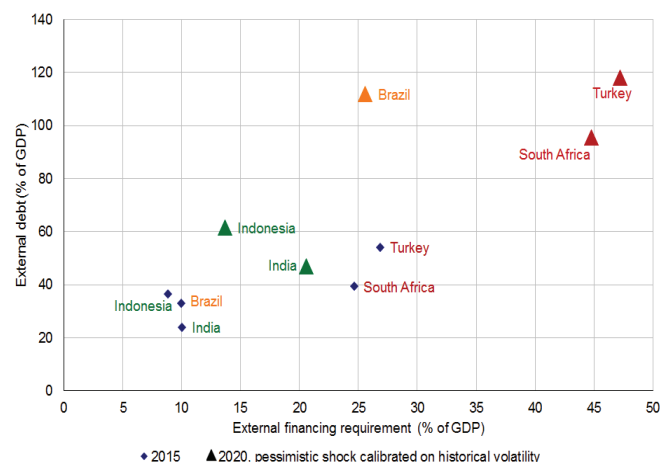


How would the external debt of five major emerging countries respond to financial tensions?

- The highly accommodative monetary policy implemented in the developed countries since the 2008 financial crisis has helped to stimulate large capital inflows into the emerging economies by investors seeking higher yields. These flows were reversed when the U.S. Federal Reserve raised interest rates and some emerging economies began to slow.
- The emerging countries seem to have become less vulnerable to abrupt reversals of capital flows since the 1990s for reasons that include growth in domestic savings and foreign-exchange reserves, as well as greater exchange-rate flexibility. However, other weaknesses have developed, such as closer financial integration, a rise in private debt and a recent increase in foreign-currency debt for many emerging economies.
- This study quantifies the vulnerability of external debt in a sample of five major emerging economies: Brazil, India, Indonesia, South Africa and Turkey. These countries have in common a large current-account deficit, heavy dependence on foreign investment and a structurally negative net external position. Our methodology enhances the IMF's framework for analysing external debt sustainability over the 2020 horizon in the specific case of our sample. Our contributions include (i) jointly simulated shocks on a larger set of variables to better reflect the correlation between past shocks, and (ii) shocks calibrated on recent observations to better capture the changing resilience of the sampled economies.
- South Africa and Turkey seem the most vulnerable of the five countries studied if financial tensions should flare up again. In the worst-case scenario, a conjunction of negative shocks would nearly double their external debt and external financing requirement. Moreover, these countries are characterised by comparatively modest foreign-exchange reserves, a relatively short maturity of their external debt and, for Turkey, heavy foreign-currency debt. Low commodity prices increase South Africa's external financing requirement but reduce Turkey's.
- Indonesia and India are moderately vulnerable. In the worst-case scenario, these countries would maintain a reasonable external debt and financing requirement. They have displayed good resilience in the recent and more distant past, and their central banks still have substantial manoeuvring room. India stands out favourably with a relatively low external debt and upward-revised forecasts for GDP and the current-account balance.
- Brazil is in an intermediate position. Its current difficulties (recession, political uncertainty, declining commodity prices) aggravate the external risk, but the economy exhibits strengths that reduce short-term vulnerability (moderate external debt, long maturity, resilient foreign direct investment).

Projected gross external debt and external financing requirement (as % of GDP)



Source: DG Trésor.

1. The emerging economies are heavily dependent on global capital flows, which in turn are highly sensitive to U.S. monetary policy

1.1 Since mid-2014, domestic and external factors have caused a reversal of net capital flows to emerging economies

The years 2009–2013 saw massive capital inflows to the emerging economies. Given the highly accommodative monetary policies in the main advanced countries, the interest-rate and economic-growth differentials between advanced and emerging economies fuelled a quest for returns. These capital inflows provided strong momentum for an increase in emerging stock-market indices: the MSCI (Morgan Stanley Capital International) index more than doubled between 2009 and 2011. The trend persisted despite the steady decline in growth in these economies since the 2011 post-crisis rebound. Moreover, while foreign direct investment (FDI) accounts for a large share of net capital inflows, the proportion of portfolio and bank flows, which are highly volatile, rose after the crisis as the advanced countries opted for accommodative monetary policies.

