Business Economics (2019) 54:3–15
https://doi.org/10.1057/s11369-018-00113-4

NABE
National Association for Business Economics

SPEECH

Financial crises: past and future

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Published online: 7 February 2019

Abstract
This article takes a selective global tour of some of the prominent economic and financial risks in advanced, emerging, and low-income developing economies. The primary emphasis is on near-term risks. The discussion covers areas where vulnerabilities have either already become manifest, or those where risks are mounting but have not yet sounded a glaring alarm. For the advanced economies, the topics cover aspects of the recent surge in collateralized lending obligations in the United States and Europe that are reminiscent of the pre-crisis boom in mortgage-backed securities as well as Italy's unresolved debt overhang. On emerging markets (EMs) and developing economies, the themes cover the curious case of the missing defaults (2011–2018); global factors and EM turbulence; and China's international lending to low-income countries and its consequences. A brief discussion of some persistent medium-to-long-term concerns about the rising levels of US public debt and the tensions that arise from internal economic objectives and the external pressures associated with the US dollar's role as the world's principal reserve currency completes the discussion.

Keywords Financial crises · Emerging markets · International capital flows · Debt

1 Introduction

This article takes a selective global tour of some of the prominent economic and financial risks in advanced, emerging, and low-income developing economies. The primary emphasis is on near-term risks. The discussion covers areas where vulnerabilities have either already become manifest, such as the situation faced by many emerging markets (EM) in the past year, or those where risks are mounting but have not yet sounded a glaring alarm, including the recent surge in collateralized lending obligations (CLOs) in the United States and Europe and the deterioration in Italy's fiscal position. A brief discussion of some persistent medium-to-long-term concerns about the rising levels of US public debt and the tensions that arise from internal economic objectives and the external pressures associated with the US dollar's role as the world's principal reserve currency completes the discussion. The starting point in the tour is an assessment of the 2008–2009 global financial crisis' (GFC) recovery.

2 Post-crisis recovery

To place the recovery from the 2008–2009 crisis in a broader historical and international context, I adopt here the approach taken by Reinhart and Rogoff (2014), who introduce a simple severity index to gauge the depth and the duration of the recessions that follow 100 of the worst financial crises since the mid-nineteenth century. Their index adds the peak-to-trough decline in per capita GDP around the crisis to the number of years it took for per capita GDP to recover to its pre-crisis level. Recouping the pre-crisis level of per capita income represents, of course, a minimalist definition of recovery. It is not recovery to potential output, nor recovery to pre-crisis trend growth. The average number of years to get back to the level of pre-crisis per capita GDP is about 7 years for the 63 crises in advanced economies in their sample. The median for that group is about 6 years.

Table 1 provides the comparable facts for the group of countries I dubbed the *Systemic 11,* the advanced economies

Based on the Adam Smith Lecture delivered at the NABE Annual Meeting, Boston, September 30, 2018. This paper was written while a *John H. Makin Visiting Scholar* at the American Enterprise Institute. I wish to thank Vincent Reinhart and NABE conference participants for useful comments and suggestions.

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Table 1 The advanced economies: protracted post-crisis recoveries. *Sources* Reinhart and Rogoff (2014), and World Economic Outlook, International Monetary Fund, April 2018

Crisis year	Country	Real GDP per capita % change				General government gross debt crisis year
		Peak to trough	Peak to recovery	Severity index	Breakeven year	
2008	France	− 3.8	8	11.8	2015	68.7
2008	Germany	5.2	3	8.2	2011	65.1
2008	Greece	− 26.3	16	*42.3*	Beyond 2023	109.4
2007	Iceland	− 9.2	9	18.2	2016	27.3
2007	Ireland	− 9.3	7	16.3	2014	23.9
2008	Italy	− 11.9	16	*27.9*	Beyond 2023	102.4
2008	Netherlands	− 4.1	9	13.1	2017	54.5
2008	Portugal	− 7.0	13	20.0	2017	71.7
2008	Spain	− 10.6	11	21.6	2017	39.4
2007	UK	− 6.1	8	14.1	2015	41.9
2007	US	− 4.8	6	10.8	2013	64.6
Summary	Mean	− 8.9	9.6	18.5		
	Median	− 7.0	9	16.0		
63 crises: Advanced economies from 100 in Reinhart and Rogoff (2014)						
	Mean	− 9.5	7.3	16.8		
	Median	− 7.0	6	13.0		

The italics denote IMF estimates for 2018–2023 are used

that had systemic financial crises in 2007–2009. The table also provides information on the crisis, and "breakeven" years and the level of general government debt (as a percent of GDP) at the outset of the crisis. The salient takeaway from Table 1 is that the pace of recovery of the *Systemic 11* has been subpar relative to the historic norm.

The 11-country average is almost a decade. For the United States, 6 years is slightly longer than the average recovery from systemic U.S. historical crises. For Europe, recovery has been exceptionally slow and comparable to the average for the 1930s crises. In the extreme, Greece and Italy have yet to approach the level of per capita income they recorded in 2007, just prior to the crisis. In effect, if the IMF's projections from the latest *World Economic Outlook* are used in this calculus, even by 2023 (15 years), Greece and Italy's GDP levels will not have fully recovered from the dislocation of the crisis—an issue that I will revisit.

3 Near-term global risks: the advanced economies

One cannot skim the financial press without reading about the US-China trade dispute. While this debacle is a source of global risk, I will confine my observations here to noting that a generalized hike in tariffs in the United States could work much like an oil shock in the 1970s. As such, the popular discussion, largely focused on the potentially negative output consequences of protectionism, may tend to overlook the possible consequences for aggregate prices. A broad-based tariff-driven hike in import prices could deliver a once-and-for-all spike in the CPI, generate a lot of noise, and potentially destabilize inflation expectations.

3.1 Underpriced risk in US corporate sector

Another recurrent topic in the financial press for much of 2018 has been the rising risks in the EM asset class. Emerging markets are, of course, a very diverse group but the yields on their sovereign bonds have climbed markedly, as capital inflows to these markets have dwindled amid a general perception of deteriorating conditions. Historically, there has been a tight relationship (in the form of positive co-movement) between high-yield US corporate debt instruments and the high-yield EM sovereigns. In effect, high-yield US corporate debt is the emerging market that exists within the US economy (what I will refer to as the US emerging market, henceforth USEM). In the course of this year, that co-movement has all but disappeared and their paths have diverged (Fig. 1). Notably, US corporate yields have failed to rise in tandem with their EM counterparts.

The big question is, of course, what is driving the divergence: Are financial markets overestimating the risks in emerging market fixed income (EM yields are "too high")? Or are they underestimating risks in the lower-grade US corporates (USEM yields are too low)?

