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20 Years of G20

From Global Cooperation to Building Consensus

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Chapter 3
The Global Economy and Financial Markets 10 Years After the Global Financial Crisis

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1 The Evolution of Macroeconomic Policies

It has been over ten years since the global economy was buffeted by what is by general consensus the most severe financial crisis since the Great Depression. At first blush, when the crisis broke, it appeared that the global economy was headed for a crisis as, if not more, severe than the Great Depression (Eichengreen and O'Rourke 2012). These fears proved unfounded. Both financial markets, and the global economy, rebounded more strongly and quickly than what was expected in the circumstances. The macroeconomic policy response, coordinated globally under the stewardship of a revamped G 20 upgraded to summit level, is usually credited for this swift turnaround and stabilization (see Blanchard and Summers 2017).[1]

Macroeconomic policy was spawned during the Great Depression in the 1930s. Economists and historians alike have over the years faulted those at the helm of policy making at the time in the use of fiscal, monetary and trade policies in managing the firestorm, missteps that transformed the financial crash of 1929 into what we now call the Great Depression. The imperatives of the Gold Standard, to which most major economies adhered to at the time, also acted as a constraint on fiscal and monetary discretion (Bernanke 2002; Christiano et al. 2004; Fishback 2010; Romer 1991; Eichengreen 1986; Irwin 1996). Arguably, it was the war economy that provided the aggressive stimulus that finally pulled the western world out of the long Great Depression.

[1] Olivier Blanchard, chief economist of the IMF, and Lawrence Summers, president of Barrack Obama's National Economic Council, when the financial crisis broke, are in "no doubt that, absent the strong monetary and fiscal policy responses we have observed, the financial crisis would have led to an outcome as bad or worse than the Great Depression". See Blanchard and Summers (2017).

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The Great Depression is largely credited for the Keynesian Revolution that followed in its wake. Fortified by the Keynesian halo, expansionary fiscal policy (fuelled by President Lyndon Johnson's 'Great Society' initiative and the Vietnam War) from the mid sixties, assisted by accommodative monetary policy however drove up consumer price inflation in the United States. This expansion ultimately led to the collapse of the gold standard and morphed into stagflation following a steep hike in international oil prices in the seventies.

Even as the debate whether inflation is mostly a monetary phenomenon,[2] or at root a fiscal phenomenon on account of the unpleasant monetarist arithmetic associated with it, continues to rage to this day (Sargent and Wallace 1981; Dotsey 1995; Uribe 2016; Bhattacharya and Haslag 1999), the big macroeconomic policy take away from the stagflationary seventies was that fiscal policy encountered far too powerful political tailwinds at entry, and headwinds at exit, to be entrusted with the pole position in the conduct of macroeconomic policy. Beginning with Federal Reserve governor Paul Volcker's success with taming inflation, monetary policy conducted by independent central banks came to occupy this position to underwrite macroeconomic stability. Over time monetary policy became less discretionary, and more rule bound, with most central banks adopting, at least informally, some variant of the Taylor Rule,[3] targeting a mix of inflation and growth. Until the Global Financial Crisis, fiscal policy was mostly relegated to providing automatic stabilizers that expanded and contracted in synch with the business cycle, as envisaged in Keynesian economics.

Under the policy stewardship of central banks western economies now enjoyed remarkable macroeconomic stability, characterized by stable inflation and growth, in what came to be described as the 'Great Moderation' (see Hakkio 2013). Inflation indeed became puzzlingly[4] stable, not only in advanced economies, but also in EMDEs that were long plagued by supply constraints, as asset prices scaled new highs amidst high levels of liquidity (Chart 1).

Consumer price Inflation was a critical signaling device for central banks in the conduct of monetary policy, with a number of central banks explicitly setting their sights on inflation as their primary target. As inflation became increasingly unresponsive to the business cycle, monetary policy tended to become accommodative and started deviating from the Taylor Rule, possibly because advanced country central banks, looking at the Japanese experience, now became more concerned about the dangers of deflation than of inflation (Bernanke 2010; Taylor 2010a, b). Asset price inflation on the other hand not only continued unchanged, but might indeed have been fueled by low real rates set by central banks in their pursuit of growth with macroeconomic stability. In the process central banks in advanced economies lost sight of their original mandate, and for which they were created in the first place,

[2]The most articulate proponent of this view was of course Friedman (1963) according to whom "Inflation is always and everywhere a monetary phenomenon."

[3]The Taylor Rule formula interest rate = 0.5 (current GDP − potential GDP) + 0.5 (Actual consumer price inflation − target core consumer price inflation) + 2. The constant, 2, in the equation is the neutral policy rate, i.e., the policy rate when both inflation and growth are on target.

[4]This decline has been attributed to technological change, productivity improvements, globalization and ageing. See Sanchez and Kim (2018).

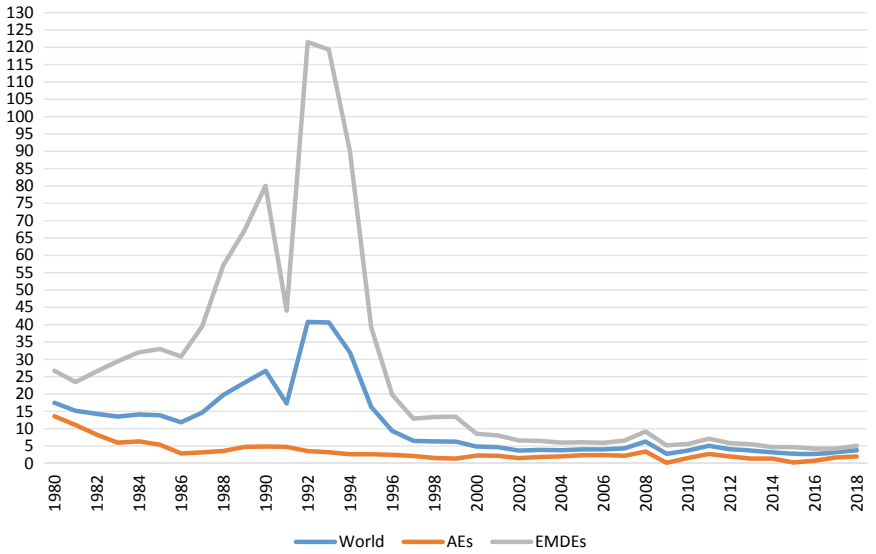

Chart 1 Global consumer price inflation. *Source* IMF WEO Database

namely financial stability. Alan Greenspan, the long-serving Chairman of the Federal Reserve from the time the hawkish Paul Volcker demitted office in 1987 and until Ben Bernanke took office was of the view that the job of the central bank was not to lean against asset bubbles, but to clean up after they burst (see Greenspan 2002).

The Great Moderation lasted up to the Great Financial Crisis of 2007, but the collapse of the Japanese asset bubble in the early nineties had bared the limits of monetary policy as a stabilizing tool in addressing economic instability deriving from financial crises, and to stimulate demand in the face of structural headwinds. As the Bank of Japan's benchmark interest rate hit the zero bound from the second half of the nineties, and where it has been stuck even since, monetary policy appeared to fall into a liquidity trap. To head off deflation the Bank of Japan switched from using the benchmark interest rate to using its balance sheet as the primary tool of monetary policy tool, a monetary policy innovation that has come to be more popularly known as Quantitative Easing (QE). The Bank of Japan however had limited success with combating deflation and raising Japanese growth through QE.[5] Japanese growth that averaged 4.3% between 1980 and 1991, averaged under 1% in the 27 years since (until 2018), with six years of negative growth (*IMF WEO database*).

Under the IS-LM Keynesian framework, when monetary policy falls into a liquidity trap, where money and bonds become perfect substitutes, the burden of fiscal policy falls squarely on fiscal policy. Discretionary fiscal policy now gained a new lease of life as a macroeconomic policy tool (see Krugman 1998; Correia et al. 2012).

[5]Bernanke (2003) was critical of Japanese QE because according to him it was not aggressive enough.

Japan's fiscal balance declined from an average of 1.2% between 1998 and 1992 to a deficit of 5.6% between 1993 and 2007. Such stimulative fiscal policy, largely in the form of tax cuts, however could do little to take Japan out of the economic crisis to anywhere near its former trend growth.[6]

Meanwhile, risks were mounting in the financial system on account of incremental deregulation and increasing sophistication and innovation in the financial system as banks increasing supplemented deposits with wholesale funding from money markets as their source of funds. The policy response to the Great Depression had led to the passage of the Glass Steagall Act in 1933 that created a firewall between commercial 'deposit' banks, and their affiliates that traded in securities to reduce depositors' exposure to stock market losses such as those that occurred on Black Tuesday and Black Thursday in 1929. Although there were occasional bank failures, this firewall between commercial and investment banking, also prevented largescale commercial bank runs. The Glass Steagall Act was effectively repealed in 1999 through the Gramm-Leach-Bliley Act which did away with this firewall. This led to the emergence of giant 'universal banking' full-service conglomerates, such as through the $33 billion merger of J.P. Morgan and Chase Manhattan in September of 2000.

Since no major financial crisis occurred in the US since the passage of the Glass Steagall Act, and the global financial crisis occurred within less than a decade of its appeal, it is often held as a villain of the piece for the latter crisis, especially as this facilitated greater concentration in the banking industry. Others have however pointed to the fact that most of the dodgy, poorly underwritten products that later spread financial panic were put together and traded by the big stand-alone investment banks that never felt the need to become bank holding companies following the Gramm-Leach-Bliley Act. It was these investment banks, almost entirely dependent on wholesale funding from money markets, and not the universal banks, that were the worst affected by the crisis. All the five major investment banks (Goldman, Merrill, Morgan Stanley, Lehman, and Bear Stearns) ran up huge losses and were acquired by other banks and incorporated as part of universal banks during the crisis. The Act's culpability is most likely indirect, as it changed the conservative culture of commercial banks and made them more prone to speculation and risk taking (Stiglitz 2009).

This speculation and risk-taking was facilitated by incremental deregulation of various financial sector markets. The Commodities Futures Modernization Act of 2000 lowered the regulatory threshold for the derivatives market and allowed self-regulation of over-the-counter derivatives. In 2004 the US Securities Exchange Commission relaxed capital rules, enabling investment banks to substantially increase debt, fueling the boom in mortgage-based securities, including sub-prime mortgages, that lay at the heart of the asset bubble to follow. Regulators and accounting standard setters also permitted banks to move assets and liabilities off balance sheet through

[6]Kuttner and Posen (2002) have argued that despite the sharp increase in nominal deficits, when the revenue shock is factored in, Japanese fiscal policy was actually contractionary in the nineties.

complex structured investment vehicles (SIVs) that masked the weakness of their capital base relative to their actual leverage.

In retrospect it became clear that there were several weaknesses in the pre crisis regulatory stricture. Multiplicity of domestic regulators and an uncoordinated cross border regulatory structure allowed regulatory arbitrage. Regulation was too procyclical and micro-prudential. Banks were required to hold more capital during downturns when default risks were higher, and lower capital during upturns when these risks decreased. This amplified rather than mitigated credit cycles and biased the system in favour of excessive leverage, and ultimately financial instability. Regulators focused too narrowly on assessing the robustness of individual institutions, and with and central banks preoccupied with inflation and growth concerns, there was no agency watching financial stability in markets as a whole.

2 The Global Financial Crisis and the Policy Response[7]

As global financial markets crashed in 2008 policy makers were acutely conscious of the need to not repeat the policy failures of the 1930s. Somewhat fortuitously, Governor Ben Bernanke, at the time at the helm of the US Federal Reserve, was also an economist of the Great Depression. He had long ruminated on the monetary policy failure of the 1930s (Bernanke 1994) in not injecting adequate, indeed large amounts of, liquidity to avoid deflation and stabilize financial markets in times of financial panic as had been advocated by Walter Bagehot in his iconic ***Lombard Street*** published about half a century before the Great Depression.