The 2009–2013 period also saw episodes of decreased capital inflows due to external developments that tended to increase risk aversion: the start of the euro area crisis at end-2011; the strong tensions triggered by that same crisis in mid-2012; and the announcement, followed by the expectation, of a normalisation of U.S. monetary policy in spring and summer 2013. The markets were therefore prepared for the actual announcement by the Federal Reserve Bank of the normalisation of its unconventional monetary policy on 18 December 2013, which did not trigger new tensions immediately.

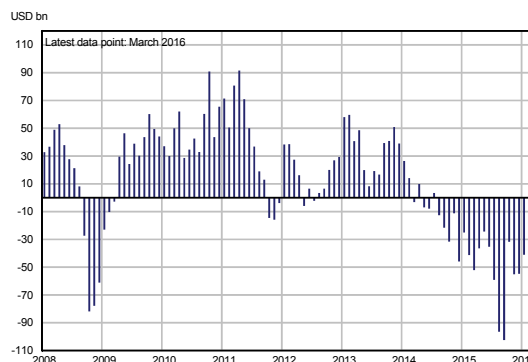
Since mid-2014, the trend reversal of capital flows to the emerging economies indicates the gradual withdrawal of certain non-resident investors. The markets have reacted vigorously to any bad news from the emerging countries, driving up risk premiums (spreads) and exchange-rate volatility. The hardest hit emerging countries have been those exhibiting the severest weaknesses: external vulnerability, structural weaknesses, rising political and social instability, or an economic policy reversal. Several central banks have been forced to tighten their monetary policy, sometimes abruptly, to curb capital outflows.

In 2015 and early 2016, capital outflows (see Chart 1) and exchange-rate tensions persisted amid a slowdown in the major emerging economies: Brazil, China and South Africa. Depreciations were especially sharp in commodity-exporting countries owing to the decline in prices.

Financial tensions could intensify with the continued rise in U.S. interest rates. Net capital outflows and currency depreciation would have destabilising effects, as net capital inflows to the emerging economies historically account for a significant share of their GDP (approximately 4% between 1998 and 2008 according to the Institute of International Finance) and are increasingly volatile. These effects could be all the stronger if U.S. rates rise faster than the markets expect or if the hikes coincide with an aggravation of internal difficulties

in certain emerging economies. On balance, while a gradual normalisation of economic conditions in the world's main economies seems to be the central scenario, the outbreak of fresh financial tensions would compromise the sustainability of the main emerging economies' external debt. Capital outflows might then generate balance-of-payments crises (an economy's inability to balance its external accounts) and currency crises (a sudden depreciation under a flexible exchange-rate regime or a weakening of the currency peg under a fixed exchange-rate regime).

Chart 1: Monthly net capital flows to emerging economies



Sources: national data; DG Trésor calculations and estimates (February–March).

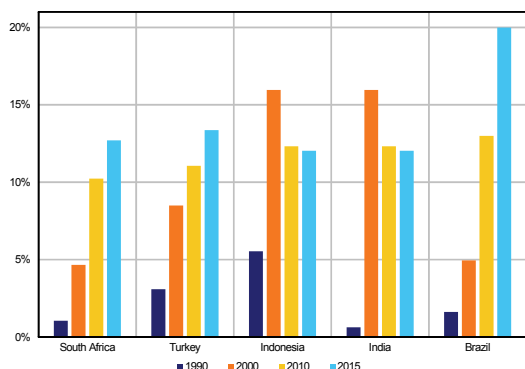
Note: the sample used to estimate capital flows consists of China, Brazil, India, Russia, Turkey, Hong Kong, Argentina, South Korea, South Africa, Mexico, Indonesia, Thailand, Malaysia, Poland, Colombia, Peru, the Philippines and Taiwan.

1.2 The emerging economies seem better equipped to cope with resurgent financial tensions than during the financial crises of the 1990s, but some risks have increased

Five of the main emerging economies display large external imbalances that expose them to a tightening of monetary and financial conditions if capital flows should suddenly reverse: Brazil, India, Indonesia, South Africa and Turkey. These countries have in common a large current-account deficit, heavy dependence on foreign investment and a structurally negative net external position. They also share a flexible exchange-rate regime, usually regarded as an advantage for external adjustment. Lastly, all these countries rank among the major emerging economies.