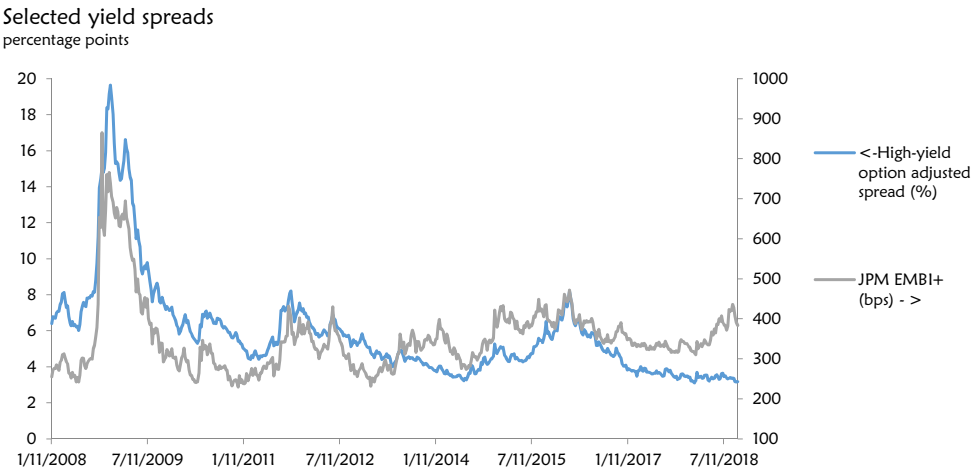

Fig. 1 2018: EM-High yield (USEM) divergence: Are corporate risks underestimated?

Taking together the current trends and cycles in global factors (US interest rates, the US dollar, and world commodity prices) plus a variety of adverse country-specific economic and political developments that have recently plagued some of the larger EMs, I am inclined to the second interpretation.

In what is still a low interest rate environment globally, the eternal search for yield has found a comparatively new and attractive source of carry in the guise of CLOs within the USEM world. According to the Securities Industry and Financial Markets Association (SIFMA), new issues of "conventional" high-yield corporate bonds peaked in 2017 and are off significantly this year (about 35% through November). New issuance activity has shifted to the CLO market, where the amounts of these debt contracts outstanding have soared, hitting new peaks on an almost daily basis. The S&P/LSTA U.S. Leveraged Loan 100 Index, introduced in early 2008 by Standard and Poor's, which (among other things) tracks outstanding amounts of CLOs, shows an increase of about 70% in early December from its 2012 lows (Fig. 2). CLO issuance hit record highs in 2018. In the language of emerging markets, the USEM is attracting large capital inflows.

These collateralized loan obligations share many similarities with the now notorious mortgage-backed securities of the pre-subprime-crisis era. During the mortgage-backed security boom, the banks who bundled together the loans shed the risk from their balance sheets. Over time, this practice fueled waves of lower quality lending, as banks did not have to live with the consequences of having made bad loans. The warehouses that currently bundle corporate loans also follow this practice. Those that procure the corporate borrowers benefit from volume, even if this means moving lower on the quality rating scale ladder of the borrower. Indeed, this appears to be happening already. The share of the category dubbed "Weakest Links", which represent B-rated or lower corporates (with a negative outlook to boot) in overall activity, is markedly on the rise since 2013–2015. Furthermore, not only are the newer issues coming from a lower quality borrower, the covenants on these instruments have also become lax. Covenant-lite issues are on the rise and now account for about 80% of the outstanding amounts.

As was the case during the heyday of mortgage-backed securities, there is great investor demand for this debt. As my work has described, this is the so-called "capital inflow problem" or the "bonanza" phase of the capital flow cycle. A recurring pattern across time and geography is that the seeds of financial crises are planted during good times, and the US economy is at or near full employment. Capital inflow surges often end badly. Any number of factors can shift the cycle from boom to bust. In the case of corporates, the list of factors that increase the odds of defaults includes mounting debt levels, erosion in the value of collateral (for the US shale industry, oil prices importantly drive that value), and falling equity prices.

All the USEM activity unfolds under the encompassing umbrella of shadow banking. Lacking credible guarantees, the CLO market (like many others) is open to runs. And then

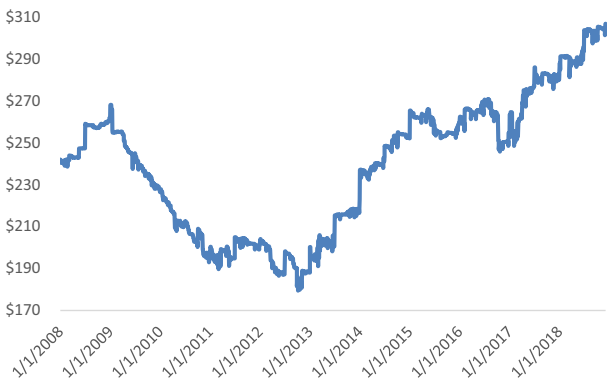

Fig. 2 US, Amount Outstanding: January 1, 2008–December 4, 2018 S&P/LSTA U.S. Leveraged Loan 100 Index

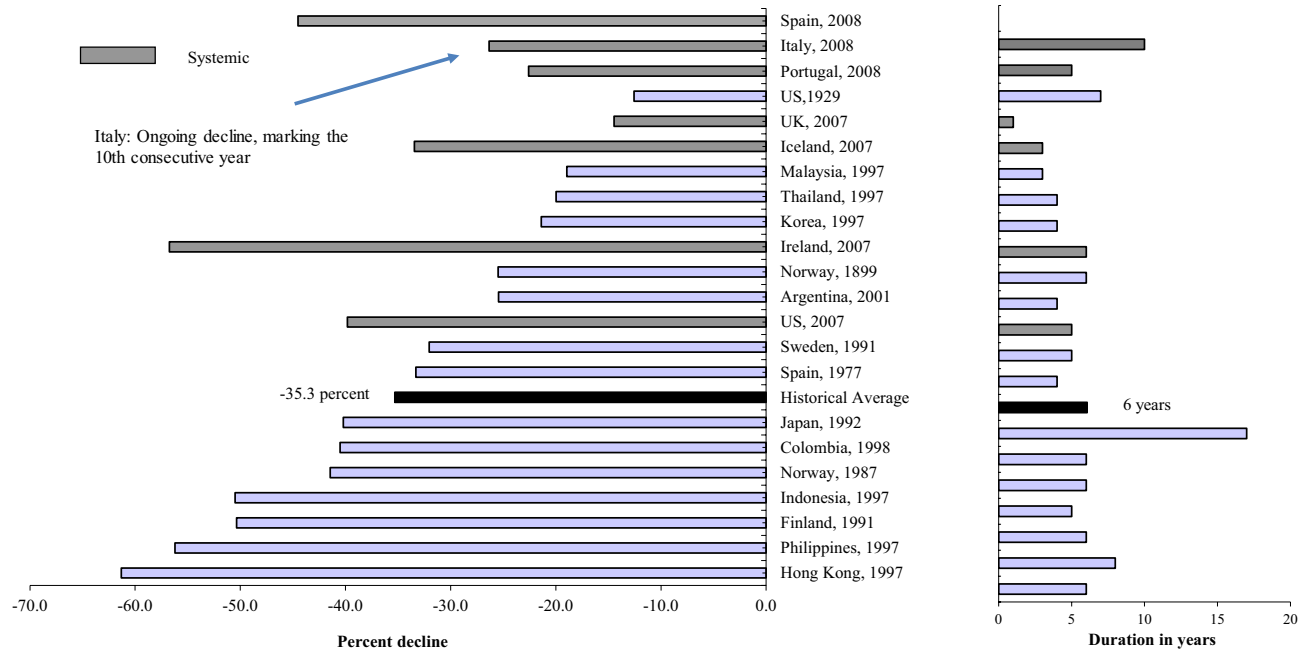

Fig. 3 Cycles of past and ongoing real house prices and banking crises. Peak-to-trough price declines (left panel) and years duration of downturn (right panel)