Strains in US financial markets initially surfaced with defaults in the relatively small subprime segment of the US housing mortgage market in March 2007, with LIBOR (the rates at which banks lend to each other) rising and TED (Treasury-EuroDollar) spreads beginning to widen, crossing the 'risk aversion' threshold of 50 basis points by May 2007. Markets however still expected the problem in financial markets to be contained (Bernanke 2007), as the Dow Jones Industrial Average continued to ascend to new highs, peaking at over 16700 by end September 2008. The stresses kept growing however, as the underlying problem lay way beyond US housing markets. The government sponsored enterprises Freddie Mae and Freddie Mac, the investment bank Bear Stearns, and the global insurance firm AIG, had to be bailed out. Uncertainty regarding the financial institutions on whose books "toxic assets" lay led to liquidity drying up by August, with the market for Asset Backed Commercial Paper (ABCP) through which mortgage securitizers funded their operations, collapsing. Following the collapse of the investment bank Lehman Brothers these growing strains snowballed into a full-blown Global Financial Crisis by October 2008, with TED spreads exceeding 450 basis, and the Dow Jones going into a tailspin, bottoming out in February 2008 to halve at around 8300. As asset prices

[7] A more detailed account of the onset of the Global Financial Crisis and the macroeconomic policy response can be seen in Sheel (2014).

plunged, and financial institutions recalibrated their balance sheets to current market prices, the market fell into a vicious spiral of falling prices and increasing firesales in a scramble for liquidity to meet liabilities and square account books. Financial market participants' response to this liquidity squeeze was to reduce their exposure to all complex derivative investments—not just related to the housing sector—on the assumption that they could not properly assess associated counterparty risks. The market for these derivatives, mostly traded 'over the counter' (OTC) with no central clearing system, disappeared almost overnight as their market prices went into free fall. Data from Markit.com showed triple AAA rated ABX (asset backed) paper trading at about a third of the issue price, with AA ABX securities trading below 5 cents to a dollar. The major investment banks that were almost entirely dependent on wholesale market funding teetered on the brink of collapse and had to absorbed by other banks to avoid collapse.

Going on the assumption that this was the usual crisis of liquidity rather than insolvency, characteristic of financial crises, the Fed moved swiftly into crisis fighting mode to inject large amounts of liquidity into the financial system. It lowered the Fed Funds Rate to zero. It supplemented its traditional discount window lending to depository institutions with new instruments like TAF (Term Auction Facility), PDCF (Primary Dealer Credit Facility), TSLF (Term Securities Lending Facility), providing liquidity directly to major crisis affected institutions through other instruments like CPFF (Commercial Paper Funding Facility), AMLF (Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility), MMIFF (Money Market Investor Funding Facility) and TALF (Term Asset-Backed Securities Loan Facility). It entered into bilateral swaps with major central banks around the world, including the ECB, Bank of England and the Bank of Japan. The US Treasury also chipped in to buy troubled assets, and help distressed homeowners, under the Troubled Assets Relief Programme under the new Emergency Economic Stabilization Act enacted by the US Congress on October 3, 2008.

As the US sub-prime housing crisis unraveled, and growth concerns surfaced, the long cycle of monetary tightening ended and the Fed began easing monetary policy from 2007 with periodic lowering of rates. The cycle accelerated following the collapse of Lehman brothers, and by December 2008 US monetary policy was at the zero lower bound. This pattern was repeated across advanced economies with both the bank of England and the European Central Bank following suit.

Although monetary policy's primary objective in financial markets is to influence medium to long term interest rates that have a bearing on investment and consumption, and thereby on the business cycle, the primary monetary policy instrument of central banks is setting the overnight rate, and defending it through open market operations. The overnight rate then works its way through various transmission channels to influence the entire yield curve. These transmission mechanisms break down at the zero bound since no further rate reductions are possible. In such circumstances monetary policy could be said to fall into a liquidity trap. Even prior to the crisis however, economists, including Ben Bernanke himself, had argued that it was possible for the central bank to influence the yield curve even at the zero bound by (a) expanding its balance sheet, (b) changing the composition of the existing balance

sheet through purchases of longer dated securities, (c) better coordination with fiscal authorities for a more aggressive bond purchase programme, should this be required, and (d) an appropriate communication strategy.[8]

As things turned out, the Federal Reserve used all these mechanisms once the zero bound was reached. The first instrument was three rounds of quantitative easing that dramatically expanded the central bank balance sheet from 6% of US GDP to over 25% by August 2014 (Chart 9a); the second was credit easing that altered the existing composition of the balance sheet through 'operation twist'; the third led to the virtual conflation of monetary policy with fiscal policy on account of the aggressive treasury purchase programme; and the fourth was forward guidance that influenced market participant behavior. As monetary policy became increasingly unconventional, and depository institutions were inclined to park their funds with the Federal Reserves at levels far exceeding levels mandated under fractional banking, the interest paid on these reserves soon became the primary monetary policy instrument, eclipsing the Feds Fund and discount rates.[9]

Aggressive and innovative monetary policy was matched by aggressive fiscal policy, as the US cyclical (budget deficit controlled for the decline in revenue on account of below trend growth) fiscal balance declined to −7.3% in 2009, −9.3% in 2010, −7.9% in 2011 and −6.1% in 2012. Once again, other advanced economy central banks followed the US lead, with policy coordination through the G 20 that was upgraded to summit level. The ECB's balance sheet exceeded 40% of the Euro area's GDP by 2017. The cyclical fiscal balance in the Euro Area declined to −4.8% in 2009, −5.1% in 2010, −3.9% in 2011 and −2.7% in 2012. The Bank of Japan's balance sheet is now equivalent to the size of the country's GDP. Its cyclical fiscal balance declined to −5.8% in 2009, −6.9% in 2010, −6.8% in 2011 and to −6.3% in 2012.[10] Most of the stimulus in advanced countries was through tax cuts and income support for low income or distressed households, unlike in the bigger EMDEs, such as China and India where it was more focused on boosting infrastructure spending (see IILS 2011).

Such aggressive injections, and monetary and fiscal policy actions, were effective in keeping deflation at bay—US consumer price inflation had entered negative territory for a few months—and in stabilizing financial markets within a few months, with TED spreads back under 50 basis points by mid 2009. Consumer Price inflation

[8]The fourth instrument was the 'forward guidance' on Fed policy that affected market participants' behavior. See Bernanke et al. (2004).

[9]The *Feds Fund Rate (FFR)* is the rate at which depositary institutions *trade balances they hold at the Federal Reserve*, and is set by the Federal Reserve. (LIBOR type benchmarks, on the other hand, are rates at which banks borrow from each other in the interbank market, and are market determined). The *discount rate* is the *liquidity window at which depositary institutions can borrow from the Federal Reserve* as a 'last resort', and is therefore usually set at a small spread above the FFR. The reserves held by depositary institutions with the Federal Reserve were interest free till the global financial crisis. It was constrained to pay interest on them in view of their growing size, as risk averse banks preferred to park their funds with the Federal Reserve as a result of risk aversion (Chart 9a). Large, sudden withdrawals can put downward pressure on the benchmark FFR.

[10]Data on cyclical fiscal balances is from IMF's Fiscal Monitor database. https://www.imf.org/external/datamapper/datasets/FM.

was back in positive territory by January 2009. Asset prices recovered smartly, with the DJIA bottoming out in February 2008 and crossing its 2007 pre-crisis peak of 13000 by 2012, even as the economic recovery was punctuated by a 'double dip'. The VIX, a common measure of stock market instability in the US, that had crossed the fear threshold of 25 by mid September 2008, was back below the 25 by July 2009. The DJIA soon turned ballistic and is currently at around twice the pre-crisis peak.

The economic recovery, however, was comparably far slower (Table 1). Although the Advanced Economies had negative growth for just one year, the recovery gained momentum only from 2014, and growth is still hardly robust by pre-crisis standards, despite both monetary and fiscal policies remaining stimulative. The strong recovery came a few years down the line, at a time fiscal policy was being tightened. The economic recovery of 2010 was short lived as it soon morphed into a debt crisis in the Eurozone in 2011. Public debt exploded in advanced economies within a very short period, as OECD (December 2018) indicates. This was the lagged effect of a number of years of two simultaneous fiscal shocks—a negative shock to revenues, and a positive shock to expenditures on account of the need to provide fiscal stimulus—both occasioned by growth significantly below trend over a number of years. The market impact of these shocks was asymmetric because the capacity to absorb these shocks varied from country to country. Eurozone governments were particularly vulnerable to market revolt because of a basic design flaw in the monetary union project that provided neither for a fiscal (bailout) backstop nor a monetary one (printing your way out of a nominal default). Moreover, unlike the US, the assets of some of the bigger banks dwarfed the size of sovereign balance sheets and were therefore too small to bail out the too big to fail financial institutions (Sheel 2011).

Fiscal deficits have to be financed. The conventional wisdom is that this is done through a combination of market borrowing, that can raises interest rates to crowd out private investment, and can expose sovereigns to market revolt if sovereign balance sheets are seen to be unsustainable, and through monetization of the deficit which can destabilize the macroeconomy through inflation. It is for these reasons that fiscal deficits are kept within reasonable limits, with the dissaving during economic downturns reversed through increased saving following the recovery so as to keep public debt GDP ratios stable and within prudent limits.

Policy makers in advanced economies were able to get around this unpleasant fiscal arithmetic during the Global Financial Crisis through the conflation of fiscal and monetary policy. Quantitative easing was no doubt an appropriate monetary policy tool at the zero lower bound. But by purchasing treasury bonds—what Ben Bernanke called coordinating with fiscal policy—on an epic scale it also served as a fiscal tool by keeping sovereign borrowing costs low. The consequential largescale monetization was deferred/moderated by incentivizing depository institutions to keep their balances through sale of bonds with the Federal Reserve by paying interest on bank reserves. It was this dual role of quantitative easing that led to a legal challenge in the European Court of Justice, which ultimately ruled that the European Central Bank's OMT (Outright Monetary Transactions) targeting the bonds of distressed countries facing market revolt was an instrument of monetary policy authorized under

Table 1 Global growth

	World	Adv Econs	EMDEs	US	Euro area
1980–01	**3.2**	**2.9**	**3.7**		
2002–07	**4.5**	**2.5**	**7.1**	**2.8**	**2.0**
2002	2.9	1.6	4.7	1.7	1.0
2003	3.7	1.9	6.3	2.9	0.7
2004	4.9	3.1	7.5	3.8	2.3
2005	4.6	2.6	7.3	3.5	1.7
2006	5.3	3	8.2	2.9	3.2
2007	5.4	2.8	8.7	1.9	3.1
2008	2.8	0.1	6.1	−0.1	0.5
2009	−0.6	−3.5	2.7	−2.5	−4.5
2010	5.4	3.1	7.4	2.6	2.1
2011	4.3	1.7	6.4	1.6	1.6
2012	3.5	1.2	5.3	2.2	−0.9
2013	3.5	1.4	5.1	1.8	−0.2
2014	3.6	2.1	4.7	2.5	1.4
2015	3.5	2.3	4.3	2.9	2.1
2016	3.3	1.7	4.4	1.6	1.9
2017	3.8	2.4	4.7	2.2	2.4
2018	3.7	2.3	4.6	2.9	2.0
2011–13	**3.8**	**1.4**	**5.6**	**1.9**	**0.2**
2014–18	**3.6**	**2.2**	**4.5**	**2.4**	**2**

IMF WEO database

European treaties, and not fiscal policy. It was the ECB's declared commitment to open-ended purchase of sovereign bonds of distressed countries that finally quelled the market revolt and stabilized the Eurozone.

With the exception of the US and Japan, all major advanced economies have brought their (nominal) fiscal deficits to under 3% of GDP, the maximum under the Maastricht Treaty, with burden of stimulus now resting entirely on monetary policy. However, except for Germany public debt to GDP ratios have not been rolled back, and these now far exceed the Maastricht maximum of 60% (Chart 17).

How have the global economy and financial markets adjusted in the wake of the GFC? Have the two underlying forces behind the GFC, namely growing global imbalances and their spillovers into financial markets facilitated by financial deregulation been addressed? Looking ahead, what are the risks to the global economy?

3 Adjustment in Economic Growth

3.1 The Recovery in Advanced Economies

The consensus view amongst economists is that despite the current near term weakness going forward, advanced economies have by and large recovered as much as they possibly could from the Global Financial Crisis of 2008, with both inflation and unemployment rates at levels that indicate that the economy is firing at full potential. According to the IMF's October 2018 *World Economic Outlook* "the steady expansion (is) under way since mid-2016 continues….(this is) a time of above-potential growth in many economies….the economy is above full employment" (see IMF 2018). As a result central banks across major advanced economies—with the exception of the Euro Area and Japan, where these are still stuck at the zero lower bound—have been raising policy rates.