Some current characteristics of the emerging economies make them broadly more robust than they were in the 1990s: (i) lesser dependence on foreign capital inflows thanks to larger domestic financing sources; (ii) lower external debt stock as a percentage of GDP thanks to high growth in the 2000s; (iii) greater exchange-rate flexibility; (iv) larger foreign-exchange reserves (see Chart 2); (v) more efficient transmission of monetary policy thanks to the greater credibility of their central banks; (vi) stronger banking sectors owing to tighter prudential standards.

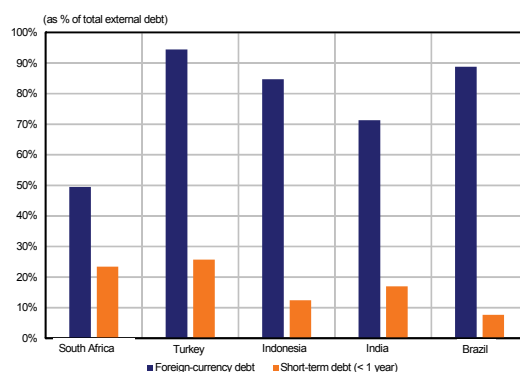
Chart 2: Foreign-exchange reserves over the long term (as % of GDP)



Source : Datainsight.

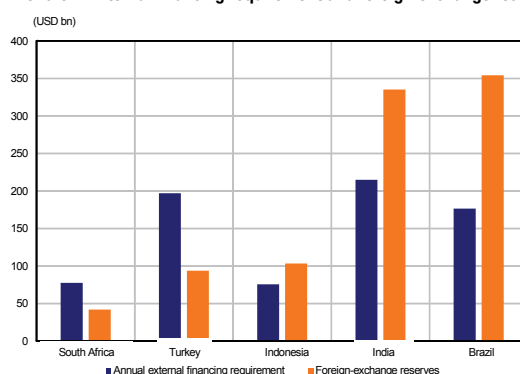
This general description, however, conceals specific weaknesses in certain countries. Between 2010 and 2015, external debt rose significantly in the five countries sampled, albeit at different rates ranging from 9 points of GDP for South Africa to 5 points for India. Moreover, their debt structures differ: they do not have the same share of foreign-currency debt, or of short-term debt (which increases the annual external financing requirement) (see Chart 3). The ratios of their financing requirement to foreign-exchange reserves diverge widely as well (see Chart 4). In particular, the reserves of South Africa and Turkey are smaller than their annual financing requirement, making them vulnerable. The IMF (*External Sector Report*, July 2016) regards the two countries' reserve adequacy ratio as too low to cope with large capital outflows.

Chart 3: Foreign-currency and short-term external debt (as % of total external debt)



Sources: IMF, central banks.

Chart 4: External financing requirement and foreign-exchange reserves (USD bn)



Sources: IMF, central banks, DG Trésor.

Note: Annual external financing requirement in 2015 and gross foreign-exchange reserves at end-December 2015.

2. Resurgent financial tensions could undermine the external-debt sustainability of some emerging countries

2.1 The IMF proposes an analytical framework to simulate external debt dynamics

The IMF defines debt sustainability as "a situation in which a borrower is expected to be able to continue servicing its debts without an unrealistically large future correction to the balance of income and expenditure" (*Assessing Sustainability*, 2002). Its assessment is one of the main missions of the Fund, which presents its analyses in the consultations under Article IV, when delivering programmes

or in cross-sectional reports such as the External Sector Report.

The IMF proposes an analytical framework for forecasting an external debt path based on assumptions about variables including GDP growth, current-account balance, debt service and amortisation, and capital flows. With respect to a reference scenario, the IMF simulates alternative scenarios involving shocks on different balance-of-payments variables (see Box 1).

Box 1: External financing requirement and external debt

The annual external financing requirement is equal to the current-account deficit (excluding interest) plus external debt service. Debt service comprises payments due in the year for external debt interest and amortisation (partial amortisation for medium/long-term debt and total amortisation for debt maturing in less than a year). In other words, the external financing requirement corresponds to payments by resident agents to non-residents for (1) instalments on their past debt to the rest of the world and (ii) financing their net imports during the year.

