However, further signals of worsening credit ratings could be more impactful as they threaten investment grade status. We also highlight that in February, Moody's left its rating at Baa2 (the second investment grade notch) but changed its Outlook to Negative (from Stable), adding further concerns over ratings and the outlook trend for the country.

That said, there has been improvement on the external front, with the current account deficit narrowing significantly in the past three years, closing 2017 at 3.3% of GDP having reached as much as 6.3% in 2015. Higher oil prices and underwhelming domestic demand have both contributed to this improvement in the deficit, which we expect to continue in 2018 (we forecast 3.0%), trending back to the much more benign levels of

Fig. 30: Colombia: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	4.0	6.6	4.0	4.9	4.4	3.1	2.0	1.8	2.6
CPI inflation, % y-o-y	2.3	3.4	3.2	2.0	2.9	5.0	7.5	4.3	3.1
Room for policy response									
Fiscal balance, % GDP	-3.5	-2.0	-1.9	-2.2	-2.6	-3.1	-3.9	-3.6	-3.6
Public debt, % GDP	38.6	36.5	34.5	37.2	40.6	45.3	46.1	47.0	47.5
Policy interest rate, %	3.00	4.75	4.25	3.25	4.50	5.75	7.50	4.75	4.00
External vulnerabilities									
Current account balance, % GDP	-3.0	-2.9	-3.1	-3.3	-5.2	-6.3	-4.3	-3.3	
External debt, % GDP	22.6	22.5	21.3	24.2	26.7	37.6	42.8	40.9	
Capital inflows less change in FX reserves, % GDP	3.7	2.2	0.0	2.6	4.5	4.7	3.8	2.4	
Real 10-year government bond yield, %	4.5	3.7	3.0	4.8	3.4	1.9	1.4	2.4	
10y government bond yield - 10y US treasury yield, pp	4.4	5.6	3.7	3.7	4.9	6.4	4.7	4.1	
FX reserves, months of imports	8.4	7.1	7.6	8.8	8.9	10.4	12.5	12.4	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	48.8	50.2	50.8	54.9	61.0	66.1	65.0	64.7	
Private non-financial sector debt service ratio, %	5.9	7.2	7.4	7.4	8.3	9.6	11.0	10.0	
Credit gap, pp deviation from trend	-2.4	-2.1	-2.7	0.3	5.1	9.0	6.7	5.4	
Property gap, % deviation from trend	1.5	1.1	5.9	6.9	7.6	9.6	11.2	12.9	
Equity gap, % deviation from trend	60.6	21.4	32.5	11.9	-6.6	-37.3	-31.9	-29.3	

Source: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

2010-13. Nonetheless, the current account deficit is still quite large and the large capital inflows needed to finance it leaves the economy exposed to a sudden stop in capital. Since 2010, the accumulation of gross non-FDI capital inflows has exceeded the increase in FX reserves by a substantial amount, equivalent to 24% of GDP.

As with many regional peers, Colombia will hold presidential elections in 2018 – the first round on 27 May and the second on 17 June. Although there is still uncertainty ahead of the vote (and polling numbers are still early), the risks related to policymaking, in our view, do not reach the same levels as in Brazil and Mexico. The main risk is a strong far-left candidacy, represented by Gustavo Petro, the former mayor of Bogota. The presidential race is more likely than not, in our view, going to involve generally market-friendly/pragmatic candidates (see *Colombia: Election market survey results*, 22 February 2018).

Recent political developments have been favorable. On 11 March the country held Congressional elections and presidential primaries. The results generally suggest sustained strength of right and center-right groups and candidates, and we continue to view a right/center-right victory as our base case. We believe Petro's performance – easily winning the left-wing primary – means it is possible he will make it to the second round. However, the first round results did not increase the fairly low probability of him actually winning the election, in our view.

Similar to other countries in the region, we believe growth and fiscal prospects over the next five or so years will largely depend on the quality of policymaking. In this sense, despite smaller tail risks relative to some of its neighbors, we believe the election will remain a key variable for fiscal policy and, consequently, the overall economic outlook.

India: Not fragile… but vulnerable

The need to finance the current account deficit means there are external vulnerabilities, but the economy is much better off now than during the 2013 taper tantrum.

Asia Economics

Sonal Varma - NSL
sonal.varma@nomura.com
+65 6433 6527

Aurodeep Nandi - NSL
aurodeep.nandi@nomura.com
+91 22 4037 4087

India's starting position is now relatively strong, especially compared to 2013 when it was clubbed in the "fragile five" basket during the taper tantrum. The economy is on the cusp of a cyclical recovery – GDP growth accelerated to 7.2% y-o-y in Q4 2017 from 5.6% in Q1, and we expect solid growth of 7.5% y-o-y in 2018. Inflation has picked up in tandem with the economic upcycle, but our forecast of 4.7% in 2018 is significantly below the double-digit rates seen over 2009-13. The external sector is now much more robust, with FX reserves at 10.3 months of import cover in 2017 from ~6.5 months in 2012-13. The medium-term outlook is positive as infrastructure spending and productivity-enhancing reforms should eventually crowd-in private investment and lift potential growth.

Still, there are three main sources of vulnerability that could raise India's risk premium: 1) on the external front, the current account deficit is likely to increase to 2% of GDP in 2018 from 1.7% in 2017 and the basic balance (current account + net FDI) has turned negative, making funding vulnerable to a sudden capital stop; 2) there are multiple state elections in 2018 and general elections in Q2 2019. Widespread agrarian distress could push the government to announce populist policies, fuelling inflation, fiscal slippage and a further widening of the trade deficit; and 3) bank asset quality, state bank fraud and the sluggish pace of bad debt resolution. The Reserve Bank of India (RBI) expects nonperforming assets to rise to 11.1% of total by Q3 2018 from 10.2% a year ago.

Against this backdrop, the main triggers of vulnerability are higher US rates, USD appreciation and G3 central bank balance-sheet reduction, which could accelerate capital outflows, raise domestic interest rates and trigger INR depreciation – creating a vicious cycle of external funding pressures and balance-sheet stress. Additionally, ~USD207bn of short-term external debt matures in 2018, which could be tough to face roll over. Although marginal, India is also exposed to a slowing China and increased US trade protectionism. Yet there is room for a policy response. The RBI has been building FX reserves (USD420bn in early March) as a means of self-insurance from financial-stability risks and would use them to defend INR if required. The monetary policy stance is neutral and rates could be hiked to rein-in inflation expectations, but given balance-sheet concerns, we do not expect aggressive rate hikes. Fiscal policy, however, is relatively hamstrung given already high deficits (with a general government deficit of 6.5% of GDP).

Fig. 31: India: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	8.8	6.5	5.5	6.2	7.1	7.6	7.9	6.4	7.5
CPI inflation, % y-o-y	11.3	9.2	9.7	9.8	6.7	4.9	4.9	3.3	4.7
Room for policy response									
Fiscal balance, % GDP	-8.6	-8.3	-7.6	-7.0	-7.2	-7.1	-6.6	-6.5	-6.2
Public debt, % GDP	67.5	69.6	69.1	68.5	68.5	69.5	69.6	68.7	
Policy interest rate, %	6.25	8.50	8.00	7.75	8.00	6.75	6.25	6.00	6.00
External vulnerabilities									
Current account balance, % GDP	-3.3	-3.5	-5.0	-2.6	-1.4	-1.1	-0.5	-1.5	
External debt, % GDP	18.8	19.8	22.1	22.9	23.5	23.3	21.0	20.9	
Capital inflows less change in FX reserves, % GDP	2.9	1.3	2.4	-0.2	0.5	-0.9	-1.0	-0.3	
Real 10-year government bond yield, %	-1.5	-0.4	-2.5	-1.2	3.6	2.1	3.1	2.1	
10y government bond yield - 10y US treasury yield, pp	4.6	6.7	6.3	5.8	5.7	5.5	4.1	4.9	
FX reserves, months of imports	9.2	6.8	6.4	6.9	7.7	10.0	11.2	10.3	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	59.5	59.2	60.7	61.3	59.9	60.5	56.9	56.8	
Private non-financial sector debt service ratio, %	7.6	8.2	8.7	8.9	8.6	8.4	7.5	7.3	
Credit gap, pp deviation from trend	5.9	3.9	3.7	2.7	-0.3	-1.3	-6.5	-7.8	
Property gap, % deviation from trend	-11.3	-4.0	3.6	-2.2	4.8	4.3	4.3	3.0	
Equity gap, % deviation from trend	26.5	-16.7	-7.9	-12.4	6.1	-7.0	-11.2	-0.8	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Indonesia: Watching external risks

While external vulnerabilities remain significant, prudent fiscal and monetary policies, as well as on-going structural reforms, provide fundamental buffers.

Asia Economics

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Brian Tan - NSL
brian.tan@nomura.com
+65 6433 6930

Charnon Boonnuch - NSL
charnon.boonnuch@nomura.com
+65 6433 6189

The main source of Indonesia's external vulnerability stems from its current account deficit (CAD), which we expect to widen to 2.0% of GDP this year. This partly reflects the improved growth outlook, led by stronger domestic demand and higher infrastructure spending. However, the large 40% share of government bonds held by foreign investors poses a significant source of capital outflow risk which could tighten domestic liquidity conditions and exert upward pressure on domestic borrowing costs. Indonesia is also particularly exposed to a sharper-than-expected slowdown in China, which accounts for 13.7% of Indonesia's exports (nearly three-quarters of which are commodities), in addition to negative terms-of-trade effects from a potential decline in commodity prices.

That said, Indonesia has, in our view, come a long way in bolstering its fundamentals since the "taper tantrum" in 2013. Domestic vulnerabilities seem low overall with inflation falling within the official 2.5-4.5% target. Structural reforms have meaningfully increased FDI inflows to more than offset the CAD in 2017, pushing the basic balance into surplus for the first time since 2011. Given the strong push to continue implementing these reforms and building more infrastructure despite the upcoming elections, we expect FDI inflows to continue fully financing the CAD. Total external debt, at 35.1% of GDP in 2017, is manageable, while Bank Indonesia's (BI) requirement that corporates hedge their FX-denominated liabilities has reduced vulnerabilities further.

There is scope for policy responses to mitigate capital outflow risks in the near term. BI has signalled the end of its easing cycle, and there is room to raise its policy rates if necessary. We see scope for counter-cyclical fiscal policy to boost growth, given that our base case fiscal deficit forecast of 2.6% of GDP in 2018 is still below the 3% legal limit. A flexible FX regime has been maintained over the years, with IDR allowed to adjust to fundamentals but managed to ensure volatility is minimised using BI's ample FX reserves. FX reserves remain sizeable at USD128.1bn, or 8.4 months of import cover, compared to USD99.4bn in 2013.