3.2 Hysteresis and Secular Stagnation

The recovery was not the usual V shaped that usually follows recessions—through which the economy grows above trend to quickly recover the loss in potential output loss (Table 1). According to IMF's *World Economic Outlook database* the output loss in advanced economies was recovered only over 10 years, by 2018, and in the process there may have been some permanent loss of growth potential through hysteresis and a secular decline in private demand (Eggertsson et al. 2016; Summers 2018). The IMF also appears to be of this view: "Beyond the next couple of years, as output gaps close and monetary policy settings continue to normalize, growth in most advanced economies is expected to decline to potential rates—(which is now) well below the averages reached before the global financial crisis of a decade ago. Slower expansion in working-age populations, and projected lackluster productivity gains, are the prime drivers of lower medium-term growth rates" (IMF 2018). To this one can perhaps add increasing income inequality deriving from stagnant median wage growth that constrains demand.

3.3 Macroeconomic Stimulus Still Not Withdrawn

The return to potential growth nothwithstanding, the macroeconomic stimulus put in place during the crisis is still mostly in place in major advanced economies, and they remain on life support. In the US, policy rates have more or less normalized, but the oversized Federal reserve balance sheet has still to be mostly rolled bank, cyclically adjusted fiscal deficits remain high, and are not projected to decline in the foreseeable future. The dramatic expansion in public debt as a proportion of GDP continues. In

the Euro Area, while there has been fiscal tightening, policy rates are still at the zero lower bound, and the ECB's balance sheet is still expanding. In Japan, too policy rates are still stuck at the zero bound, with accommodative monetary policy and expansionary fiscal policy comprising two of the three arrows of 'Abenomics'. The Bank of Japan's balance sheet now equals the GDP, and public debt is very near twice the GDP. The Bank of England's bank rate remains below single digit, and while fiscal deficits have declined, public debt as a proportion of GDP remains at the crisis peak levels. The real test of the recovery in advanced economies would be removal of macroeconomic life support.

3.4 Long Term Income Convergence

The global economy grew at an average of 3.2% in the roughly two decades preceding the boom of 2002–2007, when it grew at 4.5%, with Emerging Markets and Developing Economies (EMDEs) growing slightly faster than Advanced Economies (Table 1). Long-term averages may hide structural changes afoot. A trailing 10 year moving average reveals that over this earlier period AEs slowed down by about 30 basis points while EMDEs accelerated at an equivalent rate, with global growth remaining more or less constant at 3.2%. This declining growth trend is attributed to adverse demographics, a declining labour participation rate, and growing income inequality with the twin forces of globalization and automation keeping real wages stagnant in Advanced Economies. After having peaked at the turn of the century, US Labour participation rates started declining, including during the economic boom that followed, and the decline continued in the wake of the GFC (Chart 2). Despite increasing ten times in nominal terms since the sixties, when corrected for consumer price inflation US real wages have barely budged in real terms. With greater automation and use of new technologies in the economy, and global integration of labour markets through international trade, a big gap opened up between wage growth at the high end of the labour market and at the bottom, leading to growing inequality. Thus while real wages of low wage workers declined by 5%, and those of middle wage workers increased by just 6%, those of high wage workers have increased by over 40%. The wage pyramid has become steeper, with the wages of the top 1% rising 138%, even as those of the bottom 90% rose by just 15%. The disparity in the ratio of incomes of the typical wage worker and CEOs, which was just 30 in 1980 increased steeply to over 300 (Pew Research Centre 2018; Mishel et al. 2015).

3.5 Accelerated Convergence During the Boom

This structural shift towards income convergence was sharply accentuated during the boom, during which EMDEs grew at rates that were on average almost twice as high as the preceding two decades. Indeed, the boom was largely an EMDE phenomenon

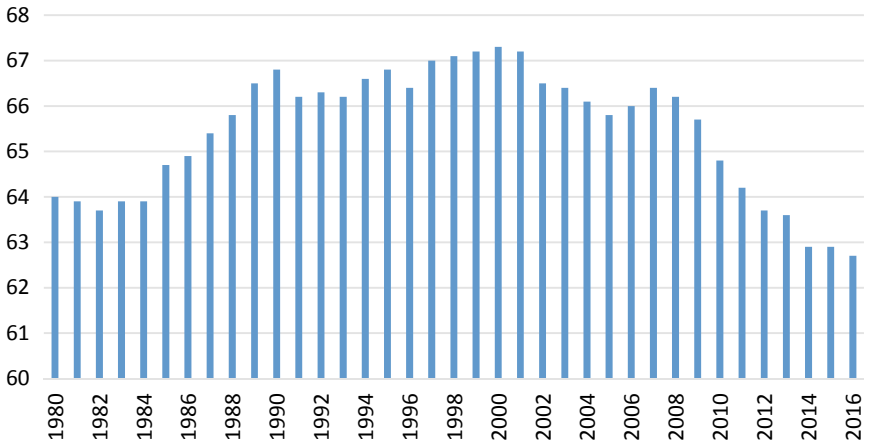

Chart 2 US labour participation rate. US Dept of Labour (BLS). *Source* US Bureau of labor statistics

(Table 1). This pushed up global growth by about 40%, despite AE growth rates continuing to decline on average.

3.6 The Post Crisis Divergence

In the post crisis period although Advanced Economies recovered more slowly, the divergence in growth between AEs and EMDEs has reduced. Within advanced countries, the Euro area, recovered more slowly than the US, on account of the Euro zone crisis that followed the GFC. Growth in EMDEs held up well in the immediate aftermath of the GFC, fuelling speculation that these economies had now 'decoupled' from AEs,[11] on whose demand they had long been dependent for their own growth.[12] However, growth in EMDEs continued to decline steadily in EMDEs, puncturing the decoupling hypothesis, even as it accelerated in AEs. The latter turned the corner around 2014, growing on average at a rate 60% higher than in 2011–13. EMDEs, on the other hand, decelerated on average by 20% during the same period. While EMDEs are currently still growing at a pace that is about 20% higher than in the last two decades of the last century, it is still unclear whether the post crisis decline in growth in EMDEs has bottomed out or not. With the exception of India, near term central bank policy rates in the BRICS have either declined (Brazil and Russia) or

[11] Even the IMF lent its weight to the decoupling hypothesis (Akin and Kose 2007; The Economist 2008).

[12] In his Nobel Prize lecture delivered over three decades ago the economist Lewis (1979) observed that economic growth in developing countries was dependent on economic prospects in OECD countries that accounted for the major share of global demand.

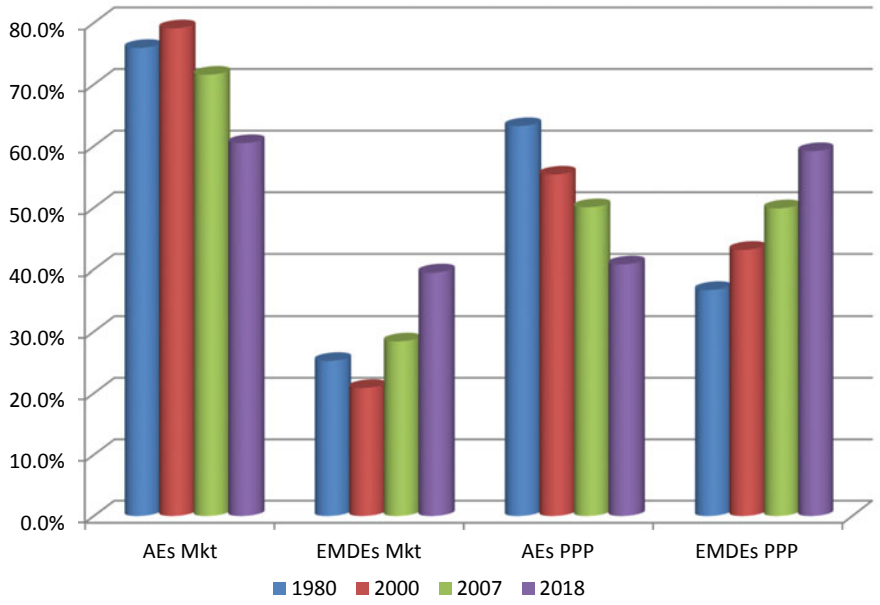

Chart 3 Shift in global economic weights. *Source* IMF WEO database

remained stable (China and South Africa). Even so, the shift in global economic activity towards EMDEs over the last four decades has been remarkable. Their economic weight in world economic output rose from 25 to 40% measured at market exchange rates, and from about a third to 60% measured in Purchasing Power Parity. While the convergence in the period 1980–2000 was only when their incomes were measured at PPP, the convergence since is palpable at both market exchange rates and at PPP (Chart 3).

3.7 Factors Underlying the Slow Recovery

A protracted recovery should have been expected, notwithstanding the aggressive monetary and fiscal stimulus, since the source of the crisis lay in the financial sector (Reinhart and Rogoff 2014). Macroeconomic policies can stabilize growth fluctuations arising out of cyclical shocks, but are unable to do so where the decline is on account of structural shocks. A financial crisis impairs the balance sheets of both creditors and borrowers, and repair takes time, as the flip side of increasing savings to deleverage is reduction in consumption.

Monetary policy is transmitted to the real economy through two separate channels, namely credit and wealth. Deleveraging households saw their incomes shrink further through low interest rates on deposits, protracting the time required to repair their

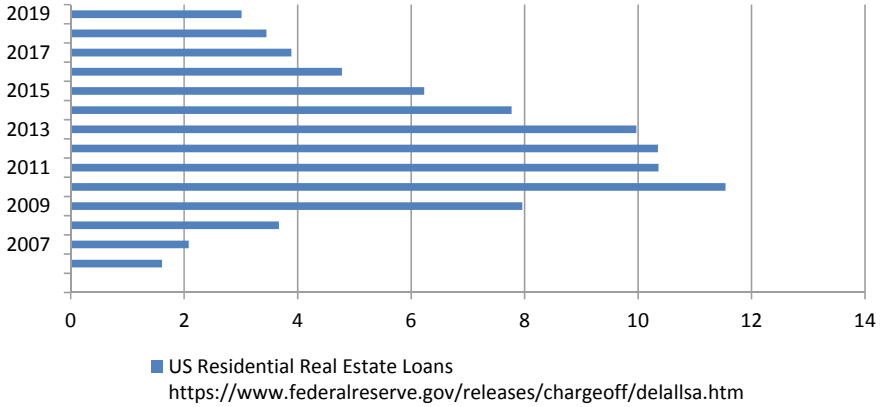

Chart 4 Delinquency rates (Due past 30 days) of US residential real estate loans. *Source* US residential real estate loans https://www.federalreserve.gov/releases/chargeoff/delallsa.htm

balance sheets. Richer households with lower marginal propensities to consume and greater financial assets saw their wealth increase through rising asset prices. QE may therefore have exacerbated inequality that was undermining demand in the pre-crisis world, through the wealth effect, with transfer of income from those with a greater propensity to consume to those with higher propensity to save. This kept consumer demand, consumer price inflation and economic growth low even as asset prices boomed.

A good proxy to assess the timeline of the repair of household balance sheets is from the delinquency rates of US Residential Real Estate Loans, that lay at the heart of the financial crisis. These delinquencies were under 2% in 2006–2007, following which they rose sharply as the financial crisis escalated, peaking at over 10% between 2010 and 2013 (Chart 4). The rapid decline in delinquencies began in 2014, which coincided with the economic recovery gaining momentum.

With monetary policy arguably in a liquidity trap, the onus of stimulus increasingly fell on fiscal policy. Fiscal stimulus had expectedly high multipliers during the initial strong recovery. These multipliers however weakened considerably and the recovery petered out, most likely because the underlying problems were structural rather than cyclical.[13]

[13]The experience with fiscal policy during both the Japanese financial crisis of the nineties, and the more recent Global Financial Crisis has reopened the debate on the effectiveness of fiscal policy, and fiscal multipliers, in a liquidity trap. The role of fiscal policy in the recovery from the Great Depression before the "second dip" remains contentious. Till recently, following Milton Friedman, the focus was more on monetary policy driving the recovery. See Brown (1956). Romer (1993) concluded that it was mainly monetary policy that drove the recovery. Eggertson (2005, 2010) and have underscored the role played by fiscal policy in the recovery. See also De Long and Summers (2012). More recently Romer (2011) has argued that but for the fiscal stimulus the fall in consumption during the Global Financial Crisis would have been higher.

The recovery in the Eurozone was slower because of the market revolt that forced austerity in the midst of a continuing crisis, as sovereign debt in the European periphery saw prices plummet and yields rocket. The yield on Portuguese sovereign debt rose from 7 to 20% in 2011, while those on Greek bonds climbed as high as 200% in 2012.