This external financing requirement can be met by: (i) increasing net inflows of non-debt-creating capital (FDI and the "equity" component of portfolio flows); (ii) increasing net inflows of debt-creating capital (issuance of new external debt to renew or even increase existing debt); (iii) reducing residents' external assets, for example by drawing down foreign-exchange reserves or selling assets held abroad. Options (i) and (ii) increase liabilities to non-residents, while option (iii) decreases residents' assets vis-à-vis the rest of the world.

These items are summed up in the balance of payments, which can be rewritten as:

$$\begin{aligned}
 & \text{Change in external-debt stock} \\
 &= \text{Issuance of external debt} - \text{Amortisation of existing debt} \\
 &= \text{Current-account deficit (excluding interest)} - \text{Net inflows of non-debt-creating capital} \\
 & \quad + \text{Interest on debt} + \text{Change in external assets} + \text{Residual}
 \end{aligned}$$

(The Residual includes such items as the capital account, errors and omissions, and all other unidentified capital flows.)

The concepts of external financing requirement and change in external-debt stock are interdependent: the external financing requirement is a flow that can increase the external-debt stock, whose growth, in turn, drives up the external financing requirement through the cost of servicing a larger debt.

2.2 Scenarios enhanced with respect to IMF analyses

Using alternative scenarios to the IMF's, we can adapt the methodology to the challenges faced by the emerging economies, so as to illustrate the impact of an economic slowdown and a tightening of monetary and financial conditions.

The IMF methodology defines a reference path and alternative scenarios based on shocks affecting each of the flows included in the balance of payments, or indirectly through shocks on several macroeconomic variables: GDP growth, the interest rate and the exchange rate. Among the alternative scenarios examined by the IMF, only the "combined" shock—to use its terminology—affects several variables simultaneously: GDP growth, the interest rate and the current-account balance.

The study presented here goes further in the specific case of our sample of emerging economies. An initial supplementary contribution to the IMF methodology is that we simulate simultaneous shocks on a greater number of variables: to the IMF's "combined" shock on GDP growth, the interest rate and the current-account balance, we add a decrease in capital inflows and an exchange-rate depreciation. The second contribution consists in better capturing the robustness of the economies sampled by looking at the changes observed in

recent years and not only by applying a historical, long-term approach.

We simulate two types of shocks, designated S1 and S2¹. S1 shocks are calibrated using the IMF model, based on the volatility of historical data between 2005 and 2014 (long-term approach). S2 shocks are calibrated differently from the IMF. S2 calibrations are based on gaps in IMF forecasts prepared in different periods and on exchange-rate and interest-rate movements between 2013 and 2015 (short-term approach). The notion underlying S2 shocks is that the IMF had not predicted the episodes of financial tensions observed in 2013–2015—amid the tightening of U.S. monetary policy and a slowdown in the emerging economies. The forecasting gap and the actual exchange-rate and interest-rate movements can be viewed as a rough measure of the impact of these tensions.

The simulated shocks reflect the following scenario: tighter monetary conditions in the U.S. generate financial tensions, resulting in higher interest rates, a decrease in capital inflows and an exchange-rate depreciation in the countries studied; the current-account deficit shrinks, driven by the recovery in external demand—particularly from the U.S.—and by the contraction in domestic demand, while GDP growth is hit by a negative shock.

Table 1: Calibration of the three S1 shocks, as a fraction of the standard deviation

Variable	Variation	Impact on debt	Long-term shocks		
			S1a	S1b	S1c
GDP growth rate	Growth slows	Increase	0	–0.5	–1
Interest rate	Rates rise	Increase	0	0.5	1
Δ Exchange rate	Exchange rate depreciates	Increase	–10%	–20%	–30%
Current-account balance	Current-account balance improves (i.e., the deficit narrows)	Decrease	+0.25	+0.25	0
FDI	Inflows weaken	Increase	–0.25	–0.5	–1
Portfolio inflows		Increase	–0.25	–0.5	–1

Note : Shocks are shown as fractions of the standard deviation except for the variation in the exchange rate, which is expressed as a level.

Source: DG Trésor.