there are the old and well-known concerns about shadow banking in general, which stress both its growing importance and the opaqueness of existing interconnections with other parts of the financial sector. Of course, we also hear that a virtue of having debt financed through capital markets rather than banks is that, when there is an abrupt repricing or write-offs (changes in beliefs about payoffs and so on), this shock will not impair the credit channel to the real economy in the same way as in 2008–2009. Another key difference with mortgage-backed securities (and the housing market in general) worth noting is that the scale of exposure in household balance sheets is a different order of magnitude to this market.

A decade after the bursting of the bubble in the mortgage-backed securities market and the subsequent wave of regulation that impacts the housing market to this day, a new hot market in the heart of USEM has emerged. The phenomenon is aptly characterized in Caballero et al. (2008) as a *Financial* "Whac-a-Mole".

> Another bubble could easily appear as the endogenous response of a world economy that tries to increase the global supply of financial assets. And so, we are engaged in a global game of 'whac-a-mole', after the popular arcade game where players wait for moles to appear before 'whacking' them back into their holes. Like the players of the game, we are waiting for bubble conditions to emerge somewhere else in the world economy.

Like the synchronous boom in residential housing prior to 2007 across several advanced markets, CLOs also gained in popularity across the Atlantic Ocean. The surge in investor appetite for European CLO (EuroEMs) has predictably led to a surge in issuance (up almost 40% in 2018). But some of Europe's risks are posed not by a new crisis but rather by an unresolved old crisis.

3.2 Europe's unresolved debt crises

Italy's per capita GDP in 2018 is about 8% below its 2007 level, before the GFC. As already noted, even more troubling is the fact that IMF projections for 2023 suggest that Italy will still not have fully recovered from the cumulative output losses of the past decade. The housing market has yet to stabilize, as prices continue to slide (Fig. 3). House prices (real estate) usually begin their steep decline before the onset of the banking crises. Unlike equity prices, which are more "spike-prone" and can quickly reverse, housing prices exhibit longer cycles. For a historical perspective, see Jordà et al. (2015).

In such a setting, a political upheaval and social unrest should not come entirely as a surprise.

To place Italian risks in the Eurozone context, it is important to recall the turmoil of 2010, when the financial crises in Greece, Ireland, and Portugal morphed into a sovereign debt crisis and ended at the IMF's door. Those three countries combined account for about 6% of Eurozone GDP and approximately 8% of the currency union's public debt stock.

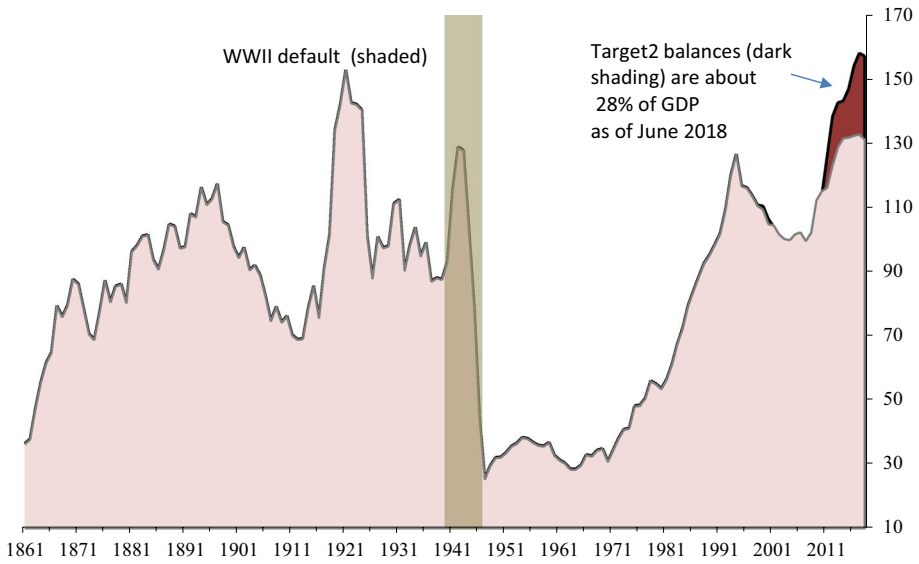

Fig. 4 Italy, 1861–2018: General government debt and Target2 balances (as a percent of GDP)

Italy's share in the Eurozone's GDP is about 15% while its share of the zone's public debt market is about 24%.

As shown in Table 1, among the 11 advanced economies that were hit by severe financial crises in 2007–2009, only Greece has suffered a deeper and more protracted economic depression. Greece and Italy were the two economies carrying the highest debt burdens at the outset of the crisis (109 and 102% of GDP, respectively), leaving them poorly poised to cope with major adverse shocks. Since the outbreak of that crisis a decade ago, economic stagnation and costly banking crises have propelled debt burdens higher still, despite a decade of exceptionally low interest rates.

On the surface, Italian general government debt appears to have stabilized since 2013 at around 130% of GDP (see chart). However, as I have previously stressed in my earlier commentary, this "stability" is misleading. General government debt is not the whole story for Italy–even setting aside the fact private debt loads are significant. This is manifest in the large and negative Target 2 balances.

When evaluating sovereign risk for Italy's public sector, the central bank's debts (Target2 balances) must be added to those of the general government.[1] As the data through June show, these balances increase the public sector debt-GDP ratio by almost 30% (Fig. 4). The persistent deterioration in Target2 balances speaks to a flight out of Italian assets. This debt, unlike pre-1999, pre-euro, Italian debt is not inflatable. In this regard, it is much like emerging markets' dollar-denominated debts. It gets either repaid or restructured.

Serious political uncertainty against a backdrop of chronic slow growth and a sovereign debt level which currently hovers around 160% of GDP for the public sector already has the ingredients of a debt crisis. Adding to these fundamentals, populist rhetoric that entertains the possibility of backtracking on the social security reforms would only add to the scale of contingent liabilities.

How do such crises typically end? A rapid resolution, that places Italy on a sustainable growth path, while extremely desirable, appears improbable. Meaningful debt renegotiations are seldom swift: creditors want repayment and debtors want debt forgiveness. As Reinhart and Trebesch (2016) have documented, negotiations seldom get it right in the first or even third try. Initial debt restructuring agreements tend to fall short of the magnitudes needed to achieve debt sustainability. Yet, it is difficult to see how debt restructuring can be avoided altogether.