Another possible reason why the US recovery was stronger than the Euro area was because authorities in the US took strong action to take toxic assets off and recapitalize bank balance sheets, while European governments have dithered in doing so not so much on account of moral hazard, but the recognition that sovereign balance sheets are not big enough to bail out their large banks (Sheel 2013). TARP, which authorized bailouts of $ 700 billion of the US financial system through Treasury funds, of which less than $ 500 was actually used, was just the tip of the iceberg. A Congressional audit of the Federal Reserve system in 2011 revealed that the bail outs through its targeted emergency lending windows such as TAF, PDCF, TSLF, CPFF, AMLF and TALF was over $ 16 trillion (US Government Accountability Office 2011). While there are moral hazards inherent in such bailouts, it nevertheless allowed the US banking system to bounce back faster and more strongly than that in Europe. Banking stocks in the US (proxied by the S&P 500 banks index) and Europe (proxied by the STOXX Europe 600 banks), fell by over 80% between 2007 and 2009. While European bank stocks have recovered only marginally from the crisis low, American banks have recovered almost 80% of value. Likewise, while both US and European banks gave equity returns of around 15% prior to the crisis, Banks, returns in the US fell far more sharply in the US in the wake of the crisis, to −10% between 2007 and 2009, while they fell to 5% in Europe. While returns in Europe have remained more or less at the post crisis levels, US banks caught up with European banks by 2009, and their returns are now significantly higher, although still under 10% (The Economist 2017).

3.8 The Decline in Trade

Much of the spurt in growth in EMDEs during the boom is attributed ultimately to supplementing domestic demand with external. Chart 5 (drawn from data in the IMF database) where annual perturbations have been smoothened out through five yearly moving averages, shows that the sharp increase in trend growth in EMDEs from the 1990s coincided with an even sharper increase in the growth of the volume of global trade in goods and services as a share of GDP. During the boom prior to the Global Financial Crisis trade grew at about twice the rate of GDP. The global financial crisis was also a trade shock, with this growth declining to 3.8% in 2008, and turning negative in 2009 (−10.3%). It however rebounded back by 12% during the brief global recovery of 2011, but fell back thereafter to levels of the early

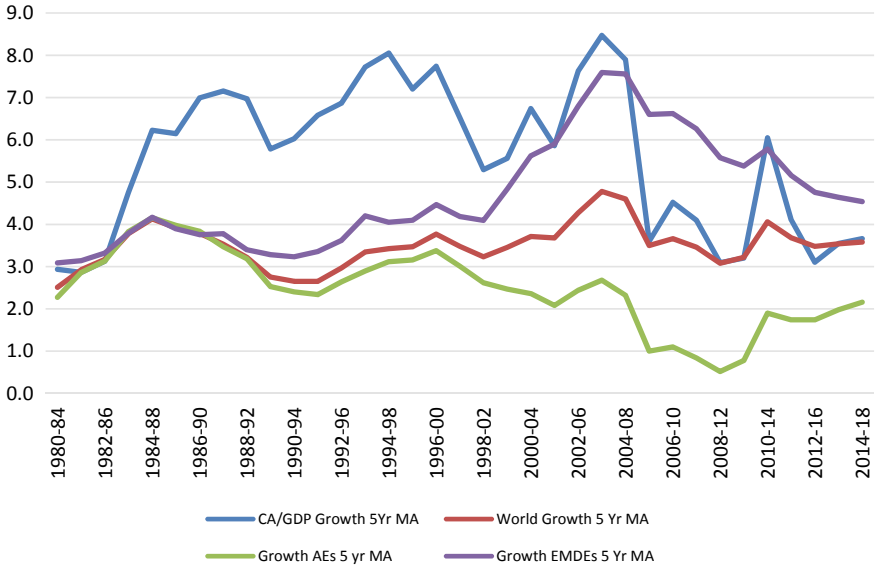

Chart 5 World trade and growth. *Source* WEO, October 2015

eighties despite the valiant attempts by the G 20 to keep markets open,[14] which is where it remains presently. Trade is now growing only about as fast as GDP. The Current Account measure actually underestimates the degree of de-globalization as the increase in domestic value addition of exports indicates that Global Value Chain (GVC) integration has also declined since 2011–12, especially in major EMDEs like China and India OECD (December 2018). It is therefore unsurprising that while EMDEs weathered the early shock of the GFC reasonably well, which spawned the decoupling hypothesis, their prospects have dimmed considerably since, even as growth has resumed its northward trajectory in AEs. Whatever may have been the experience of the colonies of free trade during the colonial era, EMDEs have certainly gained by the freeing up of global trade in the postwar era. It is in their interests to keep markets open.

On the strength of this data it is easy to come to the conclusion that trade has worked against AEs, and this is certainly the narrative that is leading to the resurgence of nationalist parties in some of these countries. However, as pointed out above, there are also long-term structural reasons that are leading to the lowering of demand and trend growth in AEs. Indeed, cross border trade enabled consumers with stagnant real incomes in advanced economies to benefit from wherever rapid productivity gains were taking place to maintain living standards through cheaper wage goods. Protectionism would lead to the loss of this welfare benefit in the absence of

[14]The G20 resolve was mindful of the disastrous snowballing impact of the Smoot-Hawley Tariffs that aggravated the Great Depression in the 1930s (Sheel 2014, pp. 270–71).

matching productivity shifts that can make manufacturing in Advanced Economies competitive.[15]

3.9 The Unwinding of Global Imbalances?

The decline in world trade mirrors the decline in external—global—imbalances. The flipside of the sharp rise in cross border trade in goods and services was growing current account imbalances that sent increasingly large amounts of capital uphill, as it were, from emerging markets (notably China, and oil surplus countries) to advanced economies (notably the USA). This was because despite the sharp increase in growth, aggregate savings exceeded aggregate investment in EMDEs on account of consumer demand limited by low median incomes. Corporates in AEs, meanwhile, were redirecting their own surpluses away from investment, possibly because productivity growth, and therefore returns, were higher in EMDEs (Chart 6). The US-China story is by and large applicable to AEs and EMDEs as a whole. The resultant global savings glut spilled over into financial markets, lowering interest rates, underpricing risk, which in turn fuelled innovation in, and deregulation of, financial markets in the recipient countries, to which the GFC is usually traced. This savings glut ultimately found its way into leveraged consumption in AEs, with the froth in financial markets boosting consumption even as labour wages remained stagnant, and was one of the ultimate drivers of the Global Financial Crises (Bernanke 2005, 2015).

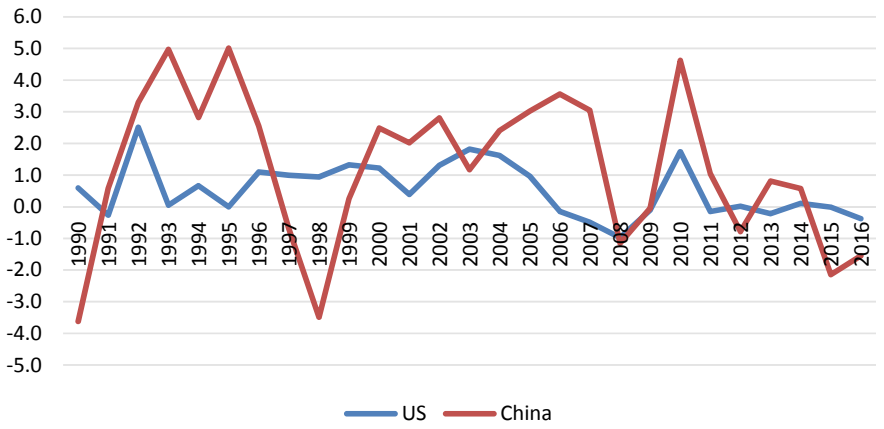

Chart 6 Total factor productivity growth. *Source* Total Economy Database, The Conference Board

[15] Although Chinese TFP has also fallen in tandem with that of the US (Chart 5), Conference Board (2018) data shows that there are other developing Asian economies, particularly India, which are becoming more competitive through robust productivity growth.

External (Current Account) imbalances are merely external spillovers of domestic imbalances. Global rebalancing of demand entailed that economies with large external surpluses needed to save less and consume more, and those with large deficits needed to save and invest more. Knee jerk reactions to reduce current account deficits simply by targeting bilateral imbalances, as the United States is attempting to do through trade negotiations with China, cannot work unless the underlying structural imbalances are addressed. In the absence of this, imports would simply shift to other countries supplying goods and services at higher prices.

In the post crisis period, China has partly rebalanced its economy away from excessive reliance on exports and towards a greater reliance on consumption. It is saving much less than what it did prior to the crisis. However the excessive reliance on investment has been exacerbated, even as total factor productivity growth has fallen sharply. This has inter alia lowered growth in China. The other big emerging market economy, India, which had a largely balanced economy on the eve of the global financial crisis, and was firing on all three growth cylinders, has seen its trend growth decrease through a decline in savings, and a loss of two growth engines, namely investment and exports. While India's current account deficit has remained the same, this is because of sharp declines in both exports and imports, that has seen its current account as a share of GDP fall from 55.6% of GDP in 2011–12 to 40.5% in 2017–18. With the two biggest emerging market economies losing engines of growth, growth in EMDEs as a group has drifted lower (Table 2).

While growth has revived in major Advanced Economies, the counterpart rebalancing has been modest. The US has increased savings marginally through a reduction in consumption, but there has been a further reduction instead of increase in investment. The increase in private savings through deleveraging has been mostly offset by the increase in public leverage. Germany has increased its savings further, and reduced instead of increased consumption. While hitherto this surplus spilled over only into the Euro area, which had a balanced current account with the rest of the world, the Euro area has now redirected its economy away from both consumption and investment to run a significant current account surplus.

The global economy is more balanced relative to 2007, the height of the economic boom, but it is much less balanced relative to 1997, the period preceding the boom. Both trade and growth have declined alongside global imbalances. With so little structural adjustment one could argue that the reduction in global imbalances is mostly the byproduct of lower growth rather than structural adjustments, and that if growth were to rise to former levels these imbalances might increase again.

3.10 Flattening in FX Reserve Accumulation in EMDEs

The flipside of the rise in global imbalances during the boom was the sharp increase in the foreign currency reserves of EMDEs, as these countries, particularly China, ran large current account surpluses during this period. Historically, US monetary policy is also a major determinant of global capital flows, with low rates sending a

Table 2 Global imbalances

Country/Group	Consumption/GDP			Investment/GDP			CAB/GDP			Savings/GDP		
	1997	2007	2017	1997	2007	2017	1997	2007	2017	1997	2007	2017
China	60.0	48.9	54.2	36.2	41.2	44.4	3.8	9.9	1.4	***40.0***	***51.1***	***45.8***
India	73.1	60.6	67.5	25.6	38.1	30.6	−1.3	−1.3	−1.9	***24.3***	***36.9***	***28.8***
Germany	77.7	72.5	72.0	22.8	20.7	20.1	−0.5	6.8	7.9	***22.3***	***27.5***	***28.0***
Japan	67.9	70.8	72.0	30.0	24.5	24.0	2.2	4.7	4.0	***32.1***	***29.2***	***28.0***
United Kingdom	82.1	85.2	86.4	18.0	18.4	17.4	0.0	−3.6	−3.8	***17.9***	***14.8***	***13.6***
United States	79.2	82.3	81.7	22.4	22.6	20.6	−1.6	−4.9	−2.3	***20.8***	***17.7***	***18.3***
Euro Area	77.6	76.0	75.8	21.6	24.0	20.8	0.8	0.0	3.5	***22.4***	***24.0***	***24.3***
EMDEs	76.3	66.7	67.7	24.8	29.6	32.3	−1.1	3.7	0.0	***23.7***	***33.3***	***32.3***

Source IMF WEO Database

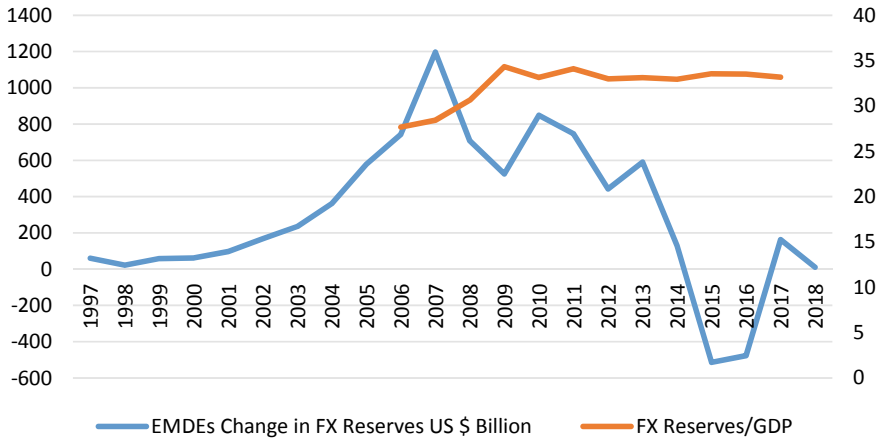

Chart 7 FX reserves of EMDEs. *Source IMF*, International Financial Statistics; *CEIC*, Datastream; national data; BIS policy rate statistics; BIS calculations

tsunami of capital flows into EMDEs in search of higher yields, mostly in the form of portfolio flows. With the decline in imbalances, combined with first the threat of rising US rates, and then the heir actual rise, the rate of increase in FX assets of EMDE central banks has declined, while the accumulated stocks of these reserves as a proportion of GDP has flattened out (Chart 7).