2.2.1 Calibration of shocks on historical long-term volatility (S1 shocks)

We built three scenarios for each country based on the same principle (see Table 1). Using the reference scenario constructed with the IMF methodology, they incorporate shocks of different magnitude. Under an S1a shock, the country adjusts with relative ease to external tensions (exchange-rate depreciation, decrease in net capital inflows); as a result, the GDP growth rate and interest rates are unchanged. Under an S1b shock, the country must absorb a stronger external shock, triggering additional economic problems: weaker GDP growth and higher interest rates. Under an S1c shock, the country faces a massive external shock and has trouble meeting its annual external financing requirement; this may entail a steep drop in foreign-exchange

reserves, a significant rise in debt—and even multilateral financial assistance.

Our shock calibration follows IMF methodology for analysing external debt sustainability. For each variable exposed to a shock, we calculate the shock's magnitude as a fraction of the standard deviation, from 0.25 standard deviations (weak shock) to one standard deviation (strong shock); the absence of a shock is the reference scenario. In other words, the higher the historical volatility, the stronger the simulated shock (see 2.3). Table 1 gives the calibrations. In scenario S1a, GDP growth and interest rates are not exposed to shocks, the exchange rate depreciates by 10%², and the current-account deficit, FDI and portfolio flows decrease by 0.25 standard deviations. In scenarios S1b and S1c, the number of variables exposed to shock increases and the magnitude of the shocks is greater.

(1) For all shocks, the "change in external assets + residual" items in the balance of payments are regarded as being expressed in billions of dollars (and not in points of GDP).

(2) The exchange-rate shock occurs once, in 2016, the first year of the projection. In other words, the variation in the exchange rate is set at a given value in the projection year and stays at that value in the reference path—i.e., before the shock—in the following years. By contrast, the other shocks are permanent over the projection period, i.e., the variables are subjected to recurring shocks between 2016 and 2020.

2.2.2 Calibration of shocks on more recent trends (S2 shocks)

The scenarios calibrated on forecasting gaps observed between 2013 and 2015 complement those described above and aim to better capture the current vulnerability of the economies. The long-term approach (over ten years) takes into account past long-run volatility, while the short-term approach (over two years) reflects the magnitude of the shocks observed—for example after the first announcements of the normalisation of U.S. monetary policy (between the *World Economic Outlooks* (WEO) of April 2013 and April 2014, the IMF revised its 2014 growth forecast for the countries studied downwards by an average 1.3 percentage points). We constructed three scenarios of different magnitude (S2a, S2b and S2c) by applying shocks to the following variables: growth rate, interest rate and current-account balance³.

The first shock (S2a) is partly defined with the revisions to the IMF forecasts, as follows: (i) for the growth rate and current-account balance, we take the average revision

by country between the WEOs of April 2013 and April 2014; (ii) for the exchange rate, we use the variation in the nominal exchange rate observed between 1 April 2013 and 1 April 2014; (iii) for the interest rate, we select the change in the EMBI (Emerging Markets Bond Index) in basis points over the same period.

The second shock (S2b) is defined in the same way as shock S2a but between the WEOs of April 2014 and April 2015⁴. The third and strongest shock (S2c) is based on data observed between 2013 and 2015. For each variable and each country, we have chosen the most negative change in terms of debt creation—i.e., the change that causes the largest increase in external debt—during the years 2013-2014 and 2014-2015. For the exchange rate, we take the steepest nominal depreciation observed between two dates one year apart between January 2013 and April 2015⁵; we use the same specification for the interest rate. Table 2 shows the average calibration of the three S2 shocks, whose magnitude is specific to each country.

Table 2: Average calibration of the three S2 shocks

Variable	S2a	S2b	S2c
	2013-2014	2014-2015	Max shock
GDP growth rate (%)	-0.9	-0.6	-1.1
Interest rates (basis points)	63	42	196
Exchange rate (depreciation, %)	-12.7	-19.3	-27.2
Current-account balance (% of GDP)	+0.9	+0.9	+0.4

Source: DG Trésor.