Fig. 32: Indonesia: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	7.4	6.2	6.0	5.6	5.0	4.9	5.0	5.1	5.6
CPI inflation, % y-o-y	5.1	5.3	4.0	6.4	6.4	6.4	3.5	3.8	4.0
Room for policy response									
Fiscal balance, % GDP	-0.7	-1.1	-1.8	-2.2	-2.1	-2.6	-2.5	-2.4	-2.6
Public debt, % GDP	24.5	23.1	22.9	24.8	24.6	27.0	27.9	29.1	28.2
Policy interest rate, %	6.50	6.00	5.75	7.50	7.75	6.25	4.75	4.25	4.25
External vulnerabilities									
Current account balance, % GDP	0.7	0.2	-2.7	-3.2	-3.1	-2.0	-1.8	-1.7	
External debt, % GDP	26.5	26.1	28.3	34.0	34.5	37.2	34.7	35.1	
Capital inflows less change in FX reserves, % GDP	-1.3	-0.4	2.2	3.0	2.1	2.9	-0.1	0.8	
Real 10-year government bond yield, %	0.6	2.2	1.5	0.4	-0.6	5.6	4.9	2.7	
10y government bond yield - 10y US treasury yield, pp	4.3	4.2	3.4	5.4	5.6	6.7	5.5	3.9	
FX reserves, months of imports	7.9	7.0	6.6	6.0	7.1	8.4	9.8	9.4	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	27.0	30.2	34.6	38.8	39.6	40.6	40.5	39.1	
Private non-financial sector debt service ratio, %	3.2	3.4	3.7	4.2	4.5	4.7	4.5	4.2	
Credit gap, pp deviation from trend	-4.3	-2.3	0.8	3.7	3.3	3.0	1.6	-0.7	
Property gap, % deviation from trend	-9.9	-6.9	-2.0	3.6	5.9	8.3	10.0	12.0	
Equity gap, % deviation from trend	23.7	16.8	21.1	6.1	16.6	-6.3	0.4	5.4	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Korea: Manageable household-debt risk

The balance of payments is solid. The weakest link is household debt, but risks look manageable. An extra budget and even rate cuts could be used to cushion a shock.

Asia Economics

Young Sun Kwon - NIHK
youngsun.kwon@nomura.com
+852 2252 1370

Supported by a large current account, Korea became a net external creditor in 2014 and as of December 2017 held net international investment positions of USD248bn. We believe Korea's currency swap agreements with the Swiss, Canadians and Australians enhance its already solid external position. Diplomatic engagement between interested parties will help reduce miscalculation risks and the likelihood of military confrontation on the Korean peninsula. Should the Fed hikes rates much faster than in our base case (four hikes in 2018), we would not expect the Bank of Korea (BOK) to hike policy rates aggressively (i.e., more than the two hikes in our base case) as a weaker KRW supports exporters.

Korea's household debt-to-GDP and disposable income ratios rose to 97% and 182%, respectively, in 2017, which are much higher than the OECD average. However, there has been an improvement in the mortgage debt structure. The share of fixed rate and amortised products increased to 48% and 44%, respectively, in 2017 from 6% and 2% in 2010. Micro-level survey data suggest financial-stability risks are manageable. In Korea, households are categorised into three groups: Group A households have a debt-to-asset ratio (DTI) of below 100% and a debt-service ratio (DSR) of below 40%, and therefore can pay back their debt (KRW724trn; 54% of total household debt, in 2016). Group B households have either an "over 100% DTI and below 40% DSR" or a "below 100% DTI and over 40% DSR". They hold KRW525trn (39% of total) of household debt. Group C households have a "DTI of over 100% and a DSR of over 40%", and thus their income and assets cannot service their debt. These households (320,000) hold KRW94trn and are most vulnerable to default risks, but at 7% of total household debt we would not expect a household debt problem to develop further into financial systemic risk.

If downside risks (e.g., US trade protectionism, North Korea shock, slowing China growth or a property market correction) do materialise, we would expect the government to formulate a sizable extra budget and the BOK to stop hiking – or even cut – rates to engineer a weaker KRW, given that inflation is stable and government debt is relatively low. We do not expect any monetary easing from the BOK until the Fed turns first.

Fig. 33: South Korea: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	6.5	3.7	2.3	2.9	3.3	2.8	2.8	3.1	3.0
CPI inflation, % y-o-y	2.9	4.0	2.2	1.3	1.3	0.7	1.0	1.9	2.0
Room for policy response									
Fiscal balance, % GDP	1.5	1.7	1.6	0.7	0.4	0.6	1.8	1.3	1.2
Public debt, % GDP	30.8	31.5	32.1	33.8	35.9	37.8	38.3	38.0	38.5
Policy interest rate, %	2.50	3.25	2.75	2.50	2.00	1.50	1.25	1.50	2.00
External vulnerabilities									
Current account balance, % GDP	2.6	1.6	4.2	6.2	6.0	7.7	7.0	5.1	5.3
External debt, % GDP	32.5	33.2	33.4	32.4	30.0	28.6	27.2	27.5	
Capital inflows less change in FX reserves, % GDP	1.2	2.2	-0.4	-0.5	0.2	-1.4	-0.3	0.6	
Real 10-year government bond yield, %	1.5	-0.4	1.7	2.4	1.8	1.0	0.8	1.0	
10y government bond yield - 10y US treasury yield, pp	1.2	1.9	1.4	0.6	0.4	-0.2	-0.4	0.1	
FX reserves, months of imports	8.1	6.8	7.3	7.8	8.1	9.9	10.7	9.5	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	176.3	180.1	183.3	185.0	188.9	191.7	193.2	193.8	
Private non-financial sector debt service ratio, %	20.3	20.6	20.5	20.2	20.1	19.9	20.0	20.0	
Credit gap, pp deviation from trend	0.7	1.6	2.0	0.8	1.8	1.7	0.3	-1.2	
Property gap, % deviation from trend	2.0	4.4	2.3	1.1	1.8	4.9	4.3	3.1	
Equity gap, % deviation from trend	23.7	2.9	7.7	4.5	-4.0	-5.1	-5.8	7.4	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics estimates.

Philippines: Rate hikes in the cards

External vulnerability has risen but there is plenty of room to tighten monetary policy.

Asia Economics

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Brian Tan - NSL
brian.tan@nomura.com
+65 6433 6930

Charnon Boonnuch - NSL
charnon.boonnuch@nomura.com
+65 6433 6189

The Philippines' external vulnerability has risen as the current account shifted to a deficit of 0.4% of GDP in 2016 and 0.8% in 2017 from an average surplus of 3.1% over the previous five years, even if this is led by a welcomed pickup in investment. We see upside risks to our current account deficit forecasts of 0.4% of GDP in 2018 and 0.9% in 2019. There are no available data on foreign ownership of bonds (we think it is small given high withholding tax) but episodes of rising US rates and weak PHP have been accompanied by capital outflows by residents, suggesting a high risk of capital flight if confidence erodes (see *Asia Insights - PHP: A still-challenging BOP outlook*, 20 December 2017).

The Philippines is also highly exposed to US protectionism risks and inward-looking policies, as the US still accounts for 14.6% of total merchandise exports. In addition, the business process outsourcing (BPO) sector mostly cater to US corporates and overseas worker remittances from the US, by our estimates, account for about 30% of total (see *Philippines: Challenging portfolio flows*, 19 February 2016). BPO sector revenues and overseas worker remittances now each account for about 9% of GDP.

Still, there are sizeable buffers. FX reserves, at USD80.6bn, comprise 8.7 months of import cover. FDI inflows reached a record USD10bn in 2017, fully offsetting the current account deficit and leaving an improvement in the basic balance surplus. Given medium-term growth prospects and the next phase of the tax reforms (which involve corporate income tax cuts), we expect net FDI inflows to remain on a structural uptrend. With public debt levels at 45.7% of GDP and the recent passage of landmark tax reforms (see *Asia Insights - Philippines: TRAIN arrives*, 4 January 2018), there is plenty of scope for fiscal policy to support growth. Domestic credit and financial stability risks are also low overall.

Finally, we still expect Bangko Sentral ng Pilipinas (BSP) to hike its policy rate by a total of 75bp this year from the current policy rate of 3% and forecast GDP growth rising above potential to 6.9% this year and 7.1% in 2019 (see *Asia Insights - Philippines: Lift-off delayed*, 22 March 2018). We also see space for BSP to gradually cut the reserve requirement ratio to 13-15% this year from 19%, which would help to offset a tightening of domestic liquidity as a result of capital outflows (see *Asia Insights - Philippines: Revisiting the monetary policy framework* , 5 March 2018).

Fig. 34: Philippines: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	7.6	3.7	6.7	7.1	6.1	6.1	6.9	6.7	6.9
CPI inflation, % y-o-y	3.8	4.7	3.2	2.9	4.2	1.4	1.8	3.2	4.3
Room for policy response									
Fiscal balance, % GDP	-3.5	-2.0	-2.3	-1.4	-0.6	-0.9	-2.4	-2.2	-2.8
Public debt, % GDP	58.5	56.9	57.5	54.4	49.8	48.8	45.6	45.1	43.2
Policy interest rate, %	4.00	4.50	3.50	3.50	4.00	4.00	3.00	3.00	3.75
External vulnerabilities									
Current account balance, % GDP	3.6	2.5	2.7	4.2	3.8	2.5	-0.4	-0.8	
External debt, % GDP	35.9	34.2	31.2	30.2	27.4	27.4	25.7	23.9	
Capital inflows less change in FX reserves, % GDP	-2.2	-3.1	0.7	-0.6	1.4	-1.0	-0.5	0.7	
Real 10-year government bond yield, %	2.6	1.1	1.3	-0.4	1.3	3.0	2.2	1.8	
10y government bond yield - 10y US treasury yield, pp	3.0	3.4	2.5	0.7	1.8	2.2	2.3	2.7	
FX reserves, months of imports	11.7	12.9	13.6	14.0	12.6	11.9	10.0	9.0	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	29.6	31.9	33.4	35.9	39.2	41.8	44.7	46.5	
Private non-financial sector debt service ratio, %	3.2	3.3	3.3	3.6	3.9	4.2	4.4	4.6	
Credit gap, pp deviation from trend	-5.4	-3.4	-2.2	-0.1	2.9	5.0	7.6	9.0	
Property gap, % deviation from trend	-11.8	-12.9	-11.5	-4.8	-1.9	3.7	8.1	11.5	
Equity gap, % deviation from trend	-2.3	-6.9	15.2	8.2	23.1	12.5	3.9	18.1	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Russia: Enjoying a robust external position

A healthy current account surplus and high real yields mean Russia is less vulnerable to EM snapback risks unless oil prices fall more than we expect.