4 Adjustment in Financial Markets

4.1 The Rapid Rebound in Financial Markets and Central Bank Balance Sheets

The froth in financial markets is not only back with a bang, but the Dow Jones as a percentage of US GDP has crossed levels not seen during past thirty years, including during the dotcom bubble of the nineties, and the economic boom preceding the GFC when economic growth, and growth expectations going forward, were appreciably higher (Chart 8). The Federal Housing Finance Agency (FHFA) housing index crossed its nominal all time peak of March 2007 in 2016, and currently the real housing index is back at its peak housing boom level of November 2006 (Mislinki 2019). High yield corporate bond spreads are also close to historic lows. By these measures there now appears to be more liquidity in financial markets than there has ever been in over a third of a century.

Much of this liquidity overhang is arguably the result of large injections by central banks in advanced economies. The US Federal Reserve alone injected $ 4.5 trillion—equivalent to 5% of global GDP—through its three Quanti-

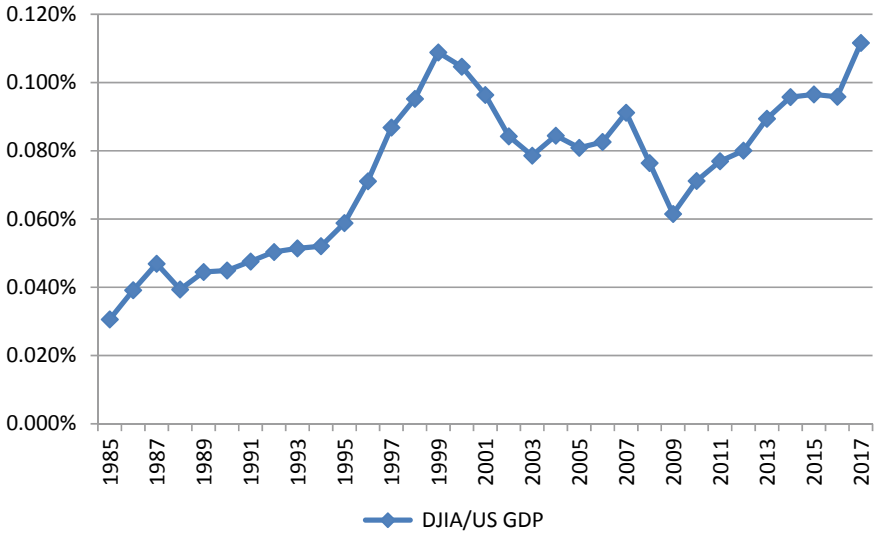

Chart 8 Asset prices. *Source* Yahoo Finance and US Bureau of Economic Analysis (BEA)

tative Easing programmes. Its balance sheet increased dramatically from around 6% of US GDP in 2008 to over 20% by 2013, peaking at over 25% in 2014. Although the Fed has begun to shrink its balance sheet recently—Quantitative Tightening, or QT—it was still over 20% of GDP as late as August 2018. (Chart 9a) The European Central Bank has injected the equivalent of another $ 3.5 trillion, with its balance sheet still expanding and now standing at about 40% of the Euro Area GDP (Chart 9b). The Japanese and Chinese experinces are strikingly similar, with the Bank of Japan expanding its balance sheet by above $ 3 trillion, and the Bank of China by $ 2.5 trillion.[16] The Bank of Japan's balance sheet now exceeds the country's national income.

4.2 Post Crisis Decline in the Growth of Financial Assets

Global financial assets aggregated around $ 382 trillion at end-2017, or about five times global GDP. Data put out by the Financial Stability Board shows that the annual growth in aggregate financial assets of financial corporations—comprising banks, pension funds, insurance corporations, public financial corporations, central banks and other financial intermediaries—in the 29 systemically important areas monitored by the Financial Stability Board has slowed sharply in the post crisis period despite the sharp increase in asset prices This appears a little puzzling, and is

[16]The US and Euro area data is from the Federal Reserve and European Central Bank. The Japanese and Chinese data is from the FSB.

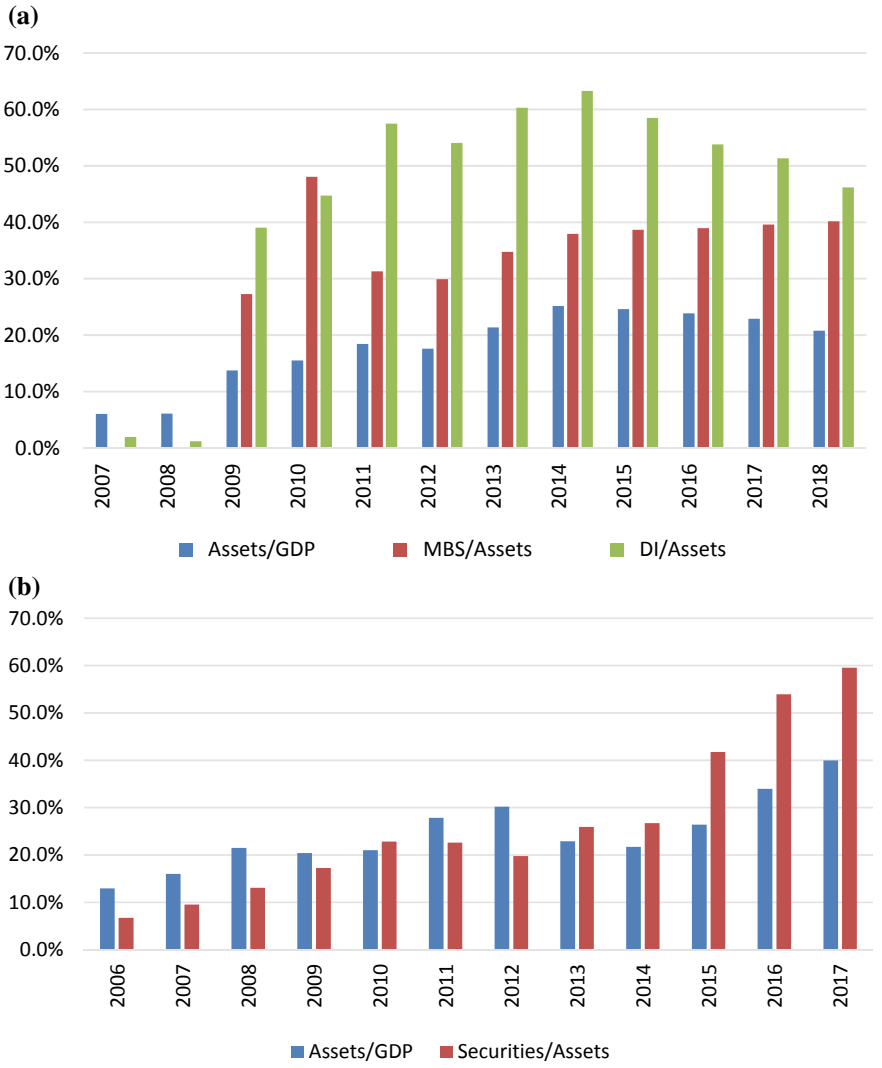

Chart 9 **a** US Federal reserve Balancesheet. *Source* US Federal Reserve. **b** ECB balancesheet. *Source* European Central Bank. (MBS: Mortgage Based Securities; DI: Assets of Depositary Institutions)

possibly explained by the retreat in private leverage. Global financial assets increased annually on average by over 11% in nominal terms between 2002 and 2007, but by just over 6% the next ten years, between 2007 and 2017. Paradoxically, despite the slower growth in nominal terms, on account of slower economic growth in the post crisis period financial assets grew faster relative to GDP in the latter period. Financial assets grew from 3.7 times global GDP in 2002 to just 3.8 in 2007. By 2017 global financial assets were 4.8 times global GDP (Financial Stability Board 2019).

4.3 The Shift Away from Riskier Assets

The decline in financial assets is led by greater risk aversion, with a flight to quality away from riskier, higher yielding complex financial products, such as Collateralized Debt Obligations (CDOs), Credit Default Swaps (CDS) and other mortgage and asset backed[17] securities that took much of the blame for the global financial crisis,[18] towards less risky and particularly riskless sovereign paper (Chart 10), and those of government sponsored enterprises such as housing mortgage products.[19] This is not surprising as most of the increase in leverage was by governments in Advanced Economies. Non-financial corporates have also increased their share of financial assets by leveraging the low interest rate environment to borrow more.

Issuance of Collateralized Debt Obligations (CDOs), which restructured various kinds of incomes from assets, including housing mortgages, by securitizing them into new innovative financial instruments, such as CDOs, that lay at the heart of the panic in financial markets in the US (CDO issuance in Europe was on a much lower scale), have declined sharply in nominal terms. Taken together, structured finance in the US and Europe shrank from around $ 4.5 trillion in 2006 to just over 1 trillion in 2016 (Financial Stability Board 2017). In Europe the issuance has fallen back to the level of the second half of the nineties, and in the US to pre-boom levels (Chart 11). While CDO issuance has revived in the recent period, the issuance of the riskier and far more complex 'synthethic CDOs', that securitized income receivable from CDOs into new instruments, making it even more difficult to trace on whose books the risks of default actually lay, has not revived.

[17] Mortgage based securities are issued by pooling mortgage receivables, while asset backed securities are issued by pooling of receivables from non-mortgage assets, such as credit cards, student loans, auto loans and home equity loans.

[18] According to the Financial Stability Board (2017), those " aspects of shadow banking considered to have contributed to the global financial crisis have declined significantly and generally no longer pose financial stability risks".

[19] While US Mortgage Related Securities have not shrunk since the crisis, in 2006 and 2007, on the eve of the financial crisis, almost two thirds of mortgage related securities outstanding were issued by private companies. This declined sharply in the wake of the financial crisis, and in 2018 about 85% of all such instruments were guaranteed by Government Sponsored Enterprises, namely Freddie Mae, Freddie Mac and Ginnie Mae (*SIFMA* op. cit).