The route of exclusively relying on a bailout may be tempting, as it may temporarily calm financial markets, but it will only kick the can down the road. Greece's debt problems have not yet been resolved. In the mildest of scenarios, only Italy's officially-held debt would be restructured, limiting somewhat the disruptions to financial markets. Yet, the restructuring of officially-held debt, while it may be necessary may not prove enough. Unlike Greece (post-2010), where official creditors held the lion's share of the debt stock, Italy's public debts are importantly held by domestic residents. This places a premium on a strategy that minimizes capital flight (as it is improbable that it can be avoided altogether). At this stage, crisis resolution without additional risks and complications is something to aim for but not expect.

Even leaving the effects within Eurozone aside, Italy's crisis has had international repercussions. Earlier in the year,

[1] Target2 balances are the reserve-clearing accounts among the European System of Central Banks. The overdraft in the Bank of Italy's account corresponds essentially to a surplus in that of the Bundesbank.

bouts of news from Italy that shook financial markets fueled weakness in the euro, which translated to dollar strength at a time in which emerging markets, particularly those with US dollar debt, have been taking a sustained beating. The flight to quality that is a handmaiden to financial turbulence is re-enforcing a shift away from some of the riskier asset classes that include emerging markets.

4 Near-term global risks: The EMs and developing economies

While turbulence in EMs has escalated in 2018, the true "bonanza" period for the EMs, (particularly primary commodity producers) had come to an end in 2011–2012, coinciding with the slowdown in China and the downturn in commodity prices. In what follows, the discussion of EM and developing country risks is broken down into three interrelated blocks. The first of these focuses on the "post-bonanza" period since 2012 (the curious case of the missing defaults), based on my work with Reinhart and Trebesch (2016, 2017); the second block deals with the more recent period and what I refer to as classic emerging market turmoil, and finally the third leg discusses a new source of risk—Chinese lending to low-income countries. Repayment difficulties on some of those loans are already manifesting in a few countries but the expectation is that such difficulties will escalate in the period ahead.

4.1 The curious case of the missing defaults

What Vincent Reinhart, Christoph Trebesch, and I (2017) have dubbed *the curious case of the missing defaults* refers to the departure of observed sovereign default outcomes in recent years (2011–) from a robust historical empirical regularity. Specifically, from about the end of the Napoleonic Wars, when British overseas lending began in earnest, through the present, there have been several episodes where significant declines in world commodity prices were coupled with a withdrawal of foreign capital (a reversal of capital inflows). These episodes, the double busts, are shaded in Fig. 5, which also traces the share of sovereigns entering a new default (three-year moving average). As shown in the figure and Table 2, the combination of these adverse developments historically led to a higher incidence of new sovereign defaults worldwide. As the adverse shocks persisted, and the new defaults cumulated, the total share of countries in default (last column of Table 2) climbed.

Since 2011, based on the marked decline in commodity prices following a decade-long boom and a significant contraction in capital inflows (therefore, a double bust), our core model of new defaults predicted a higher incidence (number) of defaults that what has been observed.[2] Depending on the variant of the model used, the predicted incidence of default involved between 15 and 20 additional default episodes (beyond the actual cases). These are the missing defaults.

What explains the missing defaults? Is this phenomenon signaling a risk that has yet to fully materialize? I offer three (not mutually exclusive) possibilities.

(i) *Measurement error* of the dependent variable, new defaults, post-2011: The reported incidence of default in Fig. 5 does not include "near-default" cases (see Reinhart, 2010, for the historical context). These are the instances where a full-blown default (or restructuring) of sovereign debt held by private creditors is avoided by a major bail-out, usually involving the IMF. The near-defaults of Iceland, Ireland, and Portugal would add three episodes of to the list. A fuller picture of solvency also requires an assessment of a debtor country's standing with its official creditors (see Alfaro et al. 2014 and Reinhart and Trebesch 2016). Indeed, the most prominent debt crisis of the last few years, Greece, now revolves almost entirely around the country's debts to official creditors. In effect, Greece's short-lived default on IMF loans in the summer of 2015 adds a fourth omitted default episode to the list of cases not included in the tally shown in Fig. 5 and Table 2.[3] While official creditors are not the main story for most middle-to-high income countries, they play a dominant role in many low-income countries.

There is, however, a comparatively novel potential mismeasurement of the "true" incidence of default that we can only partially begin to quantify at this time—namely, defaults or accumulated arrears on Chinese loans. As already noted, China's lending to many emerging markets, most notably commodity producers, rose significantly during the boom era. While most of this lending is from official Chinese sources, much of it is not reflected in the World Bank data or from other official institutions. As China is not part of the Paris Club, unknown amounts may well be in default or protracted arrears. This describes the situation in several commodity producers, notably including Venezuela. The debts, the terms of these contracts, and associated restructurings are not reported. The takeaway is that defaults have been underreported, especially in the past decade.

(ii) *Better macroeconomic management of the boom* Some evidence has suggested that many emerging markets managed the boom in commodity prices, capital flows, and growth better than in the past. Some EMs have more flexible exchange rates; less foreign currency debt; better

[2] See Reinhart et al. (2016, 2017) for details.

[3] The Greek restructuring of privately held debt is already included among the default/credit event episodes.