EEMEA Economics

Inan Demir - NIplc
inan.demir@nomura.com
+44 (0) 20 710 29978

Recovery in oil prices brought about a recovery in growth and the current account. After sliding into recession in early 2015 as a result of the dual shocks of Western sanctions and the collapse of oil prices, growth resumed in late 2016 as oil prices recovered thanks to the OPEC+ agreement. Better terms-of-trade also supported an improvement in the current account surplus, which continued widening in early 2018.

The macro policy mix has been very prudent. Higher oil prices supported a decrease in the federal budget deficit to 1.5% of GDP in 2017 and, with oil prices at their current levels, we expect the budget to post a surplus of around 1.3% of GDP this year. Since early 2017, the Finance Ministry has been purchasing FX in order to set aside oil revenues that exceeded the budgeted level. These purchases helped push official FX reserves to above USD450bn as of February 2018 from USD377bn at the end of 2016. The Central Bank of Russia (CBR), meanwhile, has been easing monetary policy very cautiously despite substantial disinflation. With the policy rate at 7.5% against an inflation rate of just 2.2% – well below the 4% target – Russia enjoys one of the strongest real interest rate buffers in the emerging market universe.

Russia should be relatively insulated from a global yield shock … The above-mentioned positive investment case has naturally attracted attention from foreign investors, and non-residents' holdings of Russian debt securities are at all-time highs, which keeps FX and fixed income markets subject to the risk of the unwinding of these foreign investor positions. However, strong central bank reserves and the high level of real interest rates should contain financial market pressures, while Russia's robust external position continues to lend fundamental support. Consequently, we think that Russia is relatively insulated from a global interest rate shock.

… while the extent of the oil price decline will dictate the impact on the Russian economy and markets. Our assumption for oil prices in a major EM risk-off scenario is a drop of 10%, which would still keep oil prices above the 2017 average. This would be consistent with a moderate current account surplus, modest GDP growth and a small budget deficit, implying a relatively limited impact on Russia's economy and markets. However, if the oil price drop proves steeper than this assumption, the current account

Fig. 35: Russia: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	4.5	5.1	3.7	1.8	0.7	-2.8	-0.2	1.5	1.7
CPI inflation, % y-o-y	6.9	8.4	5.1	6.8	7.8	15.5	7.0	2.5	3.5
Room for policy response									
Fiscal balance, % GDP	-3.2	1.4	0.4	-1.2	-1.1	-3.4	-3.7	-1.5	1.3
Public debt, % GDP	10.6	10.8	11.5	12.7	15.6	15.9	15.6	17.4	16.0
Policy interest rate, %	7.75	8.00	8.25	5.50	17.00	11.00	10.00	7.75	6.75
External vulnerabilities									
Current account balance, % GDP	4.1	4.7	3.2	1.5	2.8	5.0	2.0	2.5	
External debt, % GDP	32.4	27.9	29.0	32.4	36.0	41.2	37.6	35.2	
Capital inflows less change in FX reserves, % GDP	-1.0	1.1	1.3	3.6	4.7	-2.5	-1.6	-1.9	
Real 10-year government bond yield, %	-0.5	2.7	0.4	1.4	1.7	-3.4	3.1	5.1	
10y government bond yield - 10y US treasury yield, pp	4.9	6.9	5.2	4.9	10.8	7.3	6.0	5.2	
FX reserves, months of imports	22.7	17.3	17.9	17.4	13.7	20.3	20.3	18.3	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	52.3	52.7	53.5	59.7	71.7	74.0	66.9	66.1	
Private non-financial sector debt service ratio, %	6.6	6.7	6.8	7.6	14.2	12.0	9.8	9.5	
Credit gap, pp deviation from trend	0.0	-2.2	-4.1	-0.5	8.9	8.5	-1.2	-4.0	
Property gap, % deviation from trend	7.6	5.1	9.1	5.0	-0.3	-16.5	-24.1	-26.8	
Equity gap, % deviation from trend	25.5	-3.9	-6.4	-11.4	-25.8	-19.2	-4.1	-13.5	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

surplus would erode further, increasing Russia's vulnerabilities. Another factor that could amplify Russia's vulnerabilities is geopolitics. For the time being this risk is contained as the US Treasury advised against imposing sanctions on Russian sovereign debt and the sanctions currently being contemplated by UK seem to be of limited nature. We would be more concerned if the situation were to change and the joint stance of the US/Europe become more hostile towards Russia.

Singapore: Ultra-open and highly leveraged

The ultra-open economy with a high level of leverage is susceptible to rising trade protectionism and a tightening of financial conditions from higher global rates.

Asia Economics

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Brian Tan - NSL
brian.tan@nomura.com
+65 6433 6930

Charnon Boonnuch - NSL
charnon.boonnuch@nomura.com
+65 6433 6189

For ultra-open Singapore, a significant step-up in US trade protectionism or a sharper-than-expected economic slowdown in China will likely be highly negative, affecting its manufacturing and services sectors. A significant proportion of exports to China are in the form of intermediate goods which are then assembled into finished goods and exported to the US; we estimate Singapore's ultimate goods export exposure to the US amounts to 9% of Singapore's GDP, about half of which is in electronics products. Another 6% is exposed to Chinese final domestic demand (see *Asia Special Report - The impact of US trade protectionism, centring on China*, 23 March 2017).

Outside semiconductors, the domestic economy is still fairly fragile and also highly leveraged (see *Asia Special Report - Singapore: What lies beneath*, 3 November 2017). Household debt remains high at 72% of GDP, broadly unchanged from 2012 despite the implementation of the total debt servicing ratio (TDSR) framework in 2013, and corporate debt has climbed to 158% from 120% in 2012. A faster-than-expected rise in US rates could push Singapore's domestic interest rates higher. Our banks analyst, Marcus Chua, noted that this could be especially problematic in the building, construction and financial services sectors (see *Singapore banks - Scenario analysis: Rapid rise in rates*, 12 March 2018). The median household debt servicing ratio was already at 34% in 2015, not far from the 40% threshold generally considered to be high.[20] Our property analyst, Min Chow Sai, believes it has likely risen since (see *Singapore Resi Wrap - Is the MAS concerned with the DSR?*, 17 January 2018).

There is flexibility to respond to these challenges. One option is unwinding the accumulated multi-year tightening of macroprudential measures on the property market and household debt. Another is turning to a more expansionary fiscal policy. Having run budget surpluses, the government has accumulated large fiscal reserves that can be drawn upon, subject to the president's approval.

Fig. 36: Singapore: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	15.2	6.4	4.1	5.1	3.9	2.2	2.4	3.6	2.5
CPI inflation, % y-o-y	2.8	5.2	4.6	2.4	1.0	-0.5	-0.5	0.6	0.7
Room for policy response									
Fiscal balance, % GDP	0.3	1.1	1.6	1.3	0.1	-1.0	1.4	2.1	-0.1
Public debt, % GDP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Policy interest rate, %	0.44	0.39	0.38	0.40	0.46	1.19	0.97	1.50	1.80
External vulnerabilities									
Current account balance, % GDP	23.4	22.1	17.0	16.5	18.7	18.6	19.0	18.8	
External debt, % GDP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Capital inflows less change in FX reserves, % GDP	23.4	13.2	2.9	35.0	28.0	-1.1	15.6	13.3	
Real 10-year government bond yield, %	-1.9	-3.9	-3.0	1.1	2.4	3.2	2.3	1.6	
10y government bond yield - 10y US treasury yield, pp	-0.6	-0.2	-0.5	-0.5	0.1	0.3	0.0	-0.4	
FX reserves, months of imports	8.5	7.6	8.0	8.4	8.1	9.6	10.0	10.2	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	122.8	133.7	146.0	158.4	167.3	170.1	172.2	172.6	
Private non-financial sector debt service ratio, %	9.1	10.0	10.3	11.3	11.6	11.2	11.6	11.5	
Credit gap, pp deviation from trend	-18.4	-10.3	-0.9	8.5	14.3	14.0	13.0	11.1	
Property gap, % deviation from trend	10.9	10.0	7.4	5.4	0.1	-3.9	-7.8	-8.5	
Equity gap, % deviation from trend	15.0	-10.8	1.3	-1.8	3.2	-12.0	-13.0	-3.8	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts. Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

[20] Shubhasis Dey, Ramdane Djoudad, and Yaz Terajima (2008). "A Tool for Assessing Financial Vulnerabilities in the Household Sector". Bank of Canada Review.

South Africa: Best time for a shock

Despite the positive sentiment on the political transition, the import-intensive bounce-back means we think South Africa could not avoid a risk-off shock.

EEMEA Economics

Peter Attard Montalto - NIplc
peter.am@nomura.com
+44 20 7102 8440

South Africa was famously part of the fragile five when such a term was in vogue in 2013-14. At the time it had a burgeoning current account deficit of just under 6% of GDP led by weak export competitiveness and growing domestic policy uncertainty as well as net FDI falling and then turning negative as the then President Zuma approached his second term. Markets ignored two facts: (i) that there was virtually no external debt for corporates or for the banking sector – especially compared with Turkey; and (ii) that around 1.5pp of GDP of the current account deficit was caused by the rapid ramping-up of the REPIPP renewables programme. At the time, we judged South Africa to be fragile as a high-beta EM currency and a favoured short of the markets, but not particularly vulnerable and that the main fallout of any shock would be seen in inflation – not in reduced financial stability or economic recession.

Since then South Africa has arguably become cyclically less vulnerable as the current account deficit has narrowed to around 2% of GDP with no significant change in external leverage – particularly for corporates or households.

The funding picture is also changing markedly with the election of President Cyril Ramaphosa. Net negative FDI of recent years is set to become positive, together with a strong portfolio inflow shock. If anything, the reduced risk premia and reduction of ratings risk make this a particularly good time to weather a risk shock. We do not view South Africa as structurally less vulnerable, however, as capital controls are still in place which restrict offshore leverage. That said, things may have deteriorated slightly here as the raising of offshore investment limits for local investors means more money can be sent offshore. We think this will increase volatility at the margin but would not overplay this point.