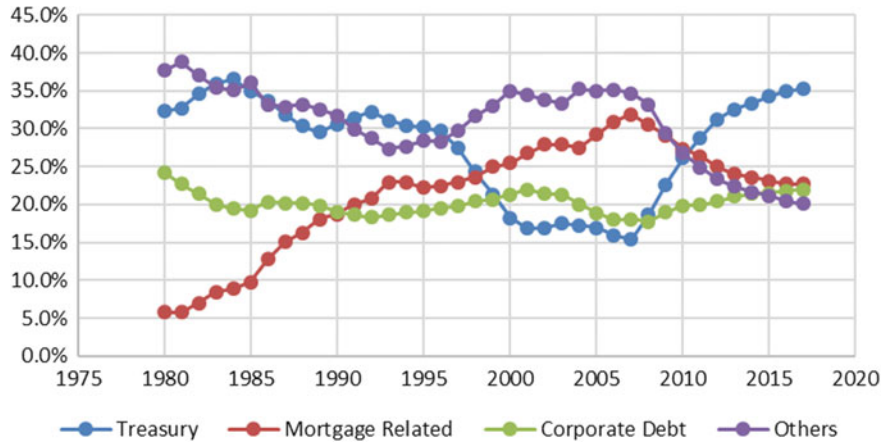

Chart 10 Outstandings in US bond markets. *Source* SIFMA https://www.sifma.org/resources/archive/research/

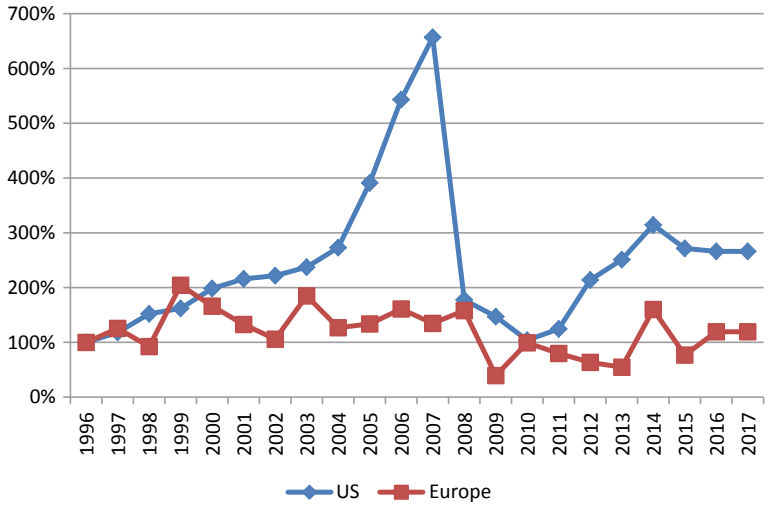

Chart 11 CDO issuance (1996 = 100). *Source* SIFMA https://www.sifma.org/resources/archive/research/

This shift away from riskier assets is also evident from the changing complexion of the balance sheets of global systemically important banks (G-SIBs) where the securities trading portfolio has shrunk, while loans and cash have increased (Chart 12).

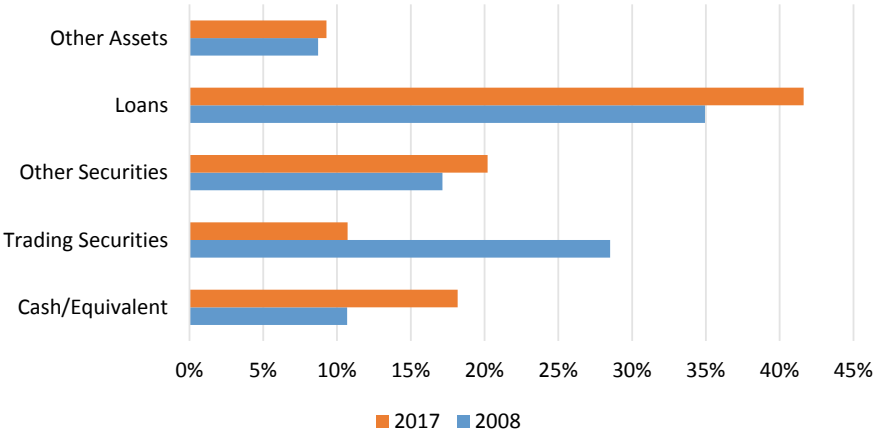

Chart 12 G-SIB balance sheets. *Source* Bank of International Settlements (2018)

4.4 The Rise and Rise of Shadow Banks

Shadow banking is a feature of financial market sophistication, and is globally distributed across just 8 jurisdictions, US, UK, Canada, Netherlands, Japan, China, Cayman Islands and the Euro Area (Chart 16). The assets of shadow banking[20] have grown at a much faster clip than aggregate financial assets between 2002 and 2017 at 314% and 195% respectively (Financial Stability Board 2019). In 2008 the share of Non-bank and Non-insurers among the top 20 financial institutions by size was 30%. By 2016 this had increased to 50%.[21]

At first glance it might seem surprising that this differential growth is true for both the period prior to the Global Financial Crisis, and in its wake, especially since the riskiest financial assets have declined sharply. The decline in these riskier assets have been more than countervailed by collective investment schemes/Money Market Funds that are subject to runs.[22] In the earlier period the growth was on account of financial deregulation. In the latter period this is because the regulatory noose has tightened around banks through the enactment of Basel III and national regulatory tightening, whereas shadow banking still remains mostly unregulated. Chart 13 shows that in the post crisis period the assets of shadow banks and central banks have grown at the expense of all other financial asset classes.

[20] Assets of 'other financial intermediaries', the FSB's broad measure of shadow banking.

[21] This corresponds to FSB's Monitoring Universe of Non-Financial Institutions, or MUNFI (Bank of International Settlements 2018).

[22] Or Economic Function 1, one of the five narrow measures of shadow banking of the *Financial Stability Board*. This narrow measure aggregated 13% of global financial assets globally at the end of 2016. Of this over 70% constituted collective investment vehicles such as Money Mutual Funds, real estate funds, credit hedge funds, mixed funds etc. that are susceptible to runs. Financial Stability Board (2019).

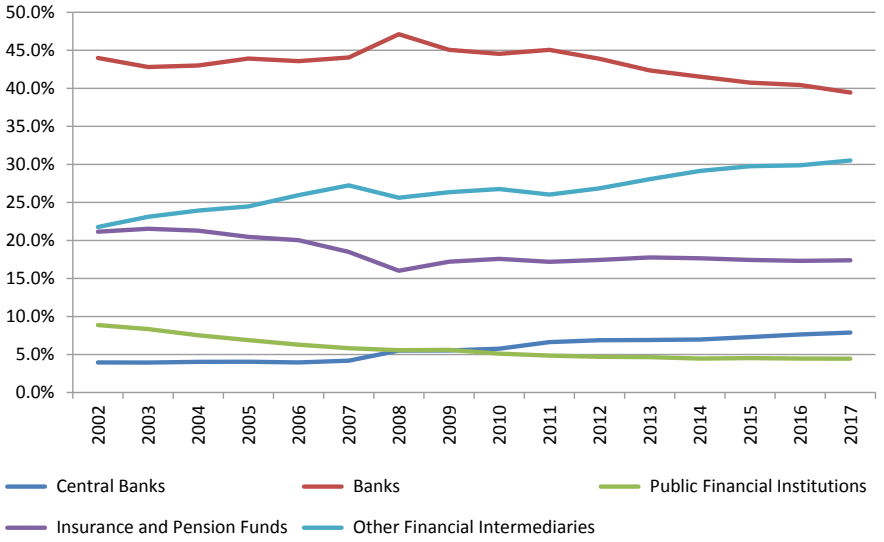

Chart 13 Composition of global financial assets. *Source* Financial Stability Board (2019)

4.5 Shifts in the Geographical Distribution and Composition of Financial Assets

Financial asset aggregates hide some subtle, but significant, geographical shifts in global finance over the past decade. First, while just five jurisdictions (US, UK, Japan, China and the Euro Area) continue to account for about 85% of global financial assets the biggest shift in the distribution of global financial assets since 2005 is away from the US and Europe and towards China. In 2005 the US, UK, Japan and the Euro Area together accounted for 84.2% of financial assets, and China just 4.3%. By 2017, the former's share had shrunk to 67.4%, while that of China rose sharply to 14.8%, a rather dramatic 10.5% shift within one decade (Chart 14).

Second, there have also been significant geographical shifts in the composition of banking assets in the post crisis period. Banking assets have increased faster than shadow banking assets in the US, whereas these have shrunk relative to shadow banking in both the United Kingdom and the Euro Area. Like the Euro Area, the UK also witnessed a spurt in shadow banking following the crisis, but this has declined in recent years. As pointed out earlier, the likely reason for these shifts is the aggressive action taken by the US to shore up its banking system, even as Europeans have faltered and have been more focused on reining in the financial system, including banks.

Third, almost all the growth in shadow banking outside the Euro area in the post crisis period is in China and the Cayman Islands. The US's share in shadow banking assets (OFIs, or the broad measure of shadow banking) has fallen sharply by about

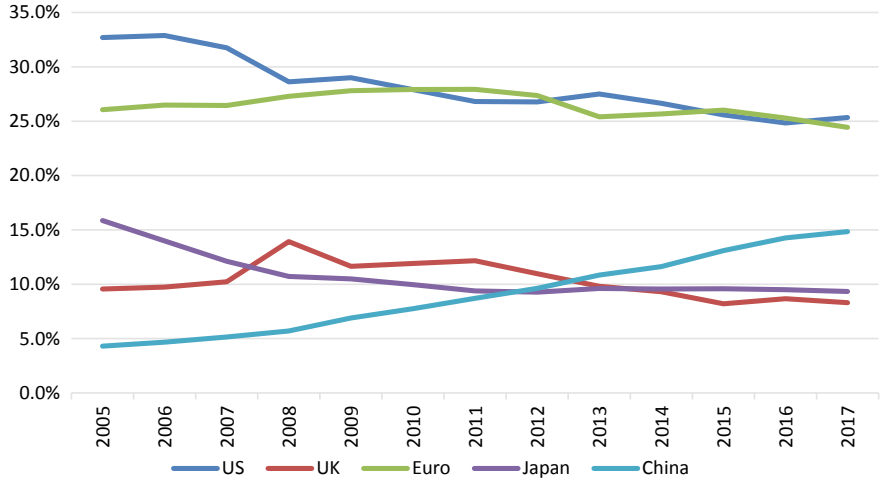

Chart 14 Geographical distribution of financial assets. *Source* Financial Stability Board (2019)

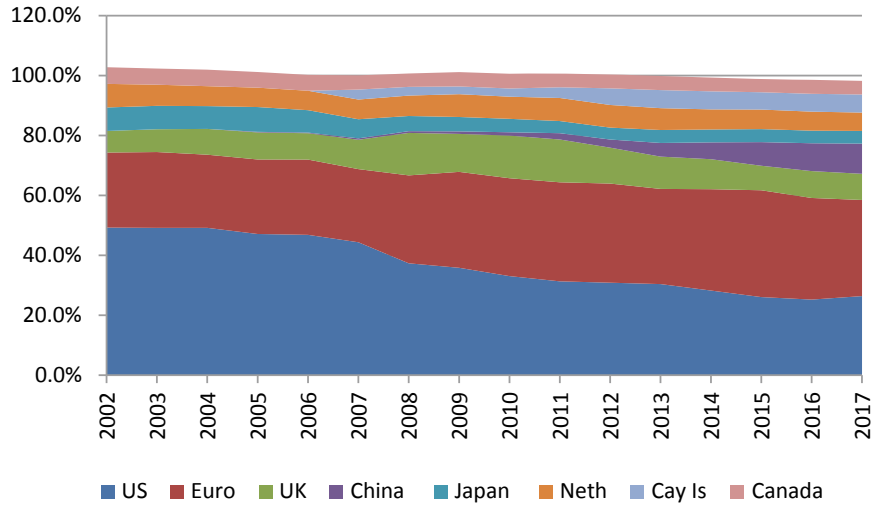

Chart 15 Geographical distribution of shadow banking. *Source* Financial Stability Board (2019)

23%, from 49.3% in 2002 to 26.3% in 2017. This share has been ceded to the Euro area (7%, with the Euro area now accounting for 32% of shadow banking globally) and to China (Canuto 2019) and the Cayman Islands that have seen their shares in global shadow banking assets rising from practically nil to 10% and 6% respectively within the last decade (Chart 15). By the narrow measure of shadow banking however the US still has the largest share of shadow banking (29%, compared of 23% in the Euro area and 16% in China).

4.6 Compounding the Too Big To Fail Problem

While views were sometimes expressed prior to the Global Financial Crisis that big financial institutions reduced financial risk (Beck et al. 2003), one of the seminal lessons of the crisis was that the existence of financial institutions considered too big to be allowed to fail created moral hazards that might actually encourage excessive risk taking as bail out by governments was assured in the event of bets going horribly wrong. One of the objectives of financial regulatory reform in the wake of the crisis was to mitigate this risk. Ironically, the too big to fail problem has been magnified in the wake of the crisis. The crisis saw a major shakeout in the management of big financial corporations. All the big global investment banks suffered huge losses, and either collapsed (Lehman Brothers) and/or were taken over by other institutions. This has led to increasing concentration in Financial Institutions and creation of even bigger banks. While the top 20 institutions accounted for 38% of financial assets in 2008, this share increased to 42% in the post crisis period (2016) (Bank of International Settlements 2018).

With American Banks bouncing back strongly it is unsurprising that this asset concentration has tilted in favour of American Banks and away from European ones. According to the latest (November 2018) list of 30 globally systemically important banks (G-SIBs), the five of the top dozen banks, including the biggest two (JP Morgan Chase and Citigroup), are now American. While European Banks also show the same concentration traits European banks have retreated, with the space vacated being filled by their American counterparts. European banking is set to weaken further in the event of Brexit (see Financial Stability Board 2018a; Onaran 2017; Arnold 2018; Schildbach 2018; True Economics 2013; Robinson et al. 2018).