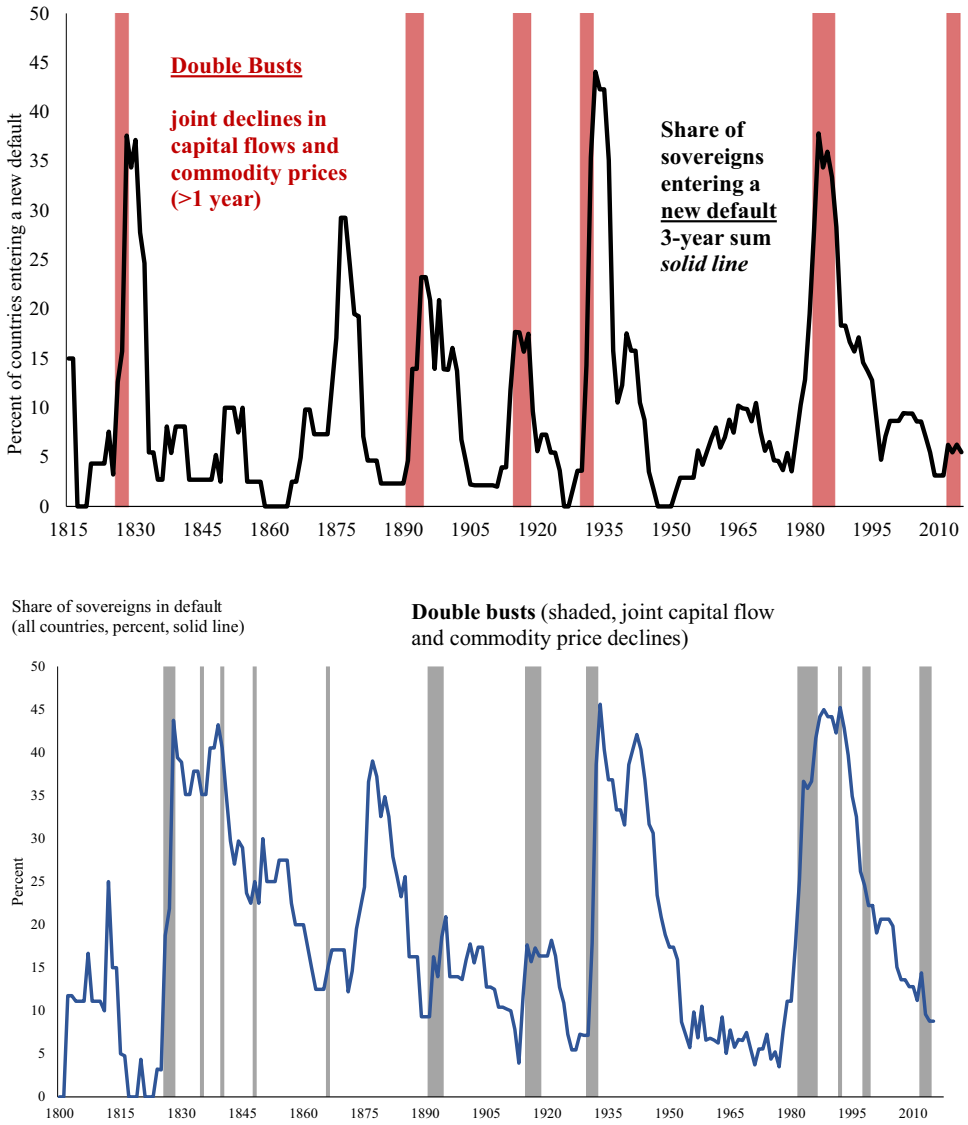

Fig. 5 Capital Flow Expansions, Double Busts, and New Sovereign Default, 1815–2015

Table 2 Triple shocks: capital flows, real commodity prices, and real interest rates: 1815–2016

Double bust episodes	Capital flow Bust	Commodity Bust	Interest rate Spike (real)?	Share of countries in default (in peak year)
1824–1828	Yes	Yes	Yes	43.75
1890–1894	Yes	Yes	*No*	18.60
1914–1918	Yes	Yes	Yes	17.65
1929–1933	Yes	Yes	Yes	46.43
1981–1986	Yes	Yes	Yes	42.74
1991–1999	Yes	Yes	Yes	46.34
2011–2016	Yes	Yes	*No*	13.82

macroprudential regulation; less fiscal procyclicality and so on. A recent literature has probed this question.[4]

(iii) *Milder external environment* Notwithstanding lower commodity prices and reduced capital inflows, external factors (especially prior to 2018) appear more favorable than in past cycles. On the external front, while China is not enjoying the exceptional double-digit growth rates of 2000–2013,

[4] Reinhart et al. (2017) discuss this literature.

at around 6%, annual growth in the world's (first or second) largest economy is still providing some external stimulus. Since the mid-1990s the correlation of 5-year growth rates in real GDP between China and the 7 largest Latin American countries, for example, is about 0.75.

The rise in U.S. interest rates has been more gradual, milder, and widely anticipated than in prior tightening cycles. In other advanced economies, monetary policy remains historically accommodative, with interest rates in negative territory and expected to remain there for some time. For debtor countries, where rising international interest rates have also been associated with an escalating default risk premia and a rising cost of foreign capital, this environment has, until the past year, blunted some of the effects of falling commodity prices and export earnings. In terms of Table 2, a full-fledged triple bust, along the lines of some of the more memorable historical episodes, has not materialized yet. However, the cycle of rising rates is not over, which raises the possibility that the missing defaults are just delayed.

In sum, these three possible explanations for the "missing defaults" are not mutually exclusive. If the excluded actual- or near-defaults are included in the tally, the "missing defaults" are about 5–10. But whether it is better management of macroeconomic risk or milder external factors (which, however, continue to take a turn for the worse, as the next section discusses) the real question as regards risks is whether the "missing defaults" will remain missing or whether these were just delayed.

4.2 External factors and "classic" EM turbulence in 2018

Calvo, Leiderman, and Reinhart (1993) presented evidence that external factors play a significant role in explaining capital flows to EMs and that, consequently, there is a substantive degree of co-movement in capital flow patterns across EM countries. Since then, a substantial literature has emerged that, for the most part, reiterates that general message. An influential paper by Rey (2015) has suggested an even more dominant role for a common global financial cycle. In that paper, as well as others that examine the drivers of cross-border flows, the expected volatility of equity prices in the United States (as measured by the VIX, the forward-looking index of the volatility of equity prices traded on the Chicago Board of Options Exchange) plays a central role.[5] Periods of low expected volatility are associated with higher capital flows to EMs. A plausible interpretation is

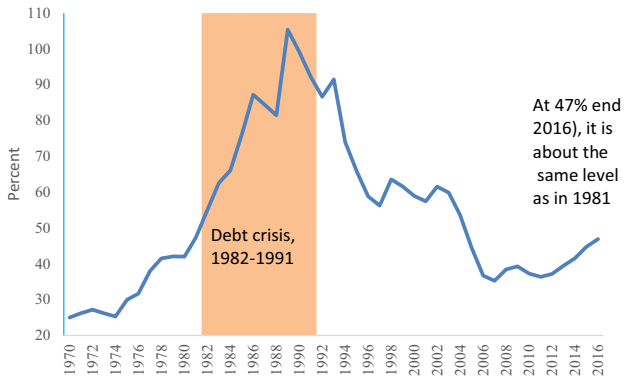

Fig. 6 Developing and emerging markets: External (public + private) debt, 1970–2017 (percent of GDP)

that in periods of low volatility, there is a lower premium on liquidity (as insurance against shocks) and investors are more willing to hold riskier and less liquid assets. This is an issue I will return to in the context of EM developments in 2018.

Prior to the relatively turbulent 2018, an extended period of exceptionally low international interest rates following the 2008 crisis provided an incentive for governments and firms in EMs to borrow from international capital markets. In their eternal quest for yield, investors were quite willing to lend. Strong EM fundamentals were also a contributing factor to their success in international capital markets (Marcel Fratzcher, who had documented the significance of global "push' factors in his work on capital flows has also highlighted the importance of domestic "pull" factors, for the EMs after the GFC, see Fratzscher 2012).

At the time of the global financial crisis, EMs were "lean and mean" having deleveraged over several years. External debt (public plus private) had declined to its lowest levels since the early 1970s (Fig. 6), and many countries had amassed a war chest of foreign exchange reserves. Current account surpluses were commonplace, even in Latin America, where they are comparatively rarer. For most commodity producers, GDP growth ran above trend.