A rapidly closing output gap – GDP growth does not need to recover by much to hit the economy's low potential growth rate – means the SARB could respond to a shock with hikes. However, we would expect any hikes to be limited as policy is not particularly loose and the central bank would only look to second-round effects not backstopping the currency. Fiscal policy and the funding ability of SOEs is more of a concern as there is limited political or practical scope for meaningful additional fiscal consolidation in this

Fig. 37: South Africa: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	3.0	3.3	2.2	2.5	1.7	1.3	0.3	0.8	1.9
CPI inflation, % y-o-y	4.3	5.0	5.6	5.8	6.1	4.6	6.3	5.3	4.6
Room for policy response									
Fiscal balance, % GDP	-4.9	-3.9	-4.4	-4.3	-4.2	-4.6	-4.0	-4.3	-3.7
Public debt, % GDP	34.7	38.2	41.0	44.1	47.0	49.3	51.7	53.0	56.4
Policy interest rate, %	5.50	5.50	5.00	5.00	5.75	6.25	7.00	6.75	6.25
External vulnerabilities									
Current account balance, % GDP	-1.5	-2.2	-5.1	-5.9	-5.3	-4.4	-3.3	-2.5	
External debt, % GDP	29.6	28.3	35.8	37.1	41.3	38.9	48.1	47.8	
Capital inflows less change in FX reserves, % GDP	3.4	3.9	7.3	4.9	7.9	5.7	2.8	4.9	
Real 10-year government bond yield, %	4.8	1.7	1.0	2.7	2.6	4.6	1.9	4.2	
10y government bond yield - 10y US treasury yield, pp	4.9	6.1	5.0	4.9	5.8	7.5	6.5	6.3	
FX reserves, months of imports	5.1	4.7	4.8	4.9	5.0	5.4	6.4	6.2	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	69.8	67.9	70.1	70.0	69.7	73.5	71.9	72.5	
Private non-financial sector debt service ratio, %	8.5	7.8	7.7	7.6	7.7	8.4	8.6	8.9	
Credit gap, pp deviation from trend	0.5	-2.2	-0.9	-1.8	-2.9	0.1	-2.3	-2.3	
Property gap, % deviation from trend	4.2	-0.2	-2.3	-2.1	-3.5	-3.5	-9.5	-10.7	
Equity gap, % deviation from trend	5.3	-5.7	4.6	13.6	9.6	4.9	-9.2	-4.0	

Note: Credit, property and equity gaps are deviations of actual credit, property and equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above-trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Bond yields are end-period (December yield – December headline inflation for real yields). Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.

Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics

political cycle. SOEs have also been responsible for more external leverage overall and remain in very difficult positions – Eskom especially. An inability to issue a USD bond of around USD2bn in July/August would accelerate the need for capital and liability restructuring at the company.

We also see the growth recovery under Cyril Ramaphosa as quite import-intensive, and we think the current account deficit should start to move back towards 4% of GDP in the next two years. We are not overly concerned but would view such a move as the wrong direction during a risk shock.

Overall, we think South Africa has little structural vulnerability to a risk-off shock. Inflation would rise slightly, as would interest rates, but little else. A larger shock into commodity terms of trade, however, would create a more challenging outlook for the current spurt of likely mining FDI into the country under new President Ramaphosa, but we doubt it would derail it completely.

Low-vulnerability countries

Chile: Limited vulnerability

Chile's economy appears to have a relatively low vulnerability to external shocks.

LatAm Research

Benito Berber - NSI
Benito.Berber@nomura.com
+1 212 667 9503

Several factors point to a lower vulnerability than what is suggested by the scorecards.

Strong fiscal position: Central government debt to GDP is low at 25% and, in net terms, is almost zero. In addition, the government maintains "rainy day" funds, including a stabilisation fund that amounts to about 5% of GDP.

Pro-market government: Voters elected Sebastian Piñera from the center right. This will be his second time serving as president (the first time was in 2001-2004), so he does bring experience to the position. Investment confidence, which is being supported by an upswing in the copper-sector cycle, will likely be amplified by the pro-market policies of a president like Mr Piñera.

External scenario: The current account deficit is small and does not point to an external imbalance. The current account deficit in 2017 came out at 1.5% of GDP, is slightly above the 10-year average of deficit of 1.2%.

Recovering economy: From a cyclical point of view, the economy is transitioning from a small negative output gap to a likely positive gap by year-end, as GDP expands in line with our own and the market's growth forecast of around 3.0%-3.5%. While credit to GDP is high (at 141.7%), it does not stick out as a vulnerability, in part because it is evenly distributed between commercial/corporate (54% of total), households (41%) and foreign (5%) players. In addition, the likely recovery of investment both in copper and non-copper sectors of the economy will likely push the potential GDP growth rate higher.

Not everything is rosy: External debt is relatively high and portfolio inflows were sizable in 2017 at 2.2% of GDP, and thus there are some risks associated with a flow reversal. Indeed, since 2010, the accumulation of non-FDI gross capital inflows has exceeded the increase in FX reserves by 24% of GDP. Incoming FDI is distributed in thirds between capital, inter-company borrowing and reinvested earnings. Also, the government does not have a majority in congress and the more left-leaning political parties are rising strongly.

Fig. 38: Chile: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	5.8	6.1	5.3	4.0	1.9	2.3	1.6	1.5	3.1
CPI inflation, % y-o-y	1.4	3.3	3.0	1.9	4.4	4.3	3.8	2.2	2.4
Room for policy response									
Fiscal balance, % GDP	-0.4	1.4	0.7	-0.5	-1.5	-2.1	-2.9	-3.3	-3.0
Public debt, % GDP	8.6	11.1	11.9	12.7	14.9	17.4	21.3	24.9	24.5
Policy interest rate, %	3.25	5.25	5.00	4.50	3.00	3.50	3.50	2.50	2.75
External vulnerabilities									
Current account balance, % GDP	1.4	-1.7	-4.0	-4.1	-1.7	-1.9	-1.0	-1.5	
External debt, % GDP	39.5	40.0	45.9	49.0	58.3	64.9	66.2	62.1	
Capital inflows less change in FX reserves, % GDP	3.9	0.8	5.6	4.7	4.0	0.5	0.6	4.4	
Real 10-year government bond yield, %	n.a.	0.8	4.0	2.2	-0.7	0.3	1.6	2.3	
10y government bond yield - 10y US treasury yield, pp	n.a.	3.3	3.7	2.0	1.8	2.4	1.9	2.1	
FX reserves, months of imports	5.7	6.8	6.3	6.3	6.8	7.6	8.6	7.4	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	102.1	109.6	116.6	123.8	134.7	145.3	144.0	141.7	
Private non-financial sector debt service ratio, %	10.4	14.5	14.7	15.0	14.7	14.6	14.0	12.9	
Credit gap, pp deviation from trend	-14.7	-9.8	-5.5	-1.1	7.0	14.8	10.7	6.3	
Property gap, % deviation from trend	-6.2	-2.4	-1.8	-2.2	4.5	4.6	-1.4	2.8	
Equity gap, % deviation from trend	49.2	17.0	13.8	-7.6	-11.7	-21.4	-16.3	4.0	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Hungary: Rabbit hole offset

Hungary is largely immune to a risk-off shock in stability terms, but it would seriously question the unorthodox monetary policy framework – probably to the MNB's advantage.

EEMEA Economics

Peter Attard Montalto - NIplc
peter.am@nomura.com
+44 20 7102 8440

Hungary has probably seen one of the sharpest reductions in vulnerability in recent years as it has decisively dealt with FX leverage on household balance sheets and net FX issuance from the public sector has turned negative.

Through FDI and import suppression it has also run consistent current account surpluses of increasing size. With the recent introduction of new import-intensive FDI projects and import-intensive EU structural fund projects, the current account surplus has fallen slightly but should remain in surplus and expand again from here as those export FDIs start production (especially in the automotive industry).

However, on the surface, Hungary still appears to have significant external debt thanks mainly to foreign bank short-term credit from parents to subsidiaries, and from foreign parent manufacturing companies to domestic subsidiaries. Discounting this, we actually view external debt as low – especially considering Hungary's integration with the eurozone economy.

As such, we see Hungary having very limited structural exposure to a risk-off shock especially vs previous years.

However, the current unorthodox monetary policy framework could exacerbate a risk-off shock by highlighting such negative real rates and liquidity being pumped into the long end of the curve by the central bank. Yet the MNB wants a weaker HUF, and were that to occur as a result of a risk-off shock, we think the Bank would take the opportunity to loosen monetary conditions further and start a slow exit from its unorthodox policy set.

As for Poland, risk-off sentiment may make investors focus more on relations with the EU and the structural impact of that beyond 2021 if anti-EU sentiment solidifies.

Fig. 39: Hungary: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	0.7	1.7	-1.6	2.1	4.0	3.1	2.0	3.6	3.0
CPI inflation, % y-o-y	4.9	3.9	5.7	1.6	-0.2	-0.1	0.4	2.4	3.2
Room for policy response									
Fiscal balance, % GDP	-4.5	-5.5	-2.3	-2.6	-2.1	-1.6	-1.8	-2.5	-2.7
Public debt, % GDP	80.5	80.7	78.2	76.6	75.7	74.7	74.1	74.5	73.5
Policy interest rate, %	5.75	7.00	5.75	3.00	2.10	1.35	0.90	0.90	0.90
External vulnerabilities									
Current account balance, % GDP	0.3	0.7	1.8	3.8	2.1	3.4	5.5	3.5	
External debt, % GDP	160.9	180.7	159.1	144.8	147.8	131.8	120.7	109.7	
Capital inflows less change in FX reserves, % GDP	-1.9	-3.0	-10.1	-8.8	-1.7	-1.5	1.4	-0.1	
Real 10-year government bond yield, %	3.3	5.7	1.1	5.2	4.5	2.4	1.4	-0.1	
10y government bond yield - 10y US treasury yield, pp	4.7	7.9	4.4	2.6	1.4	1.1	0.7	-0.4	
FX reserves, months of imports	5.9	5.4	5.3	5.4	4.7	4.3	3.3	3.1	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	129.5	130.1	118.7	111.2	108.1	99.6	92.6	87.3	
Private non-financial sector debt service ratio, %	16.5	16.2	15.5	13.1	11.4	9.6	8.5	7.7	
Credit gap, pp deviation from trend	26.1	23.9	9.9	0.0	-5.5	-16.3	-25.5	-32.5	
Property gap, % deviation from trend	-5.8	-12.0	-20.8	-21.8	-14.6	-2.5	7.7	15.0	
Equity gap, % deviation from trend	1.1	-24.6	-25.2	-25.9	-34.7	-8.7	17.9	32.8	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics

Poland: Looking resilient

The robust current account shields the country in the event of an EM risk-off.