4.7 The Rise and Rise of Leverage

Global debt rose from $ 110 trillion at the end of 2007 to US $ 174 Trillion at the end of 2017, an increase of 58%. Even when controlled for GDP growth, the increase in leverage of 15% over a decade is significant, considering that excessive leverage was a contributing factor of the GFC. Leverage in AEs continued to increase mostly on the back of fiscal expansion, even as private debt has not grown, and households have indeed deleveraged (Chart 16). Gross public debt rose from 86.9% of the GDP in 2009 to 106.1% in 2018 in the US. In the Euro Area, where the fiscal stimulus was much less, and rollback more aggressive, the corresponding increase was more modest, from 79.2 to 84.4%[23] Such a sharp increase in public debt over a decade has raised the prospect of fiscal dominance that might make exit from easy monetary policies more difficult.

[23]The central bank balance sheet data is from the data publicly available on the Federal Reserve and ECB websites. The fiscal numbers are from IMF's Fiscal Monitor (2009).

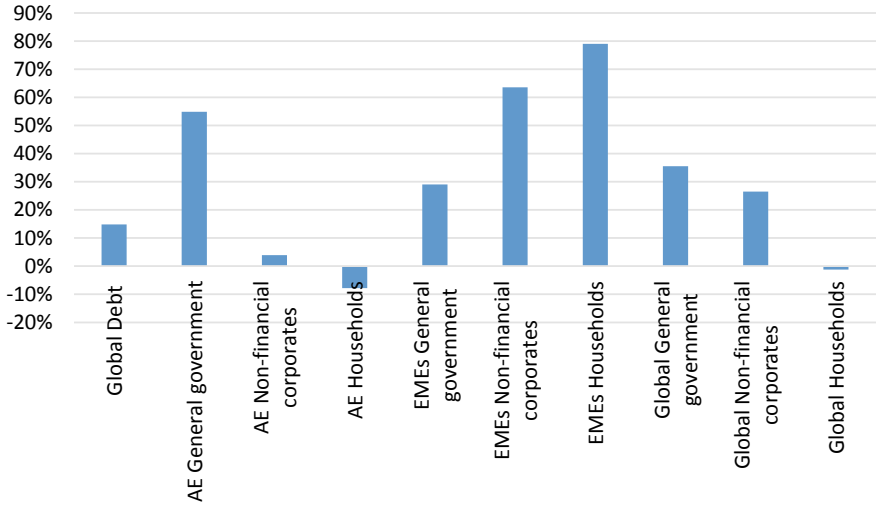

Chart 16 Debt/GDP Growth 2007–17. *Source* Bank of International Settlements (2018)

EMDEs used the low interest rates to borrow more, with governments, Corporates and households sharply increasing their debt as a proportion of GDP, in that order. Unlike in advanced economies, the increase in debt in EMDEs was mostly in the private sector (Chart 16). Governments increased their debt from 37% of GDP to 48%, Non-financial Corporates from 57 to 93% and households from 19 to 35%.

4.8 Reform of Financial Regulation

Increasing deregulation of the financial sector that progressively chipped away at the mechanisms put in place to prevent excessive risk taking and financial instability put in place in response to the Great Depression has shared much of the blame for the Global Financial Crisis. Following the crisis, the G 20 spearheaded a number of global initiatives to repair this damage and make the financial system safer. Its approach was comprehensive, spanning four broad areas, regulatory reform to improve the resilience of the financial system to shocks, putting in place orderly resolution structures for systemically important financial institutions deemed too big to be allowed to fail to avoid taxpayer bailouts, improving regulatory co-operation and supervisory oversight of systemically important financial jurisdictions, and mechanisms for periodic risk assessment and review of implementation of the new standards in major financial jurisdictions. There is also a new recognition of the need for macropruden-

tial regulation that has expanded the perimeter of risk assessment from individual institutions to entire markets.[24]

The broad objective of the core reforms was to make commercial banking safer by upgrading its regulatory framework from the procyclical Basel II to the countercyclical Basel III, and to insulate it from the activities of shadow banking that was the source of instability in financial markets in the lead up to the financial crisis. The Basel III framework, which has increased both the quantum and quality of capital that commercial banks are required to hold, with countercyclical buffers, additional requirements for systemically important banks (SIBs), and new liquidity coverage, leverage and net stable funding ratios to disincentivize excessive debt and incentivize stable sources of funding, is in place. Resolution frameworks for SIBs are also being put in position to obviate taxpayer bailouts in cases where they fail despite these additional safeguards.

While the Glass Steagall Act has not been reinstated, national legislations (the Volcker Rule in the USA, the Liikanen and Barnier in the European Union and Vickers in the UK) to ring fence the core commercial activities of banks from its trading ones are at various stages of enactment and implementation. The oversight of shadow banking, at the centre of the financial panic in 2007–08, has also improved even though it still remains outside the regulatory perimeter. Securitization is being made safer through mandatory retention of some skin in the game by minimum mandatory credit risk retention on the balance sheet. Derivatives trading is being nudged towards centralized clearing systems from over the counter trading through higher capital and margin requirements. The International Organization Of Securities Commissions (IOSCO) has made recommendations to reduce the risk of Money Market Funds—the most dynamic element of shadow banking in the post crisis period—to runs. The LIBOR benchmark that was found susceptible to manipulation has been reformed and might be phased out altogether by 2021.

There is also now greater harmonization, supervisory cooperation and exchange of information between regulatory authorities in systemically important financial jurisdictions who worked together in developing the G 20 financial regulatory reforms. This can be expected to provide a level playing field and reduce regulatory arbitrage going forward, which should be conducive to greater financial stability. While most these reforms have been enacted, implementation across the 29 systemically important jurisdictions remains work in progress.

[24]For a detailed assessment of financial regulatory reform after the Global Financial Crisis (see Sheel and Ganguly (2016)). For an update on the current status of implementation of these reforms see Financial Stability Board (2018b).

5 Concluding Remarks: Prospects and Risks Going Forward

A decade after the Global Financial Crisis broke the proximate risks arising from the two interrelated factors usually identified as the ultimate villains of the piece, namely a run-away financial system and global imbalances, have been significantly attenuated. The financial system is now better regulated, its runaway growth arrested, and its riskiest components in retreat. External imbalances have declined. Despite this it is still too early to say whether this was just another crisis that has punctuated the modern world from time to time or whether it has changed the world forever going forward.

A number of pre-crisis trends have been carried forward into the recovery, such as the decline in trend growth in advanced economies, falling labour participation and labour intensity of output, the downward pressure on consumer price inflation despite full employment and high levels of liquidity that inflate asset prices but not consumer prices, as well as growing inequality. Indeed, the latter may well have been exacerbated by policies deployed to combat the crisis.

The continuing inability of policy makers in advanced economies to address these deep-rooted structural problems is undermining the liberal democratic consensus in these societies that is being increasingly challenged with equal vehemence from both the left and the right ends of the political spectrum (Kagan 2019). The more worrying problem is that beyond rhetoric neither contender has been able to come up with persuasive, realistic corrections. This could presage growing instability going ahead. The left solutions could further pressure an overstretched fisc and further undermine animal spirits,[25] while the right solutions might exacerbate existing fault lines.

What then has changed?

The Great Depression of the 1930s is etched in the collective memory for the birth of macroeconomic policies and the rise of Keynesianism. The Great stagflation of the 1970s is best remembered for the relative decline of Keynesianism and the ascendance of monetary policy conducted by independent central banks. Will the Great Financial Crisis be remembered for the signal success of macroeconomic policies that pulled the global economy back from an abyss similar to the 1930s, for their inability to exit from such policies designed to be temporary countercyclical tools, for reining in global finance, the root of the instability resulting in the crisis, and the comeuppance of EMDEs?

Sovereigns had long responded to financial crises as they presaged economic apocalypse of their domain. Indeed, the birth of central banks itself can be ascribed to such response. The rise of macroeconomic policy on the other hand was predicated on the belief that the State should not be a bystander of business cycles, or fluctuations in

[25] Some of the left corrections, such as higher taxes on extreme incomes and wealth and universal basic incomes that involve rewriting social contracts could possibly have been attempted during the boom. These are now much more difficult with stalling growth, absence of animal spirits, and bloated central bank and Treasury balance sheets.

economic activities occasioned by periodic shocks. They were designed as short-term tools to nudge these cycles in a manner that the economy operates at full potential. Fiscal policy was the original policy tool of first resort, perhaps because it was within the control of the political executive and because the imperatives of the gold standard constrained monetary intervention. The unpleasant monetarist arithmetic arising out of fiscal expansion however soon undermined the gold standard and culminated in the Great Stagflation.

The ascendancy of central banks following the Great Stagflation was in essence a grand bargain where the political executive ceded authority to rules bound independent—bureaucratic—central banks in exchange for price stability. Following Paul Volcker's use of monetary policy as a blunt tool to bludgeon hyperinflation at the cost of growth, a long period of price stability followed in the form of the Great Moderation. The tension between the Treasury and the central bank was palpable, with the former leaning towards growth and the latter towards price stability, but the grand bargain held.

In hindsight it is not clear whether the Great Moderation was the triumph of central bankers or the outcome of a puzzling decline of consumer price inflation that fell across the board, in developed and developing countries alike. It stayed low despite monetary policies that were accommodative by the yardstick of the Taylor Rule (Taylor 2010a, b). Indeed, it was ceasing to be the canary in the gold mine that divined business cycles. By the turn of the twenty first century deflation was a greater concern than inflation for central bankers in advanced economies. Despite innovative new instruments central bankers have found it more difficult to slay the dragon of disinflation than the monster of inflation. Japan has been stuck with the lower zero bound and deflation for two decades, and the Euro Zone since the Global Financial Crisis. In the post crisis period while growth and employment have returned to potential, central banks are finding it difficult to meet their inflation targets.

Meanwhile, in sharp contradistinction to consumer prices, asset price inflation was touching new highs, assisted by loose monetary policy and dismantling of the financial regulatory structure put in place since the Great Depression. In their single-minded pursuit of macroeconomic stability central banks lost sight of their original mandate, financial stability. The tools for ensuring macroeconomic stability were moreover considered too blunt to deal with asset bubbles. Central bankers, in advanced economies at least, were of the view that it was not the job of central banks to call and prick asset bubbles.[26] Their task was to clean up the mess that followed and return the economy to full potential.

[26]"Certainly prices of goods and services now being produced--our basic measure of inflation--matter. But what about futures prices or more importantly prices of claims on future goods and services, like equities, real estate, or other earning (financial) assets? Are stability of these prices essential to the stability of the economy? Clearly, sustained low inflation implies less uncertainty about the future, and lower risk premiums imply higher prices of stocks and other earning assets. We can see that in the inverse relationship exhibited by price/earnings ratios and the rate of inflation in the past. But how do we know when irrational exuberance has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade? And how do we factor that assessment into monetary policy? We as central bankers need

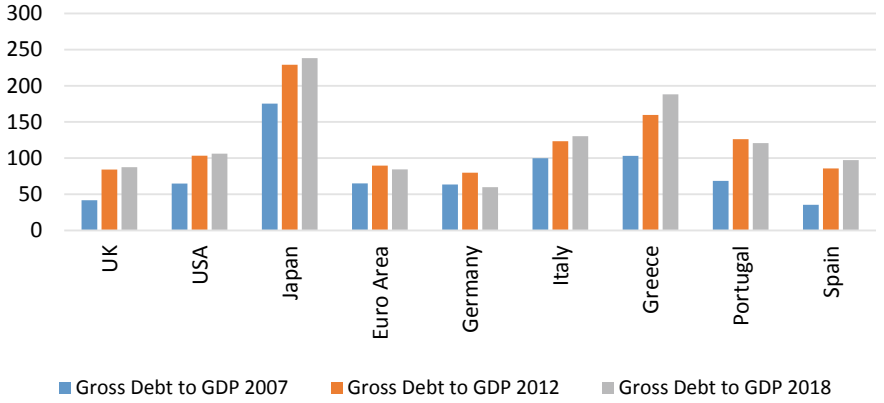

Chart 17 Sovereign gross debt. *Source* IMF Fiscal Monitor Database

With central banks focused on macroeconomic stability, and regulators in the financial sector overseeing individual institutions, there was no constituency to assess risks building up in the financial system as a whole and make midcourse corrections to 'irrational exuberance' and hubris in financial cycles. While central banks were able to clean up after the dotcom bubble in the nineties and the Asian Financial crisis with liquidity injections, the cost of inaction on the financial bubble inflated in the run up to the Great Financial Crisis is now considered unacceptably high. The debate as the financial crisis was brewing was whether it was time that central banks started making financial stability an objective of monetary policy (Sheel 2007). Ironically, this debate appears to have petered out even as the jury is still out on the ability of central banks to clean up after the mess and exit from extraordinarily accommodative monetary policy. Despite the ostensible recovery, advanced economies continue on life support, with the extraordinary monetary and fiscal stimulus still largely in in place.