While the experiences vary considerably across countries, in the aggregate external borrowing picked up in the years that followed. In some cases, it was confined to the private sector, as in Turkey and Chile, where corporations did much of the borrowing. The focus on total external debt, however, is motivated by the recurrent historical crisis experience–private debts are private before the crisis, but they become public after the crisis. Private external debt is a contingent liability with teeth. The point being that by 2016, EMs' external indebtedness had risen substantially. While an external debt ratio of about 50% seems almost trivial by modern advanced economies standards, as Reinhart et al. (2003) show, safe external debt thresholds for EMs and developing countries

[5] The VIX, which was not as prevalent in finance at the time, was not among the external indicators examined in the Calvo, Leiderman, and Reinhart paper.

are quite low, and notably lower for those countries with a history of *serial default.* This debt intolerance is reflected in the fact that more than half of the sovereign external defaults since World War II occurred at levels of total external debt (as shown in Fig. 6) that would have met the Maastricht criteria (60%).

More troubling, however, is the fact that the officially reported external debt data, as shown in Fig. 6, is not the whole story. As the next section details, external debts to China, not well measured and not included in World Bank data, are estimated to add another 15% or so to this ratio in 2016–2017.

From the preceding discussion on the "missing defaults," it is evident that the exceptionally favorable external environment for EMs over 2003–2013 (GFC notwithstanding) has been subsequently reversed to some degree. To recap: China's growth has almost halved; largely a consequence of that slowdown, world commodity prices are significantly below their cyclical peak; US interest rates have risen, and further increases are anticipated; partially owing to the tightening in monetary conditions in the US relative to other advanced economies, the US dollar has strengthened. A strong dollar is particularly problematic for EMs like Argentina, Turkey, and others where much of the borrowing is in US dollars. This "dollar bloc includes the countries that have borrowed from China, as these loans are almost exclusively denominated in US dollars.

Not surprisingly, capital flows to EMs have declined significantly, especially in the past year. As external conditions deteriorated, economic growth (especially for primary commodity producers) has slowed significantly. According to the IMF's *World Economic Outlook* (International Monetary Fund, 2018), for the EM group economic growth has slowed 2 percentage points from its average of 2010–2013.

Apart from the turn for the worse in the global factors, a more recent capital market development is weighing in to further complicate the external environment for EMs. As noted (Rey 2015), capital market volatility measures, such as the widely followed VIX, had shown exceptionally low levels of volatility since the GFC. In foreign exchange markets, Ilzetzki et al. (2019) quantify a comparable development among the major advanced economy currencies. Low volatility, other things equal, has been found to be a quantitatively important factor in pushing capital to EMs. In the latter part of 2018, this benign (but unusual) low volatility environment has come to an apparent end, as the VIX and other volatility measures have climbed back closer to some of the historic norms. Finally, contributing to the unfriendly global environment for EMs, negative contagion (although not crisis-magnitudes) from other EMs has been a recurring feature. Argentina's currency and LEBAC crisis, which led to an IMF program and ushered a recession, Turkey's currency collapse, South Africa's populist rumblings and soft economy, Brazilian elections, and less-than-market-friendly signals for Mexico's president have all tended to re-enforce the other global factors contributing to investor skittishness.[6]

Importantly, investor sentiment may be carrying a bigger weight in overall capital flow outcomes, as the EM the investor base has changed dramatically in recent years, as shown in Bredenkamp et al. (2019). Less is held by the multilateral institutions, and much more of it is held by non-banks-hedge funds, pension funds and the like. According to several studies and recurring market commentary from the IMF and others, this component of the investor base is particularly prone to sudden reversal. Furthermore, much of the external debt is variable-rate, which does not protect borrowers in a rising interest rate environment.

Turning to risks in low-income countries, the legacy of the surge in Chinese foreign loans is now an increasing source of angst for both the countries involved and the multilateral institutions that work with them.

4.3 China's lending to low-income countries

The past 15 years have witnessed one of the most dramatic and geographically far reaching surges in official peacetime lending in history. The lender in this episode is China and the loan recipients are too many to enumerate here. Over one hundred countries (almost all low-income and predominantly, but not exclusively, primary commodity producers) have borrowed to finance infrastructure projects, expand their productive capacity in mining or other primary commodities, or support government spending in general. Possibly, the most singular feature of this wave of lending is how little is known about this process outside the circles of the immediate players (i.e., the Chinese government and development agencies that do the lending, and the governments and state-owned enterprises that do the borrowing.) There is some information about magnitudes and timing of the Chinese loans from the financial press and a variety of private and academic sources but information on the terms and conditions of these arrangements is scarce to non-existent.

Three years ago, writing about "hidden debts" to China and focusing on the largest borrowers in Latin America (Venezuela and Ecuador), I noted with concern that standard data sources do not capture the marked expansion of China's financial transactions with the remainder of the developing world. Not much has changed since then. While China joined the rank of countries reporting to the BIS in 2016, the lending from development banks in China is not broken

[6] LEBACS are short term, domestic currency securities issued by Argentina's central bank. Large bunching of amounts coming due escalated roll-over risk, market illiquidity, and currency weakness at various points during 2018.

down by counterparty in the BIS data. EM borrowing from China is seldom in the form of securities issued in international capital markets, so it also misses the radar screen of data bases at the World Bank and elsewhere.

The problem is not just the accounting deficiencies, per se, but the fact that many emerging market and developing countries external debts are currently underestimated in varying degrees. Missing the China connection also leads to underestimating vulnerability in balance sheets to currency risk, as these are mostly dollar debts. While the amounts involved may be modest from the vantage point of China, the magnitude of the understatement (as a percent of the recipient countries' GDP) across all the borrowers is about 15%.

If the initial increases in external borrowing were underestimated in the first place, there is also reason to suspect that the magnitude of the ongoing reversal in capital flows to many low-income countries and EMs may be larger than is generally believed—this is precisely what the recently released figures from *China Africa Research Initiative* (CARI) (Johns Hopkins University) indicate. Across all the African borrowers included in their database, the volume of China's lending in 2017 halved from the previous year.

There is the question of what may be driving this seeming retrenchment in lending. A plausible explanation is that as Chinese growth has slowed significantly from its double-digit pace through 2010, and as the economy tilts from infrastructure investment to household consumption, its interest in funding an expansion in primary commodity supplies in various parts of the world is not what it once was. Equally plausible (and not mutually exclusive) is a scenario where borrowing countries' external debt obligations have now built up to the point where debt servicing difficulties have begun to emerge, and China's development banks now have considerable exposure to risky or non-performing sovereign loans.

Looking back at the earlier stages of the surge in external borrowing (or the honeymoon period) can also shed light on why the situation has become more precarious. On the side of the borrowers, the loan surge was facilitated by the fact that many low-income countries had comparatively clean balance sheets. The Highly Indebted Poorest countries (HPIC) initiative by the "Paris Club" (official creditors) and the multilateral institutions had written off (forgiven) a substantial (in some cases nearly all) of the prior external debts to these official creditors. On the side of China, there was little or no prior credit exposure to these countries a "space" in official lending was created by the fact that following HPIC write-offs some of the major official creditors were not ready to re-engage anew in development lending.