EEMEA Economics

Marcin Kujawski - NIplc
marcin.kujawski@nomura.com
+44 20 710 28302

In our view Poland looks to be fairly resilient to an EM risk-off. Its external balances have largely improved after the global financial crisis and the current account has only a very modest deficit. While above-potential GDP growth this year will likely lead to a deterioration of the current account, the deficit should remain under control and ought to be fully covered by more sticky EU funds and FDI inflows.

Although the stock of debt looks less buoyant than flows, as external debt hovers around 70% of GDP, the structure of foreign debt should somewhat mitigate the negative consequences of a risk-off. About 25% of Poland's debt is in FDI intercompany lending, while a large share of government borrowing from abroad is PLN denominated.

Fiscal risks have also eased in the last few years with the general government deficit narrowing to about 2% of GDP. Similar to the external position, the stock of public debt looks worse than flows as it remains high, exceeding 50% of GDP. Nonetheless, with fast nominal GDP growth and only moderate FX-denominated borrowing, rising debt servicing costs are unlikely to derail the country's public debt dynamics.

Although banks have used overseas funding in the past, it accounts for a relatively small share of their balance sheets, and credit activity is primarily financed by residents' deposits. Still, CHF-denominated mortgages (for which overseas funding was primarily raised) remain an unresolved issue. The government is processing a bill that encourages banks to convert their loans into PLN, but no legislation has been approved yet.

Potential trade disruptions caused by either a slowdown in China and/or more protectionist measures globally should also have a limited direct impact on Poland. The European Union is a primary trading partner of Poland and only second-round effects from this bloc can hit Poland more seriously.

The loose pro-cyclical policy conducted by the central bank could depress the rather optimistic outlook, however. Real policy interest rates are likely to drop to some -1% this year, which may not provide a sufficient buffer in the event of a sudden risk-off in EM.

Fig. 40: Poland: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	3.7	5.0	1.6	1.4	3.3	3.9	2.9	4.6	4.0
CPI inflation, % y-o-y	2.6	4.3	3.7	0.9	0.0	-0.9	-0.6	2.0	2.1
Room for policy response									
Fiscal balance, % GDP	-7.3	-4.8	-3.7	-4.1	-3.5	-2.6	-2.4	-2.0	-2.0
Public debt, % GDP	53.1	54.1	53.7	55.7	50.2	51.1	54.4	54.2	52.0
Policy interest rate, %	3.50	4.50	4.25	2.50	2.00	1.50	1.50	1.50	1.50
External vulnerabilities									
Current account balance, % GDP	-5.4	-5.2	-3.7	-1.3	-2.1	-0.6	-0.2	-0.3	
External debt, % GDP	65.5	70.7	70.2	69.8	72.7	71.8	75.9	69.4	
Capital inflows less change in FX reserves, % GDP	0.2	0.9	-1.0	0.5	1.3	1.4	-3.4	-0.2	
Real 10-year government bond yield, %	2.9	1.3	1.1	3.5	3.3	3.7	2.7	1.2	
10y government bond yield - 10y US treasury yield, pp	2.8	4.0	2.0	1.3	0.3	0.7	1.2	0.9	
FX reserves, months of imports	5.9	5.1	6.1	5.7	5.1	5.6	6.6	5.8	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	72.8	76.7	76.6	78.8	81.8	83.5	86.3	83.0	
Private non-financial sector debt service ratio, %	7.5	8.0	8.2	7.8	7.8	7.6	7.7	7.3	
Credit gap, pp deviation from trend	4.1	5.0	1.9	1.1	1.1	-0.2	-0.3	-5.9	
Property gap, % deviation from trend	-0.6	-4.0	-13.0	-6.2	-5.2	1.5	6.8	10.8	
Equity gap, % deviation from trend	10.4	-18.9	-3.6	0.2	-1.9	-13.1	-6.1	13.1	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts. Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics

Taiwan: Safety first

A strong balance of payments suggests a low external vulnerability to higher global rates. But exposure is quite high to risks of a US-Sino trade war or a China growth slowdown.

Asia Economics

Young Sun Kwon - NIHK
youngsun.kwon@nomura.com
+852 2252 1370

Minoru Nogimori - NIHK
minoru.nogimori@nomura.com
+852 2252 6462

Taiwan's "safety first" macro policies have built formidable barriers to external financial shocks, with huge FX reserves (USD451bn, equivalent to 21 months of import), a large current account surplus (over 10% of GDP since 2013) and very low foreign participation in the local bond market (USD1.7bn, or 0.5% of total local bonds outstanding, as of 2016). Domestically, Taiwan's property market experienced a healthy correction in 2015-17, which resulted in reduced domestic credit and property gaps. Low inflation and limited external vulnerability should give the Central Bank of China (CBC) room to allow monetary policy to deviate from the Fed, to some extent. If capital outflow pressure from the equity market (foreign ownership: USD461bn, 42% of the TWSE market cap, as of February) increases substantially due to a global EM sell-off, we would expect the CBC to intervene in the currency market to ensure an orderly TWD depreciation – Taiwan's FX reserves are large enough to keep its currency market stable, in our opinion.

Although Taiwan looks resilient to external financial shocks (such as higher US interest rates), the export-oriented economy is vulnerable to external *real* shocks. Indeed, a China economic slowdown and growing US trade protectionism add downside risks to our Taiwan GDP growth forecast of 3.0% in 2018 – in the upper range of the government's four-year average growth target (2.5-3.0%). In late February, a number of Chinese government agencies announced a total of 31 measures to boost Taiwanese investment in the mainland, ahead of the Taiwan Travel Act (passed by the US Congress) taking effect on 16 March. In response, the Taiwan government will likely announce counter-measures. This, along with potential for US pro-Taiwan action, could ignite a spike in cross-Strait tensions. If these downside risks do materialise, we would expect the government to implement a fiscal stimulus and allow some TWD depreciation to support exports. We would not rule out a policy rate (10-day discount rate) cut – but, given that market interest rates are already low and largely dislocated from policy rates, we doubt that any monetary easing would do much to support growth.

Fig. 41: Taiwan: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	10.6	3.8	2.1	2.2	4.0	0.7	1.5	2.9	3.0
CPI inflation, % y-o-y	1.0	1.4	1.9	0.8	1.2	-0.3	1.4	0.6	1.5
Room for policy response									
Fiscal balance, % GDP	-3.2	-2.1	-2.4	-1.4	-0.8	0.1	-0.3	-1.0	-1.6
Public debt, % GDP	36.7	38.2	39.2	39.0	37.9	36.6	36.2	35.3	36.9
Policy interest rate, %	1.63	1.88	1.88	1.88	1.88	1.63	1.38	1.38	1.5
External vulnerabilities									
Current account balance, % GDP	8.2	7.8	8.9	10.0	11.5	14.2	13.7	14.7	
External debt, % GDP	22.6	25.2	26.3	33.1	33.5	30.1	32.3	31.3	
Capital inflows less change in FX reserves, % GDP	-1.0	1.2	0.2	7.7	4.8	-3.8	3.1	1.6	
Real 10-year government bond yield, %	0.3	-0.7	-0.4	1.4	1.0	0.9	-0.5	-0.2	
10y government bond yield - 10y US treasury yield, pp	-1.7	-0.6	-0.6	-1.3	-0.6	-1.2	-1.2	-1.4	
FX reserves, months of imports	17.9	16.1	17.4	18.0	17.8	21.6	22.6	20.9	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	147.9	154.5	159.9	163.9	164.0	163.3	164.8	170.1	
Private non-financial sector debt service ratio, %	12.0	12.7	13.2	13.5	13.5	13.4	13.3	13.8	
Credit gap, pp deviation from trend	-9.7	-4.5	-0.5	2.1	0.7	-1.3	-1.2	3.1	
Property gap, % deviation from trend	2.1	5.9	9.4	20.2	17.1	7.8	0.8	-0.6	
Equity gap, % deviation from trend	12.2	-13.8	-8.8	0.3	6.3	-6.2	1.1	12.9	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics estimates.

Thailand: Still-large current account surplus

A large current account surplus and ample fiscal space keep Thailand's external vulnerability low. However, structural headwinds are constraining potential growth.

Asia Economics

Euben Paracuelles - NSL
euben.paracuelles@nomura.com
+65 6433 6956

Charnon Boonnuch - NSL
charnon.boonnuch@nomura.com
+65 6433 6189

Brian Tan - NSL
brian.tan@nomura.com
+65 6433 6930

Thailand's balance of payments remains very strong. The current account surplus stood at 10.8% of GDP in 2017, FX reserves stand at USD214.7bn and adequacy metrics are among the best in the region at 3.3x short-term debt and 9.8 months of imports. There is ample fiscal space too, with the public debt-to-GDP ratio at only 41.8%, while overall external debt is fairly moderate at 35.4% of GDP.

The Bank of Thailand (BOT) is likely to maintain an accommodative stance, despite Fed rate hikes, as inflation has been persistently low and is below its 1-4% target. In addition, THB has continued to strengthen against most currencies. In the event of capital outflows and given very low inflation, the BOT is likely to allow THB to adjust and would be able to facilitate an orderly weakening in the currency using its large FX reserve buffer. This should in turn help support exports and the tourism sector, which are the main engines of growth.

The low external vulnerability, however, reflects in large part structural headwinds and slowing potential growth. Thailand's fairly high ratio of private credit to GDP is concentrated in household debt which, at 78.3% of GDP, is one of the highest in the region. Importantly, the household balance sheets of the lowest income groups appear to be the least sound: the BOT's Financial Stability Report shows that the debt-to-financial asset ratio for the lowest quintile of households by income was about double that for the highest quintile in mid-2017. Combined with an ageing population, this is contributing to a persistently weak outlook for domestic demand. This also weighs on private investment trends, as public investment in infrastructure has been disappointing amid political instability. Although the first election since the military Junta's rule is slated for February 2019, the risk of further delay is still relatively high, in our view.