Whereas the original criticism of central banks was that they were not expansionary enough, privileging price stability above economic growth, in the post crisis period the criticism is that they are far too expansionary, endangering financial stability. The arm's length distance between monetary and fiscal authorities is also being undermined by the greater cooperation required between the two to keep deflationary forces at bay. The grand bargain underlying the independence of central banks could well be breaking down. Might the crisis spell the decline of monetary policy and the doom of central bank independence? The central banker once at the helm of crisis management, Ben Bernanke, certainly seems to consider this within the realms of possibility (Bernanke 2017) (Chart 17).

Fiscal policy was criticized for its easy rollout and difficult exit because it was captive to the political executive. But now the same fate appears to have befallen

not be concerned if a collapsing financial asset bubble does not threaten to impair the real economy, its production, jobs, and price stability" (The Federal Reserve Board 1996).

monetary policy conducted by 'independent' central banks. The Taylor Rule has broken down in a low inflation environment. Unconventional policies might well be here to stay on account of lower inflation and nominal interest rates (Bernanke 2017). In these circumstances, the balance sheet and interest paid on reserve might eclipse the Feds Funds Rate as the primary instrument of monetary policy. The monetary policy independence of central banks is also being undermined by the return of fiscal dominance. Fiscal balances in advanced economies were already under pressure prior to the crisis on account of structural headwinds emanating from ageing, slowing trend growth and unsustainable welfare state models, with Euro zone countries struggling to keep both fiscal deficits and public debt within the Maastricht norms of 3% and 60% of GDP respectively. The protracted recovery from the crisis elevated public debt to much higher levels, servicing which might require greater coordination with central banks in keeping policy rates low and staggering the roll back of their bloated balance sheets. With the decline in external surpluses, the foreign demand for Advanced economy safe assets has also reduced (Chart 7), further queering the pitch for rolling back central bank balance sheets. The fiscal costs that the corrections some of the left critiques of liberal democracy entail might also constrain rollback of the balance sheet, if not indeed further expansion. It is therefore possible that in these circumstances the rollback might not occur at all, and current levels are simply normalized over an extended period as a share of GDP through economic growth.

Might the same logic work for high levels of public debt? Both Lawrence et al. 2019) and Olivier Blanchard (2019) would appear to think so since risk free interest rates continue to, and are projected to, remain below nominal GDP growth. The stock of public debt could therefore diminish as a proportion of the national income over time. Olivier Blanchard argues that this is nothing unusual as this has indeed been the case on average over the past in the US. But this could also be another way of saying that Governments have mostly inflated their way out of debt, preferring to take recourse to the inflation tax than the politically more difficult path of raising tax rates. Such outcomes are consistent with fiscal dominance of monetary policy and in no way invalidates unpleasant monetary arithmetic. Be it as it may, monetary policy would need to remain accommodative to achieve fiscal rollback without tightening fiscal policy. The downward pressure on consumer price inflation, evident long before the Global Financial Crisis, might work in favour of such an outcome.

The absence of rollback of easy monetary and fiscal policies raises two questions. First, is the monster of inflation lurking in the shadows? Second, is any policy space left to respond to the monster or any other major crisis? Trends in asset price movements indicate that high levels of liquidity are already inflating bubbles just as they did prior to the crisis. The financial cycle in the post crisis period has however been kept in check by deleveraging.[27] While the new regulatory structure appears to have

[27] Financial cycles are driven by both equity and debt. The period in the run up to the Global Financial Crisis witnessed a financial super cycle in Advanced Economies because it was driven by a boom in both asset prices and leverage, whereas in the post crisis period the financial cycle is basically driven by only a boom in equity prices.

made the financial system more resilient to withstand shocks,[28] past experience indicates that regulatory reforms are not set in stone. As the memory of Crisis recedes, and irrational exuberance returns to financial markets, reforms can be diluted and even rolled back over time. Already bank managements have pushed back against the mitigation of moral hazards in their compensation practices that nudge them towards excessive risk taking. The Volcker Rule is being diluted, despite it being a weak substitute for the Glass Steagall Act in insulating regulated commercial banks from the risky practices of unregulated shadow banking. US President Trump has called for a review of the Dodd-Frank Act itself. Shadow banking has rebounded more strongly than commercial banks in the post crisis period. While it has by and large eschewed the riskier instruments that triggered panic during the crisis, new innovations and new risks are emerging, especially those emanating from new financial technologies. Shadow banking is also expanding rapidly to EMDEs, particularly China, which never had a financial crisis, and where policy is biased towards greater liberalization than regulation. If the left critique of liberal democracy entails fiscal expansion and monetary accommodation, the right critique entails further financialization of the economy that rewards owners of capital at the cost of labour.

It is therefore arguable whether the financial system will fundamentally change in the post crisis period, the regulatory overhaul notwithstanding. The effectiveness of the extant overhaul is still untested. This will only happen at the time of the next crisis. While the failure to address the real fault lines in the financial system will be palpable, success is likely to remain invisible, because it is designed to prevent the buildup of risks in the financial system, and financial crises themselves.

In the immediate aftermath of the crisis EMDEs were critical of easy monetary policies in advanced economies as these sent a tsunami of destabilizing capital flows in their direction. They are now wary of their withdrawal at a time they are struggling with falling growth, as monetary tightening in advanced economies spills over as external shocks in the form of sudden capital stops and reversals, with a negative fall out on growth. These flows have already declined sharply. EMDE Corporates took advantage of low rates to borrow in international markets. In these circumstances a rise in interest rates and currency depreciation will dent their balance sheets further. Thus far, the monetary tightening in the US has been countervailed by continuing easy monetary policy in Europe (including the UK) and Japan. Were monetary tightening to extend to Europe as well, EMDEs could find themselves in the all too familiar, if unpleasant, grip of the impossible trinity, with low growth compelling them to keep monetary conditions easy on one hand, but capital flight compelling them to tighten on the other. While they can draw upon their accumulated stockpile of FX

[28]There are however at least three notable omissions in the post crisis regulatory rejig of the financial system. First, while the new leverage ratio under Basel III puts some roadblocks in the way of runaway leverage, the tax structure continues to favour debt over equity. Second, banks have been left with the option of determining their own risk weights, leaving them free to game their capital requirements. Third, while some steps have been taken to insulate MMFs from runs, the 'mark to market' model that according to Bair (2010), former chairperson of the US Federal Deposit Insurance Corporation, biases markets towards underestimating capital requirements during boom times, and can lead to fire sales during panics, has been left untouched (see also Forbes 2010).

reserves to cushion the shock, experience in countries like Korea indicates that "their deployability may be smaller than their size may suggest, as markets can become nervous once the buffer shrinks. And the evidence suggests that macroprudential tools are more effective in building up buffer than in cushioning against busts" (Bank of International Settlements 2018, Chap. IV).

The period prior to the crisis, and its immediate aftermath was a period of accelerated income convergence between Advanced Economies and EMDEs, creating geopolitical space for major developing countries in a world long dominated by the G7 countries. Despite their often mutually incongruent and even conflicting interests the BRICS platform rapidly developed into an influential global forum alongside the G7. The major EMDEs longstanding demand for greater voice and share in the institutions of global economic governance, such as the Bretton Woods twins the World Bank and the IMF, began to be taken more seriously on account of changing weights in the global economy. It was no coincidence that when the crisis broke the global leadership and coordination in addressing it was provided by the only compact global forum comprising the G7 and BRICS, namely the G 20, which eclipsed the G7 as the premier institution for global economic governance. The EMDE members of the G 20 were also inducted to the high table of major standard setting bodies like the Financial Stability Board.

The relatively stronger recovery in Advanced economies relative to EMDEs, that has gone hand in hand with the decline in trade and external imbalances, has exposed the continuing dependence of EMDEs on demand in Advanced Economies after a brief 'decoupling' euphoria. If EMDEs are to escape the Arthur Lewis, and Middle Income, trap, they would need to consume more. If they are to simultaneously protect investment, they might need to run current account deficits and import, rather than export, savings. For this to occur Advanced Economies would need to consume less and save more, as there is only so much global commons available for growth. Global imbalances may not themselves be destabilizing; what is destabilizing is their financialization, or a savings glut by which excess savings find their way into financial markets rather than into investment in the real economy.

The decline in the rate of income convergence has dented the new found geopolitical space of EMDEs. The G 20 has diminished in importance, ceding space to growing nationalism and bilateralism that is undermining the rules based international order put in place mostly by the efforts of advanced economies. The constituency for the rules based international order and globalization has shifted from advanced economies to EMDEs in the wake of the crisis. This shift is the likely result of the inability of policies to address the pre-crisis structural problems deriving from stagnant real wages, growing inequality and falling labour participation rates in advanced economies that is fueling the spread of of protectionism and nationalism.

The United States, China and Germany[29] have been the biggest beneficiaries of the emerging new order. These economies have not only recovered more robustly than the others, but are also becoming regional hegemons, while the crisis has underscored

[29]In a recent article in Financial Times, Rachman (2019), chief Foreign Affairs commentator, sees the globalized world yielding to a two bloc world dominated by the US and China.

the economic strength of the US as the global hegemon. The crisis has however bared structural weaknesses of both the regional hegemons, while uncovering hidden strengths of the global hegemon.

Germany, the other regional hegemon, finds itself increasingly vulnerable to internal centrifugal forces within the Eurozone deriving from the market discovery of an intrinsically unstable monetary union during the Eurozone debt crisis, an impending Brexit that could induce others to exit the union, and the imminent exit of German Chancellor Angela Merkel, a universally respected unifying force. The crisis has bared the Achilles heel of the European Monetary Union, and of its primary gatekeeper, which might keep it hostage to markets from time to time until the flaw is addressed to the latter's satisfaction.

A long period of hypergrowth has increased China's geopolitical profile as it now the biggest economy in the world when measured at purchasing power parity, and the second biggest at market exchange rates. It is also using its new found wealth to put in place an alternative regional financial architecture through the Belt Road Initiative (BRI), a new 'BRICS' development bank and a multilaterlized Chiang Mai Initiative. China's growth model has however been found to be unsustainable, and the attendant shift has weakened its growth impulse. While its large foreign exchange reserves and domestic savings provide a good cushion against external shocks, the sharp increase in debt, especially in the shadow banking sector, and non-performing loans further threatens growth,[30] and an overextended BRI, makes it look vulnerable to a financial crisis going forward. The second largest EMDE, and now the third biggest economy when measured at purchasing power parity, looks equally vulnerable, and for similar reasons.

It was long known that while the US dollar was the US currency it was the problem of other countries.[31] The Global Financial crisis showed that even a financial crisis emanating from the US was the problem of other countries. Not only did the dollar strengthen as a result of a flight to safety, but it was the US Federal Reserve that bailed out other countries, rather than the IMF, the traditional lender of last resort. This strength ultimately derives from the special role of the US dollar as the de facto global reserve currency. The seemingly bottomless global appetite for the dollar allows it to fund levels of domestic and external deficits that would normally be penalized by markets elsewhere. It also gives it the economic clout to discipline other countries—through sanctions without calling upon its deep military strengths.

The contours of a new global economic order in the wake of the global financial crisis are still unclear, but they have nevertheless begun to take shape. The policy mix of how this new order will grapple with the continuing pre-crisis trends of stagnant wages, falling labour participation rates, growing inequality and stalling growth that

[30]Cross country evidence indicates a fairly strong negative correlation between non-performing loans and economic growth (Balgova et al. 2016).

[31]It was at a G-10 meeting in Rome in 1971 that the US Treasury Secretary John Connally made what was then considered an astonishing statement to his counterparts "the dollar is our currency, but it's your problem."

is creating geopolitical instability and a backlash against globalization in advanced economies, is less clear.

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