2.3 The impact of an external shock on the external debt dynamics will differ according to the emerging countries' specific risk factors and the historical volatility of their economic variables

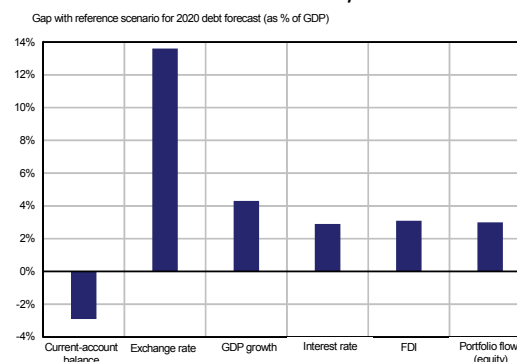
The emerging economies are all the more exposed to a tightening of U.S. monetary policy as:

- their annual external financing requirement is high (large current-account deficit or external debt and/or short-term debt maturity);
- their monetary policy manoeuvring room is limited (low foreign-exchange reserves, high key interest rates);
- their vulnerability to a worsening international environment is high (foreign-currency debt or economy heavily dependent on foreign capital).

The share of foreign-currency external debt is a key external risk factor as it is the main channel affecting the external debt path. Chart 5 illustrates this point in the specific case of Brazil. The chart plots the gap between debt in the reference path and debt in 2020 after a shock on one variable (the others being kept at their reference values) using the S1b scenario calibration⁶. The exchange-rate shock has the greatest impact: the countries with a tendency to vola-

tile exchange rates and with a large share of foreign-currency external debt are the most exposed in the event of new financial tensions.

Chart 5: Breakdown of S1b shock by variable - the case of Brazil



Source: DG Trésor.

The past volatility of each variable is crucial to the results of the external debt path simulations, for it determines the magnitude of the shocks applied and therefore the change in external debt stock. It depends heavily on the country examined, as Table 3 shows.

- (3) Owing to the lack of data for recent years, foreign direct investment (FDI) and portfolio investment are not subjected to shocks. We constrain these variables to the same values as in the reference path, in points of GDP.
- (4) We calibrate the shocks on the basis of the WEO up to April 2015 so as to mainly capture the impact of expectations about U.S. Federal Reserve rate hikes. We thus exclude other factors that have strongly affected growth forecasts for the emerging economies studied since mid-2015: lower commodity prices, Chinese economic slowdown and heightened domestic political tensions.
- (5) Footnote 2 also applies to S2 shocks.
- (6) Note that the S1b scenario cannot be obtained by adding the bars of the chart, because the different shocks have simultaneous impacts.

Table 3: Standard deviation for the five countries studied, 2005-2014

Variable	South Africa	Turkey	Indonesia	India	Brazil
DGP growth rate (in %)	2.1	4.4	0.8	2.1	2.4
Interest rates (in %)	1.4	1.3	1.3	1.1	2.7
Current-account balance (% of GDP)	1.2	2.3	2.4	1.4	2.3
FDI (% of GDP)	1.8	1.0	0.5	0.4	1.2
Portfolio inflows (% of GDP)	3.3	1.8	0.8	1.1	1.2

Source: DG Trésor.

3. Our simulations identify three risk profiles in the event of financial tensions in the emerging economies

3.1 With their relatively high debt levels, South Africa and Turkey are the most vulnerable of the five countries studied (Profile 1)

South Africa and Turkey find themselves in similar situations: (i) relatively high external debt (around 50% of GDP); (ii) heavy external financing requirement (approximately 25% of GDP); (iii) significant rise in both variables over the 2020 horizon (a near-doubling) under the pessimistic scenario of a sudden tightening of monetary and financial conditions (see Charts 6 and 7).

Despite recent signs of greater economic resilience, both countries still display major weaknesses. GDP growth, interest rates and exchange rates have been less volatile in the past two years than over a longer period. We might thus assume that these economies would be more robust to external shocks-implying S2 scenarios somewhat more optimistic than S1 scenarios. Nevertheless, low foreign-exchange reserves, exchange-rate depreciation and dependence on volatile capital flows (not modelled in our S2 scenarios) are sources of vulnerability that could prove harmful in the event of an external shock.