The names of the borrowers and lenders changed but this scenario has played out before. My work with Vincent Reinhart and Christoph Trebesch highlights that the aftermath of commodity price booms and surges in new loans to commodity producers is littered with new defaults and other varieties of debt servicing difficulties. What is notably novel this time around is that the international policy community is also in the dark about the incidence or nature of any bilateral debt restructuring agreements between China and its many low-income borrowers.

If indeed, as I suspect, widespread debt servicing difficulties are on the rise among many of the world's poorest countries, there are challenges that are particular to China's mode of lending, which has tended to favor collateralized loans. This feature of the loan terms may well affect the seniority order among lenders, which had in the past placed official bilateral loans at the bottom of the totem pole.

5 Longer-term concerns: The US stock-flow problem and the modern Triffin Dilemma

The discussion that follows does not necessarily lend itself to a particular time frame, as the trends discussed are slower moving and have a longer fuse. Yet this does not imply that significant negative shocks to the US outlook could bring some of these risks forward.

The discussion of twin deficits and its long-term negative implications for domestic and international indebtedness in the context of the United States goes together with the now-popular depiction of global imbalances, as the "saving glut" (see for instance, Bernanke 2005). The phenomenon can hardly be considered new, as the US has been running chronic current account and fiscal deficits for about four decades, with only a few short-lived interruptions. This is what I define as the flow problem, as we are describing the current gap between expenditure and revenue and saving and investment. The more novel feature to twin deficit concerns, however, has to do with stocks. Specifically, the steadily growing stock of outstanding US government debt has now reached levels that place it among the most indebted countries of the world. Figure 7 illustrates the position of the United States, relative to other advanced economies, in the stock-flow comparisons. The estimates for 2018–2020 are taken from the International Monetary Fund's projections.

Of the four economies with public debts higher than the United States, two, Greece and Portugal, had recent IMF programs and debt restructuring.[7] Italy, as discussed, is poised for the same path, and Japan has been struggling with low growth for more than two decades now. While, as is discussed next, the US position is unique as the provider of the world's reserve currency (i.e., reserve asset), it is difficult to describe the U.S. rapid march to the top of the highly indebted list as anything other than a risk. The definition of

[7] Portugal, like Ireland, had some of its officially-held debt restructured in 2011.

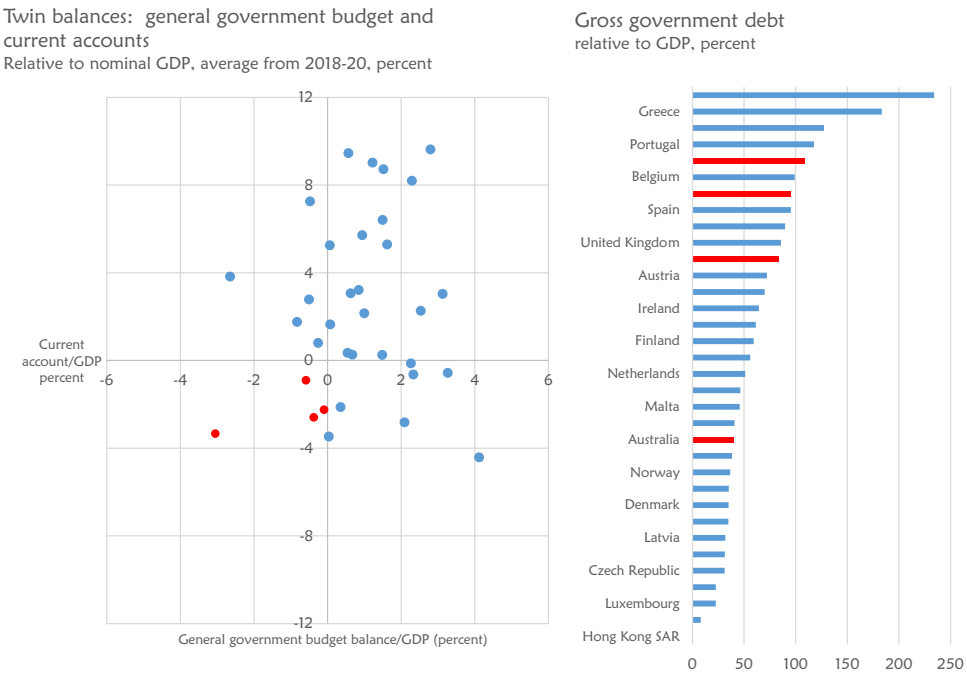

Fig. 7 Advanced economies: Twin deficits and gross government debt, IMF 2018–2020 outlook

unsustainable being that it cannot go on indefinitely. The discussion in the next section offers some insight on what the end-game may look like.

5.1 The Triffin dilemma: the old and new

The old version With recovery from the war underway in Europe and a sustained expansion in global trade, the global demand for foreign exchange reserves grew rapidly in the 1950s and 1960s. At that time, reserves were comprised of gold and dollar assets (US government debt or greenbacks) that were also linked to gold. Given that the world's gold supplies were not increasing as fast as the demand for reserves, an expanding share of the world's reserve assets came to be paper-denominated in US dollars. The rest of the world's appetite for dollars could thus be satisfied by the US issuing more dollar debt. In the balance of payments, this would require the US to run sustained current account deficits, but importantly, a fiscal deficit, as Obstfeld (2013) observes. Following that path, however, implied that the ratio of "paper dollar" reserves to gold reserves was steadily rising.

The internal/external dilemma that Triffin (1969) foresaw as a risk to the Bretton Woods system arose because to maintain the official dollar/gold parity, the US would have had to restrict its supply of dollars, cease to borrow from the rest of the world, and run a current account (and fiscal) surplus. This internal (national) objective, however, was at odds with the United States' international role to serve as sole provider of the reserve currency.

The rising supplies of US dollar assets undermined the value of the dollar parity and dollar was devalued versus gold twice before the Bretton Woods system came to an end in March 1973, when the dollar and other major currencies were allowed to float.

The new version The underpinnings of a modern version of the Triffin dilemma has been recently addressed in Farhi, Gourinchas and Rey (2011), Obstfeld (2013), and Ilzetzki et al. (2019). The latter study connects the dots on how global trends in exchange rate arrangements, currency preferences, and capital mobility helping to shape and quantify the potential *demand* for reserves. They also observe that an asymmetry driving the modern-day Triffin dilemma is that the emerging and developing world is growing more quickly than the comparatively more creditworthy advanced economies. Regarding the Triffin dilemma, this is not a trivial point, as it distinctly shrinks (relative to demand) the supply of assets that qualify as reserves.

Emerging and developing countries now account for almost two-thirds of world GDP, far higher than at any time in the past. Given that advanced economy growth prospects remain subdued, these trends are likely to continue (even with the evident slowing in China and other emerging markets.)