Fig. 42: Thailand: Economic and vulnerability indicators

	2010	2011	2012	2013	2014	2015	2016	2017	2018F
Macroeconomic indicators									
GDP growth, % y-o-y	7.5	0.8	7.2	2.7	1.0	3.0	3.3	3.9	4.0
CPI inflation, % y-o-y	3.3	3.8	3.0	2.2	1.9	-0.9	0.2	0.7	1.0
Room for policy response									
Fiscal balance, % GDP	-0.9	-1.0	-2.6	-1.9	-2.7	-2.4	-2.6	-3.1	-2.9
Public debt, % GDP	39.6	38.0	40.1	42.2	42.5	43.7	40.7	41.2	42.4
Policy interest rate, %	2.00	3.25	2.75	2.25	2.00	1.50	1.50	1.50	1.50
External vulnerabilities									
Current account balance, % GDP	3.3	2.6	-0.4	-1.0	3.8	8.0	11.7	10.8	
External debt, % GDP	33.0	31.5	35.4	35.8	34.8	32.1	32.7	35.9	
Capital inflows less change in FX reserves, % GDP	-2.3	1.2	4.8	4.9	2.7	-3.7	-3.4	-3.3	
Real 10-year government bond yield, %	0.6	-0.2	-0.1	2.2	2.1	3.4	1.5	1.5	
10y government bond yield - 10y US treasury yield, pp	0.4	1.4	1.8	0.9	0.6	0.2	0.2	-0.1	
FX reserves, months of imports	10.3	8.9	8.9	8.3	7.8	8.3	9.1	9.8	
Domestic vulnerabilities									
Credit to private non-financial sector, % GDP	95.3	106.2	109.3	116.9	119.8	121.5	118.9	115.6	
Private non-financial sector debt service ratio, %	8.3	9.7	10.1	10.7	10.7	10.5	10.1	9.7	
Credit gap, pp deviation from trend	-15.9	-4.6	-1.2	6.7	9.8	11.6	9.2	6.0	
Property gap, % deviation from trend	-1.7	-4.5	-2.7	2.6	7.7	9.7	6.8	9.5	
Equity gap, % deviation from trend	1.3	-5.8	20.6	7.6	19.3	0.7	16.5	23.5	

Note: Credit, property and equity gaps are deviations of actual credit, real property and real equity price indices from their long-run average (calculated using an HP filter with lambda set at 400,000). A positive gap indicates that the variable is running above trend and vice versa for a negative gap. Capital inflows less change in FX reserves refers to non-FDI gross inflows minus the change in FX reserves over that year. Real government bond yield is calculated by subtracting headline CPI inflation. Data for 2017 are full year for GDP growth, CPI inflation, fiscal balance and current account balance, yearend for policy interest rate, public debt, bond yields and FX reserves, Q1-Q3 for capital inflows and as at Q3 for domestic vulnerability indicators and external debt. 2018 are Nomura forecasts.
Source: BIS, IMF, Bloomberg, CEIC and Nomura Global Economics.

Appendix 1: 20 years on from the Asian crisis

EM Economics

Rob Subbaraman - NSL
rob.subbaraman@nomura.com
+65 6433 6548

Michael Loo - NSL
michael.loo@nomura.com
+65 6433 6296

When I left the Reserve Bank of Australia to join Lehman Brothers in Hong Kong in April 1997, little did I know that I would be in pole position to experience the Asian crisis, starting with the devaluation of the Thai baht on 2 July. The severity was breath-taking – by June 1998, the Indonesian rupiah had lost 85% of its value against USD – but what astonished me more was the volatility. For instance, in December 1998 the Korean won lost 45% of its value against USD, but the sum of the absolute percentage daily changes in that month totalled 145%. My other two chilling memories were the extent and severity of the contagion, eventually engulfing most of Asia, and how long it lasted – it was still going over a year later, with the HKD peg under attack in August 1998 and Malaysia imposing draconian capital controls in September. A comparison of Asia in 1996 and 2017 (Figure 43) reveals some big differences, but also some similarities and a few new unknowns.

Differences

Data quality. Compared to today, in 1996-97 FX reserve data were released with long lags. Many countries lacked comprehensive external debt data which, along with credit rating downgrades, probably contributed to many investors assuming the worst.

Exchange rate regimes. Before the Asian crisis, most countries had fixed or heavily managed currencies against USD, causing real effective exchange rates to appreciate significantly above trend (see REER gap in Figure 43). This also incentivised borrowing in foreign currency, as pegged exchange rates were viewed as implicit guarantees of exchange value. Today, bar HKD, exchange rates are much more flexible.

Balance of payments. In 1996, nearly all countries had sizable current account deficits because of overvalued currencies and too-loose domestic policies. To finance these deficits, before the crisis many countries had large net capital inflows – as a percentage of GDP, larger than those in recent years. However, gross inflows are also useful to monitor – as it is often foreign investors that are more likely to repatriate their investments – and here the picture is more mixed, with several countries (India, Indonesia, Singapore and Taiwan) experiencing larger inflows than pre-1996. Yet overall, Asia today has a much stronger balance of payments position, with seven of the 10 countries under our coverage running current account surpluses, combined with a massive build-up of FX reserves and a web of central bank currency-swap arrangements.

Global backdrop. The strength of the global economy before the Asian crisis – world output grew by 4.0% in 1997, the fastest in nine years – is similar to the synchronous global expansion of today, but there are important monetary policy differences. In 1997, the Fed was on hold as opposed to its current rate-hiking cycle, which is happening after an unusually long period of very low interest rates, not to mention the world economy entering unchartered waters as the major central banks exit their QE programs.

Room for monetary policy to manoeuvre. In 1997-98, Asian monetary authorities had to raise rates to punitive levels to defend their currencies, causing domestic demand to collapse. Today, with more flexible exchange rates and robust balance of payments, having to raise rates in the face of a financial crisis seems unlikely. That said, interest rates are much lower today than in 1996, leaving central banks little room to cut rates in the face of a domestic credit crunch. One big difference is that in the past decade Asia has built up large macroprudential buffers – such as lowering property loan-to-value ratios or raising stamp duties on property transactions – yet it remains to be seen whether easing these restrictions at times of risk aversion can help thwart crises.

Similarities

Limited government debt. Government debt in the region is currently highest in India (69% of GDP) and is noticeably higher than in 1996 in China, Malaysia, Korea, Taiwan and Thailand. Asian governments have taken on more debt than before the Asian crisis – the simple average of Asian debt ratios was 44% of GDP in 2017 versus 32% in 1996 – but this is still quite low, particularly in a global context (G20 public debt averaged 114% of GDP in 2017), leaving a lot of space for emergency fiscal stimulus.

External debt exposure. The degree of exposure is somewhat controversial. The simple average of external debt in GDP for the region was 32% in 2017, a little lower than in 1996. The share of short-term, unhedged foreign-currency debt is also lower than 20 years ago (this was Asia's Achilles heel in 1997, as massive currency devaluations greatly inflated external debt; Indonesia's external debt rose to 155% of GDP in 1998 from 28% in 1996). As mentioned, Asia has become less vulnerable to exchange rate crises. That said, the external debt data do not capture the relatively new phenomenon of offshore subsidiaries of Asian companies raising cheap USD funding, which is not easy to measure. Even in the headline external debt data there seem some pockets of vulnerability: Malaysia's external debt is high, Taiwan has a very high share of short-term external debt, and foreign ownership of Indonesian government bonds is high.

High private credit. Similar to pre-1997, private credit levels are high; in fact, in six of the 10 countries the ratios to GDP are higher than in 1996, most notably in China (211% versus 90% in 1996). The deviation of this credit ratio from long-run trend (the credit gap) and the private (household and corporate) debt-service ratio, both useful early warning indicators of past financial crises, are now high in many countries.

Property market froth. Studies of past financial crises show that they are more likely to occur when there are parallel credit and property market booms. As in 1996, this is the case in several Asian countries today. Our measure of property market froth – real (CPI adjusted) property price deviation from its long-run trend (property gap) – is high, most notably in China, but also Hong Kong, Indonesia, Malaysia, the Philippines and Thailand.

New unknowns

Quantitative 'tightening'. Asia has become used to very low interest rates since 2008, as QE in the DMs set off a global hunt for yield. As many central banks contemplate unwinding QE, the world is once again in unchartered territory and a snapback in DM bond yields cannot be ruled out. This could be the trigger for a fundamental repricing of EM credit risk, to which Asia seems vulnerable. Strikingly, in all Asian countries debt-service ratios are now higher than in 1998, even though policy interest rates are lower.

Market liquidity illusion. Liquidity could evaporate quickly, causing Asian credit spreads to widen sharply. For example, if the world's giant asset managers – their combined assets under management swelling to USD81trn[21] in 2016 from USD53trn in 2008 – reassess *en masse* the risk-return trade-off on their investments in Asia's relatively small debt markets.

China. The world's second-largest economy, to which the rest of Asia is highly exposed, is still in the throes of deleveraging and continues to flash some signs of vulnerability. Whether China is willing to tolerate more short-term pain for long-term gain, by persevering with deleveraging, closing zombie companies and letting markets play a more decisive role, remains to be seen. The one thing that is clear is that if China delays reforms and resorts to demand-side policy stimulus, the bigger the risk of disruptive adjustments – from which the contagion to the rest of Asia could be substantial.

Trade protectionism. Amid high US policy uncertainty, an escalation in trade protectionism against China could quickly spread across the region's value chains, hurting trade and lifting inflation. A trade war or a surge in foreign policy tensions around one of Asia's potential flashpoints – the Korean peninsula, South China Sea, Taiwan Strait – could trigger a disorderly unwind of Asia's financial cycle.

In summary, while Asia has a much stronger balance of payments position than it did 20 years ago, we should not delude ourselves into believing the region is insulated from global monetary policy normalisation and other risks. Claudio Borio, head of the Economic Department at the Bank for International Settlements, reminds us that some of the most spectacular financial crises in history have occurred in countries with current account surpluses. Think of the bursting of Japan's 1980s asset bubble and of the US ahead of the Great Depression. To this end, we are well aware that our early warning indicator (EWI) model – which has reliably signalled at least two-thirds of the past 50 financial crises in 30 countries since the early 1990s – is signalling that Asia is the region most at risk (see *Appendix 2: Nomura's early warning indicators of financial crises*).

[21] Estimate of the AUM of the world's largest 500 asset managers comes from Willis Towers Watson.