Chart 6: Gross external debt of South Africa (reference path and after shocks)

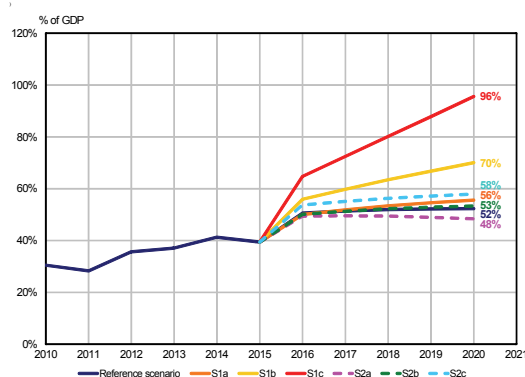
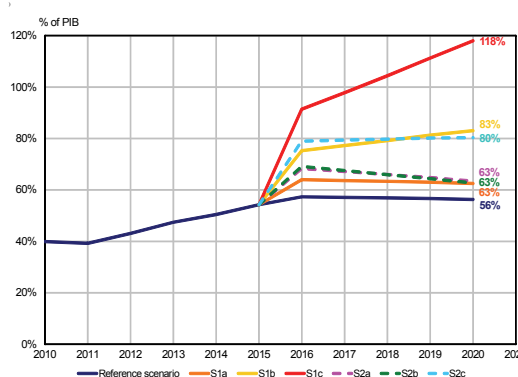


Chart 7: Gross external debt of Turkey (reference path and after shocks)



Source: DG Trésor.

In Turkey, a resurgence of financial tensions could drive up external debt significantly given the economy's heavy dependence on volatile capital flows. The annual external financing requirement is high and met largely from short-term foreign capital and external debt issuance. The high volatility of economic growth, despite a recent decrease, and the large volume of foreign-currency debt are additional factors of vulnerability amid tensions over the Turkish lira, aggravated by political tensions due to the attempted coup in July 2016. Moreover, the external risk is exacerbated by the weakness of foreign-exchange reserves, reportedly inadequate for coping with a sudden stop of foreign capital inflows. However, the crisis risk is limited by the fact that net external debt is significantly lower than gross external debt.

In South Africa, the economy's dependence on portfolio flows could drive up external debt substantially if financial tensions flare up again. The current-account deficit is financed mainly by volatile portfolio flows, whose reversal could trigger an increase in external debt (not

modelled in the S2 scenarios). Foreign capital could withdraw in the event of U.S. rate hikes but also if the economy's structural vulnerabilities undermine the growth outlook. In addition, the external risk is aggravated by the insufficiency of foreign-exchange reserves to cope with a strong external shock and by the central bank's limited manoeuvring room for raising the key rate. However, the share of foreign-currency debt is relatively small (see Chart 3), making the external debt less sensitive to variations in the historically volatile exchange rate.

3.2 Indonesia and India exhibit restrained vulnerability (Profile 2)

Indonesia and India display similar characteristics: (i) reasonably limited external debt (around 35% of GDP for Indonesia, 25% for India); (ii) moderate external financing requirement (below 10% of GDP); (iii) restrained increase in external debt (approximately 25% of GDP over the 2020) in the worst-case scenario (see Charts 8 and 9).

Chart 8: Gross external debt of Indonesia (reference path and after shocks)

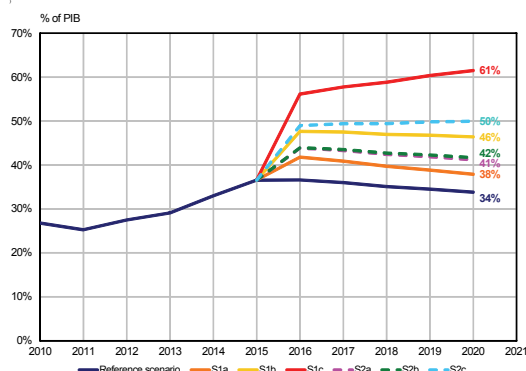
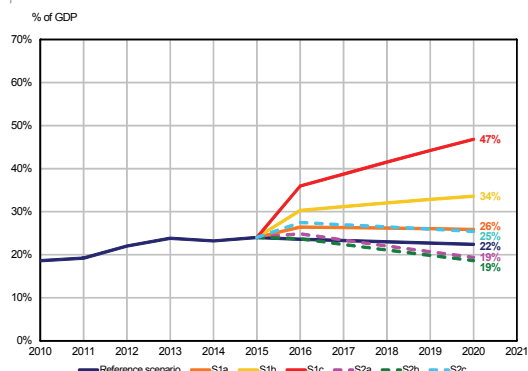


Chart 9: Gross external debt of India (reference path and after shocks)



Source: DG Trésor.