As documented in Ilzetzki et al. (2019), the US dollar retains its dominant position as the world's reserve currency; 60–70% of all countries have the dollar as the anchor or reference currency (Fig. 8). As the figure highlights, the US dollar's global role has expanded even beyond that following the collapse of the ruble zone. What is most suggestive is US stock-flow-rising-debt-problem

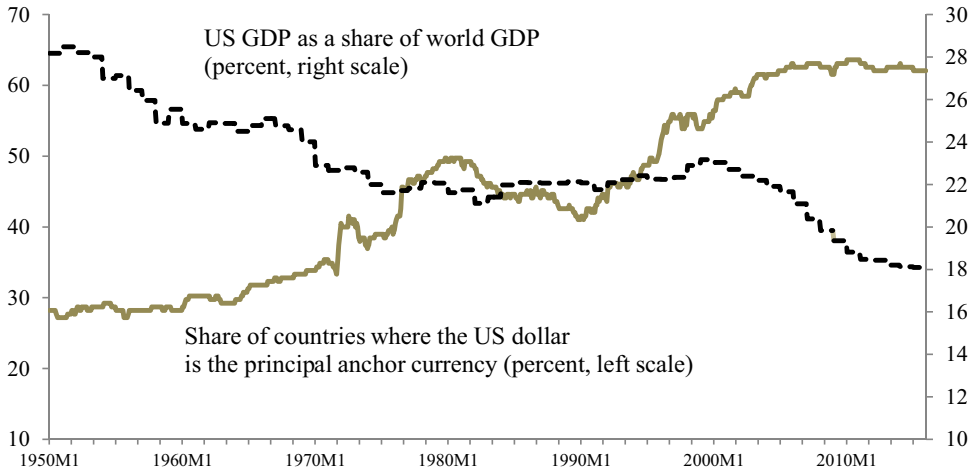

Fig. 8 Measures of the Role of the Dollar and US Economy in a Global Context, 1950–2015 (Share of countries measure)

(as already discussed), that is, a rapidly shrinking US share of that world economy, coupled with a rise in the share of the world anchored to the dollar. Presumably, the latter is a representation of the demand for US dollar assets (reserves). These widening and divergent trends are the essence of the modern-day Triffin dilemma for the United States, more serious in part because there is limited competition from other major economies in the provision of reserve assets. This poses the risk of another "Triffin-moment" and crashing US dollar a la early 1970s (notwithstanding that such a crash would be in the context of a freely floating currency). Of course, anyone concerned about lack of US international competitiveness, chronic current account deficits, and higher levels of indebtedness to the rest of the world may view that scenario not as a risk but as a blessing.

6 Concluding reflections

As noted at the outset of this paper, this tour of risk, global as it is in scope, is both selective and skewed toward finance. The global situation is awash with other economic risks not addressed in this discussion, ranging from the infamous Brexit debacle to China's own internal problems amid slowing growth, overvaluation, and a significantly overleveraged corporate sector. Political risks, amid a period increasingly being defined by polarization and the rise of populism, are altogether sidelined. With risks, those identified here and many others, the critical unknown is usually timing. Figuring out which is the proverbial straw that breaks the camel's back and when was that straw placed is likely to remain an art. However, crises (like illnesses), have recurring symptoms, which have been the focus of this discussion.

References

Bernanke, Ben, 2005. The Global Saving Glut and the U.S. Current Account Deficit. Sandridge Lecture, Virginia Association of Economists, March 10 (Governor Bernanke presented similar remarks with updated data at the Homer Jones Lecture, Federal Reserve Bank of St. Louis, Missouri, on April 14, 2005.).

Bredenkamp, Hugh, Ricardo Hausmann, Alex Pienkowski, and Carmen Reinhart. 2019. Challenges Ahead. In *Sovereign Debt: A Guide for Economists and Practitioners*, eds. Ali Abbas, Alex Pienkowski, and Kenneth Rogoff. London: Oxford University Press.

Caballero, Ricardo, Emmanuel Farhi, and Pierre-Olivier Gourinchas. 2008. Financial "Whac-a-Mole": Bubbles, Commodity Prices, and Global Imbalances. *Brookings Papers on Economic Activity* Fall: 1–68.

Calvo, Guillermo, Leonardo Leiderman, and Carmen M. Reinhart. 1993. Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors. *IMF Staff Papers* 40 (1): 108–151.

Farhi, Emmanuel, Pierre-Olivier Gourinchas, and Hélène Rey. 2011. *Reforming the International Monetary System*. London: Centre for Economic Policy Research.

Fratzscher, Marcel. 2012. Capital Flows, Push Versus Pull Factors and the Global Financial Crisis. *Journal of International Economics* 88 (2): 341–356.

Ilzetzki, Ethan, Carmen M. Reinhart, and Kenneth S. Rogoff. 2019. Exchange Rate Arrangements in the 21st Century: Which Anchor Will Hold? *Quarterly Journal of Economics* forthcoming (May). (Also National Bureau of Economic Research Working Paper 23134, February 2017).

International Monetary Fund. 2018. *World Economic Outlook,* April.

Johns Hopkins University, *China Africa Research Initiative* (CARI).

Jordà, Òscar, Moritz Schularick, and Alan M. Taylor. 2011. Financial Crises, Credit Booms, and External Imbalances: 140 Years of Lessons. *IMF Economic Review* 59 (2): 340–378.

Obstfeld, Maurice. 2013. The International Monetary System: Living with Asymmetry. In *Globalization in an Age of Crisis: Multilateral Economic Cooperation in the Twenty First Century*, ed. Robert C. Feenstra and Alan M. Taylor. Chicago: University of Chicago Press.

Reinhart, Carmen M., Vincent R. Reinhart, and Christoph Trebesch. 2016. Global Cycles: Capital Flows, Commodities, and Sovereign Defaults, 1815–2015. *American Economic Review* 106 (5): 574–580.

Reinhart, Carmen M., Vincent R. Reinhart, and Christoph Trebesch. 2017. *Capital Flow Cycles: A Long Global View*, paper presented at the Eighteenth Jacques Polak Annual Research Conference, International Monetary Fund.

Reinhart, Carmen M., and Christoph Trebesch. 2016. The International Monetary Fund: Seventy Years of Reinventing Itself. *Journal of Economic Perspectives* 30 (1): 3–28.

Reinhart, Carmen M., and Kenneth S. Rogoff. 2009. *This Time is Different: Eight Centuries of Financial Folly*. Princeton university press.

Reinhart, Carmen M., and Kenneth S. Rogoff. 2014. Recovery from Financial Crises: Evidence from 100 Episodes. *American Economic Review* 104 (5): 50–55.

Reinhart, Carmen M., Kenneth S. Rogoff, and Miguel A. Savastano. 2003. Debt Intolerance. *Brookings Papers on Economic Activity,* Spring: 1–74.

Rey, Hélène. 2015. Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence. In *Proceedings,* Federal Reserve Bank of Kansas City.

Triffin, Robert. 1969. *Gold and the Dollar Crisis: The Future of Convertibility*. New Haven: Yale University Press.

World Bank. *International Debt Statistics.*

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