Fig. 43: Asia ex-Japan's key indicators - 1996 vs 2017

	China	HK	India	Indonesia	Malaysia	Philippines	Singapore	Korea	Taiwan	Thailand	Asia ex-Japan	
											GDP-weighted	Simple average
Real GDP growth, % y-o-y												
1996	9.9	4.3	7.6	7.8	10.0	5.8	7.5	7.6	6.2	5.7	**8.7**	**7.2**
2017	6.9	3.8	6.4	5.1	5.9	6.7	3.6	3.1	2.9	3.9	**6.2**	**4.8**
CPI inflation, % y-o-y												
1996	8.3	6.3	8.5	8.0	3.5	8.3	1.4	4.9	3.1	5.8	**7.7**	**5.8**
2017	1.6	1.5	3.3	3.8	3.8	2.9	0.6	1.9	0.6	0.7	**2.1**	**2.1**
Current account balance, % of GDP												
1996	0.8	-1.5	-1.6	-3.4	-4.4	-4.3	14.4	-4.0	3.7	-8.0	**-0.5**	**-0.8**
2017	1.4	3.0	-1.5	-1.7	3.0	-0.8	18.8	5.1	14.7	10.8	**1.6**	**5.3**
Net capital inflows, five-year cumulative sum, % of GDP												
1996	8.5	-2.2	10.0	14.1	38.9	22.2	-15.9	9.8	-11.5	38.0	**9.3**	
2017	-9.8	15.6	11.9	13.7	-17.7	-7.1	-71.8	-26.5	-49.1	-22.4	**-9.2**	
Gross capital inflows, five-year cumulative sum, % of GDP												
1996	19.1	n.a.	5.2	17.0	19.4	37.2	135.4	21.8	12.3	44.3	**21.9**	
2017	12.9	231.8	10.8	19.0	18.4	8.8	172.4	-7.8	18.3	5.2	**18.1**	
FX reserves, USD bn												
1996	105	64	20	19	27	10	77	32	88	37	**479**	
2017	3140	416	385	124	96	70	277	379	452	193	**5532**	
FX reserves, % GDP												
1996	12.2	40.0	5.4	8.4	26.6	10.7	79.5	5.4	30.1	20.3	**12.2**	**23.9**
2017	25.6	121.7	15.3	12.2	30.5	22.3	85.5	25.3	78.7	42.4	**26.0**	**45.9**
Import cover of FX reserves, no. of months of imports												
1996	9.1	3.9	6.2	5.3	4.1	3.6	7.0	2.6	10.3	8.0	**7.6**	**6.0**
2017	20.5	8.9	10.3	9.4	5.9	9.0	10.2	9.5	20.9	9.8	**15.8**	**11.4**
External debt outstanding, % GDP												
1996	15.0		25.9	56.4	39.3	49.4		24.3	11.1	60.3	**23.5**	**35.2**
2017	12.7		20.9	34.3	74.5	24.5		27.2	32.3	32.1	**19.6**	**32.3**
Volatility of local currency per USD, coefficient of variation of daily data												
1996	0.001	0.000	0.020	0.008	0.009	0.002	0.004	0.028	0.005	0.004	**0.007**	**0.008**
2017	0.019	0.003	0.018	0.007	0.026	0.012	0.019	0.021	0.015	0.026	**0.018**	**0.017**
General government debt, % of GDP												
1996	21.3		66.0	28.9	33.2	54.7		8.2	24.1	15.2	**32.1**	**31.5**
2017	47.6		68.7	28.7	55.2	33.9		38.0	35.3	40.6	**49.8**	**43.5**
Policy interest rate, %												
1996	7.47	5.61	7.97	13.04	7.15	10.75	3.13	12.51	5.00	12.12	**8.29**	**8.47**
2017	1.50	1.31	6.00	4.25	3.00	3.00	1.50	1.50	1.38	1.50	**2.75**	**2.49**
Credit to private non-financial sector, % of GDP												
1996	90.2	166.6	27.5	63.1	146.7	49.9	124.0	148.5	146.3	158.2	**82.2**	**112.1**
2017	210.5	298.0	56.8	39.1	134.1	46.5	172.6	193.8	170.1	115.6	**154.7**	**143.7**
Debt service ratio, %												
1996	13.3	18.6	4.8	13.7	19.7	8.3	9.8	24.0	16.2	24.3	**12.4**	**15.3**
2017	20.0	25.5	7.3	4.2	13.1	4.6	11.5	20.0	13.8	9.7	**15.0**	**13.0**
Credit gap, percentage point deviation from long-run trend												
1996	-5.8	6.9	-4.7	9.8	23.3	17.6	7.6	10.6	17.5	43.1	**-0.2**	**12.6**
2017	16.6	30.8	-7.8	-0.7	4.0	9.0	11.1	-1.2	3.1	6.0	**8.1**	**7.1**
Real property price gap, % deviation from long-run trend												
1996	13.6	31.6	21.7	11.9	7.4	-1.2	53.0	-5.6	1.6	4.5	**14.0**	**13.9**
2017	32.0	17.0	3.0	12.0	9.8	11.5	-8.5	3.1	-0.6	9.5	**19.7**	**8.9**
Real equity price gap, % deviation from long-run trend												
1996	-25.0	21.7	-17.4	58.9	64.0	71.4	20.1	-15.7	13.5	17.7	**-9.4**	**20.9**
2017	-2.1	0.8	-0.8	5.4	-5.7	18.1	-3.8	7.4	12.9	23.5	**0.7**	**5.6**
Real effective exchange rate gap, % deviation from long-run trend												
1996	5.5	-2.2	-3.7	26.4	12.6	18.7	7.3	7.9	3.3	17.5	**5.8**	**9.3**
2017	-1.2	13.2	5.9	-0.1	-5.3	-2.7	-0.3	4.1	11.5	1.9	**1.2**	**2.7**
Nomura's number of flashing early warning indicators												
1996	6	4	0	16	24	15	6	31	34	50	**186**	
2017	35	52	0	3	16	19	15	0	3	23	**166**	

Note: The columns under Asia ex-Japan contain the GDP-weighted (PPP basis) average and simple average of the 10 countries in the table for all variables except FX reserves, the number of flashing early warning indicators (these are summed for the 10 countries) and net and gross capital inflows (the five-year cumulative sums is aggregated for the 10 countries, and divided by total nominal GDP of the countries in 1996 or 2017). Net or gross capital inflows include FDI, portfolio and other investments, except for India and Malaysia which do not include 'other' investments. For Hong Kong and Singapore, we have excluded external debt since it is largely trade-finance related and also excluded general government debt as it largely reflects issuance of government bonds that is not used to finance spending. For policy interest rates, we use the 3m SIBOR and HIBOR rate for Singapore and Hong Kong, respectively, and for many countries we use the money market rate for 1996 when the policy rate is unavailable. Data are year-end or Q4 for FX reserves, import cover, government debt, policy interest rate; Q3 for external debt, credit to the private non-financial sector, credit gap, property gap, equity gap, and REER gap, while annual average values are shown for the remainder. Gaps (for credit, property, equity and REER) are calculated as the percentage or percentage point deviation of the actual end-1996 or Q3-2017 data from a long-run Hodrick Prescott filtered trend. The number of flashing early warning indicators (the maximum for each country is 60) refers to the number of Nomura's EWIs that have breached a predetermined threshold (determined using a noise-to-signal approach) over 1994-96 and 2015-17, to warn that, based on the experience of past crises (50 in our sample of 30 countries with time series data back to the early 1990s), a crisis could happen in the next 12 quarters (for details of the methodology see *Asia's maturing financial cycle*, 19 July 2016). Sources: BIS, IMF, World Bank, CEIC, National statistics offices of countries and Nomura Global Economics.

Appendix 2: Nomura's early warning indicators of financial crises

EM Economics

Rob Subbaraman - NSL
rob.subbaraman@nomura.com
+65 6433 6548

Michael Loo - NSL
michael.loo@nomura.com
+65 6433 6296

In a previous major study (see *Asia's maturing financial cycle*, 19 July 2016), we developed early warning indicators (EWIs) that reliably signalled two-thirds of the past 50 financial crises since the early 1990s in a sample of 30 countries (our data set has over 13,000 observations). Drawing on the rich literature on financial crises and the great strides in this field made by the Bank for International Settlements we chose five variables around which we construct our EWIs, each measured as a "gap" (deviation from long-run trend):

- Private non-financial credit-to-GDP ratio
- Private non-financial debt-service ratio (DSR)
- Real effective exchange rate (REER)
- Real property price; and
- Real equity price

The underlying idea of our EWI signal approach is straightforward: EWIs are designed to flash a warning signal of a financial crisis occurring within the next 12 quarters when they breach predefined thresholds. Based on the past 50 financial crises in our sample,[22] we choose the optimal threshold for each EWI that minimises the noise-to-signal ratio, i.e., minimises the trade-off between having too many false alarms (too low threshold) and missing crises altogether (too high threshold) while still allowing it to predict two-thirds of the crises in our sample.

We evaluated the individual performances for the above five indicators in predicting crises up to 12 quarters ahead, but also found added predictive power by combining them. That is, we also considered joint – and even triple – indicators where a warning signal is "on" if, and only if, the thresholds for the joint indicators are simultaneously breached. We settled on five EWIs that have the strongest predictive power – the DSR gap, three joint EWIs and one triple EWI (credit gap, REER gap and DSR gap).