In Indonesia, the economy may prove fairly resistant to financial tensions thanks to the low volatility of growth and capital flows. The increase in external debt would result mainly from an exchange-rate depreciation and higher interest rates. However, the economy's moderate vulnerability seems due to the trends observed in the past two years. These are rather consistent with historical volatility, which is remarkably low for certain variables: this explains the similar outcomes of scenarios S1 and S2. Moreover, the external risk is limited by the volume of the central bank's foreign-exchange reserves (see Chart 3) and FDI, which help to finance the current-account deficit. In the worst-case scenario, external debt would rise to around 60% of GDP by 2020, and the financing requirement would stabilise at approximately 13% of GDP.

India stands out to its advantage, as its recent vulnerability appears limited by comparison with what historical data suggest (see Chart 9). In addition to its remarkably low external debt (around 20% of GDP), the exchange rate displayed little volatility between 2013 and 2015, notably thanks to weak commodity prices and R. Rajan's credibility as Governor of the Reserve Bank of India. The IMF has made upward revisions of its forecasts for several variables such as the reduction in the current-account deficit and GDP growth. This explains why the S2 scenarios are far more optimistic than the S1 scenarios: the latter are based on long-term volatility, which, for most Indian variables, lies within the average of the countries sampled. Even in the worst-case scenario, however, India's debt would not exceed 50% of GDP by 2020, and its external financing requirement would reach 20%. The central bank also has effective latitude in regard to foreign-exchange reserves.

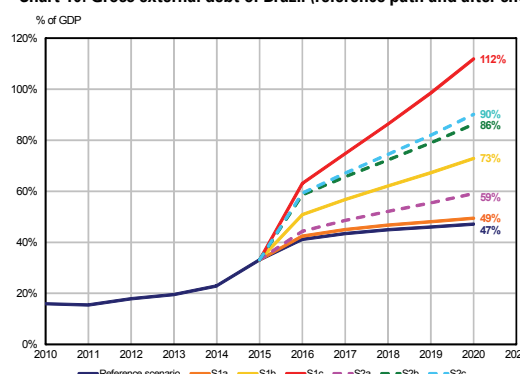
3.3 Brazil is a case apart: its external position is relatively sound (being similar to that of India and Indonesia) but is vulnerable to major medium-term risks (albeit lower than those faced by Turkey and South Africa) (Profile 3)

In the reference scenario, the external debt path rises sharply between 2015 and 2020, because of a deep recession (in 2015 and 2016) and a weak growth

outlook. External debt would rise to approximately 50% of GDP by 2020, up nearly 15 percentage points from 2015.

Our simulations suggest that external debt could more than double by 2020 (with respect to the reference scenario) in the event of strong financial tensions. Historical and recent volatilities are fairly similar—explaining the resemblance of the S1 and S2 scenarios—and their relatively high level accounts for the steep rise in external debt by 2020. Moreover, the central bank would have limited scope for tightening monetary policy in step with U.S. rate hikes without undercutting growth. There are two reasons for this: the high level of the key rate, and the significant share of foreign-currency debt, making Brazil vulnerable in the event of a sharp depreciation of the real.

Chart 10: Gross external debt of Brazil (reference path and after shocks)



Source: DG Trésor.

However, Brazil has two strengths that limit the external risk: low short-term debt and sustained FDI, which is the main source of financing for the current-account deficit. The central bank also has substantial foreign-exchange reserves that could be tapped to offset withdrawals by foreign investors, particularly U.S. investors. For the time being, the financing requirement—the main indicator of short-term vulnerability—stands at approximately 10% of GDP and should not exceed 25% in the worst-case scenario over the 2020 horizon: that percentage is equal to the pre-shock financing requirements of South Africa and Turkey.

Conclusion

The rise in Fed interest rates, coupled with the domestic vulnerability of certain emerging economies and the fall in commodity prices, has triggered net capital outflows from the emerging economies. Investor expectations have allowed some of the adjustment to take place ahead of U.S. rate hikes. Yet financial tensions could surge in the emerging economies that display vulnerabilities and varying room for manoeuvre.

The risk of tension is all the greater if: (i) the pace of Fed rate hikes exceeds market expectations, triggering portfolio reallocations; (ii) the rate increases coincide with the onset or persistence of internal difficulties. To better capture this risk, the analysis of emerging countries' external debt sustainability offers rich and complementary evidence for assessing the weakness of each economy.

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