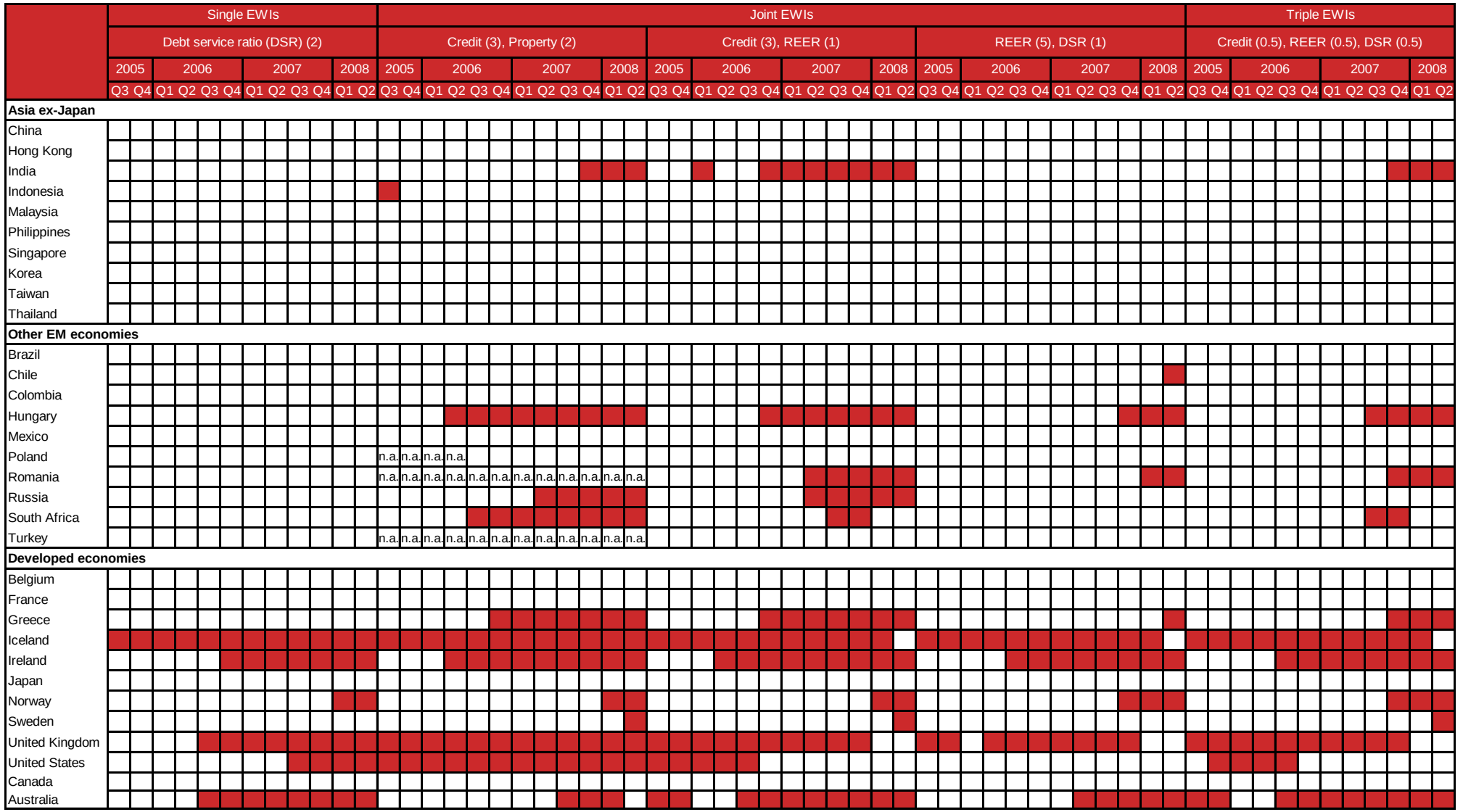
For a sample of 32 countries (10 in EM Asia, 10 other EM and 12 DM – we added Australia and Canada in recent updates) we show the results when the vulnerability thresholds are breached and our preferred EWIs flash signals – denoted by red cells – that a crisis could occur within the next 12 quarters. We show the results at two different snapshots in time – in 2008 just before the global financial crisis and the most recent data in 2017.

Just before the global financial crisis our EWIs were strongly warning of a financial crisis brewing in DM (Figure 44). In the 12 quarters up to Q2 2008, 241 out of 720 possible signals, or 33%, were flashing red in the 12 DMs. This compared to only 71 signals flashing out of a possible 1,200 (6%) for the 20 EMs.

Almost a decade on and our EWIs are sending very different signals – the flashing red cells have migrated from DM to now show EM most at risk (Figure 45). In the 12 quarters to Q3 2017, 247 out of 1,200, possible signals, or 21%, were flashing red in the 20 EMs. In particular, Asia ex-Japan is the region most at risk, with 166 out of 600 possible signals, or 28%, flashing red. By contrast, having been at the core of the global financial crisis 10 years ago, the 12 DMs show only 26 out of 720 possible signals flashing, or just 4%.

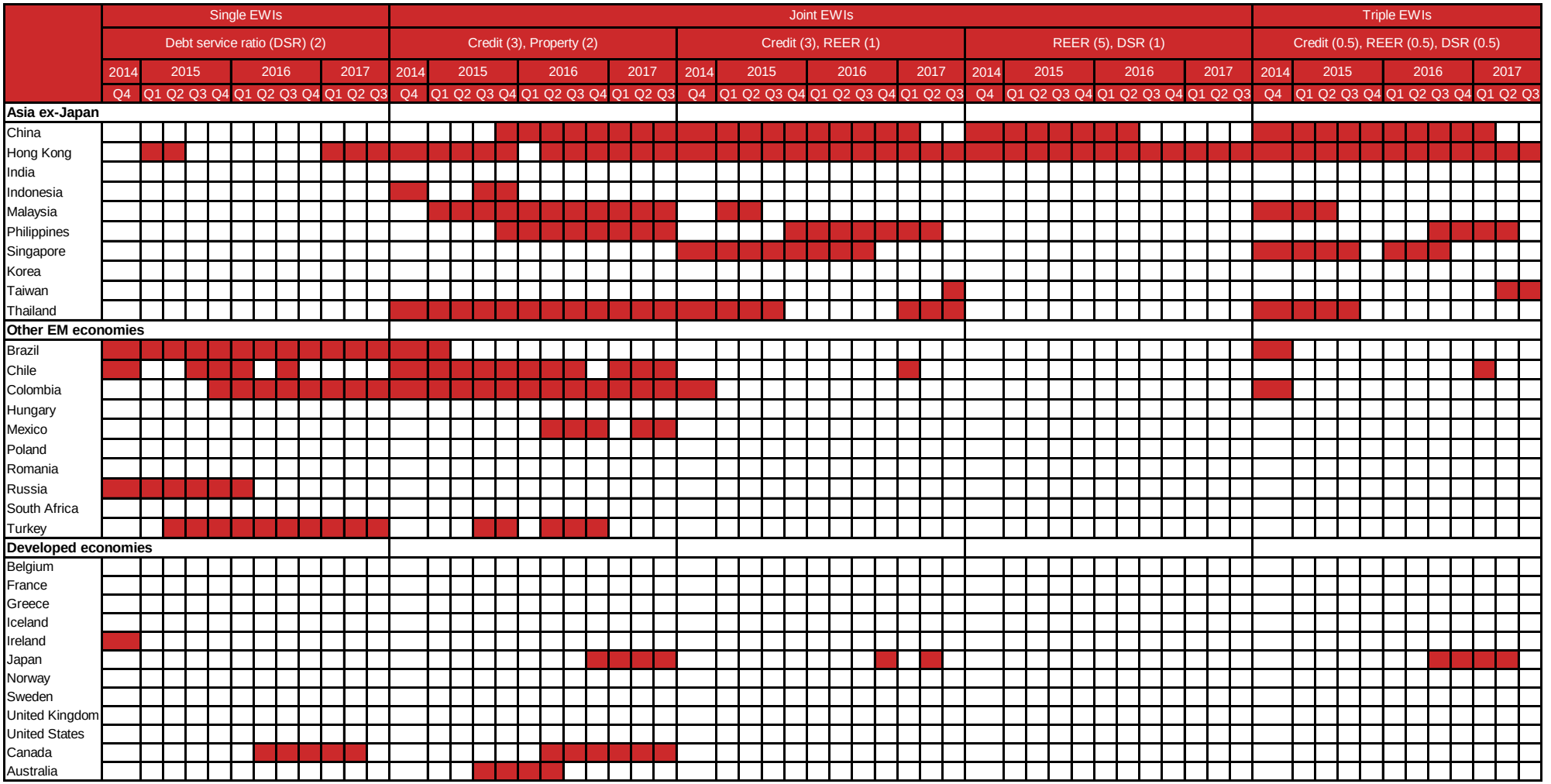
[22] To determine the start dates of banking crises we draw on the work of Laeven and Valencia (2012). They set two conditions for an event to be classified as a crisis: First, if there are significant signs of financial distress in the banking system (e.g., significant bank runs, losses in the banking system or bank liquidations); and second, if there are significant policy interventions in response to the financial distress. We also draw on banking crises classified by Reinhart and Rogoff (2008) and Drehmann, Borio and Tsatsaronis (2011). However, some countries have experienced market meltdowns and severe economic hardship, but avoided banking crises. Hong Kong in 1998 is a good example. In an attempt to capture these events, we add our own measure of domestic demand crises, which we define as at least two consecutive quarters where growth in real domestic demand plunges to more than two standard deviations below its long-run average, essentially implying two consecutive quarters of negative year-on-year growth. Combining the various definitions of crises, our sample of 30 countries contains 50 crises since 1990.

Fig. 44: Heat-map before the 2008 global financial crisis (red cell = signal given by EWI)



Note: For a detailed explanation of the methodology, see the original *Anchor Report: Asia's maturing financial cycle*. EWIs are expressed as gaps. The number (in brackets) beside each EWI is the critical threshold that the EWI has to breach for it to issue a signal of a crisis within the next 12 quarters. Determining the thresholds involves a trade-off between having too many false signals and missing crises altogether, and so we use the noise-to-signal approach to determine the optimal thresholds based on our panel of 30 countries with data since the early 1990s, capturing the past 50 financial crises. A signal is issued for joint and triple EWIs if, and only if, the thresholds are simultaneously breached. We have adjusted for the structural break caused by the one-off reclassification of private credit in Ireland in Q1 2015. Upon requests from clients, we have added the results for Australia and Canada to the heat-map. Source: BIS, IMF, Bloomberg, Haver, CEIC and Nomura Global Economics.

Fig. 45: Heat-map for the most recent 12 quarters to Q3 2017 (red cell = signal given by EWI)



Note: For a detailed explanation of the methodology, see the original *Anchor Report: Asia's maturing financial cycle*. EWIs are expressed as gaps. The number (in brackets) beside each EWI is the critical threshold that the EWI has to breach for it to issue a signal of a crisis within the next 12 quarters. Determining the thresholds involves a trade-off between having too many false signals and missing crises altogether, and so we use the noise-to-signal approach to determine the optimal thresholds based on our panel of 30 countries with data since the early 1990s, capturing the past 50 financial crises. A signal is issued for joint and triple EWIs if, and only if, the thresholds are simultaneously breached. We have adjusted for the structural break caused by the one-off reclassification of private credit in Ireland in Q1 2015. Upon requests from clients, we have added the results for Australia and Canada to the heat-map. Source: BIS, IMF, Bloomberg, Haver, CEIC and Nomura Global Economics.

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