

## ECN320 SRP for session 5. Debt and Capital Controls

### THE ROLE OF DEBT: THEORY AND FINANCIAL CRISES

Economists tend to see debt as a useful means to get money where it is most needed, from creditors with an excess of it, to borrowers who are short of it [1]. Debt is a claim on the borrower's future wealth from which a lender is expected to be repaid. The stock of debt tends to expand at moments of economic optimism. Borrowers hope that their incomes are set to rise, or that the assets they buy with borrowed money will increase in price; lenders share the enthusiasm [2].

The broadening and deepening of international credit markets that preceded the global financial crisis (GFC) of 2007-09 was considered a spur to growth, since it gave ever more borrowers access to bigger loans at lower rates of interest. When disaster struck, however, debt turned from a ladder into a chute. Working out what went wrong, and when debt turns dangerous, is a preoccupation of macroeconomics [1].

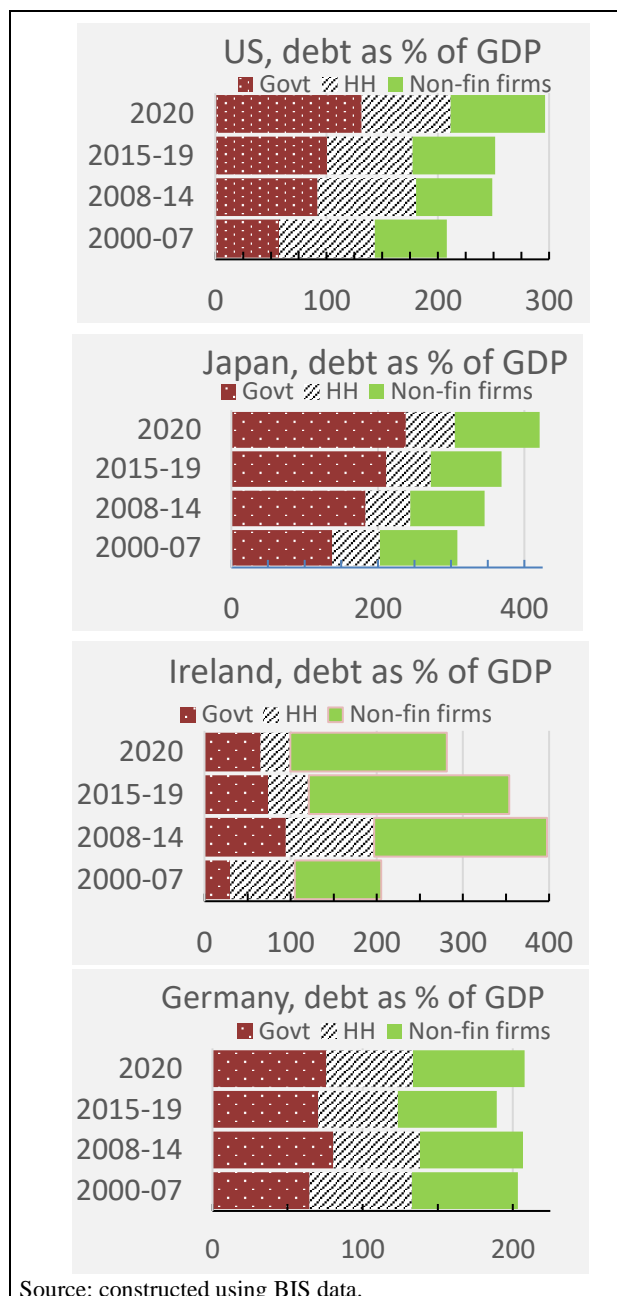
Debt is possibly the oldest financial instrument, older even than money. Archaeologists unearthed Babylonian tablets of sun-dried clay recording obligations incurred in the third millennium before Christ. But despite its venerability, debt is not much respected. In German, the word for debt (*Schuld*) also means sin (a view that many Germans still seem to hold). Those who run up debts are assumed to be profligate and those who chase them down mercenary and unfeeling. That is because debt is a peculiarly unforgiving instrument: it must be paid in full and on time, come what may. That distinguishes debt from some other financial liabilities, such as shares, which are more flexible, promising only a cut of the profits, whatever they may be [1].

Debt also has a relation to asset prices, particularly during stock market booms. From the late 1980s to the early 2000s, stock market crashes and asset price bubbles were a source of worry for central bankers. Before 2008 most macroeconomic models made little room for debt (especially of the private, domestic sort), let alone default. At the level of the economy as a whole, after all, borrowers and lenders cancel each other out: every dollar owed by someone is also owed to someone. Thus, the liabilities of all debtors and the assets of all creditors add up to zero. That makes debt seem trivial. Clearly, debt is far from trivial, and its unwinding not always a zero-sum game. Yet including it in economic models requires macroeconomists to wrestle with awkward complications, such as "heterogeneity" (dividing the economy into debtors and creditors) and "discontinuity" (allowing for the abrupt breach of economic relations that default represents) [1].

The alternative is to focus instead on empirical studies, poring over the historical record to find out when debt becomes dangerous. Those dangers, it turns out, differ depending on who owes the debt (governments, households, firms or financial intermediaries) and what kind of debt they owe (loans or bonds, short-term or long), as well as the currency in which they owe it [1].

Most empirical studies look at government debt. But the origins of the GFC lay instead in private-sector liabilities, especially mortgages, which accounted for a big part of household debt, and massive borrowing by the banks. The debts owed by non-financial firms played a big role in Japan's crisis in the early 1990s, but not in the GFC. There was an expansion of household and corporate debt in the early 2000s for a variety of rich countries, expressed as a percentage of GDP [1].

In only a handful of countries, however, was government debt a large share of the total debt of a country. In most countries (pre-covid pandemic) government debt amounted to less than a third of the total debt. The exceptions are Greece (not shown) and Japan where the government's share approached half of the total debt during 2000-2020 (see chart, debt by types) [1].



Source: constructed using BIS data.

Much of what companies, households and governments owed, they owed to banks and other financial firms, which extend loans and also buy securities. These financial firms, in turn, owed a lot of money themselves: to their depositors, their bondholders and a variety of other "lenders to the lenders". Banks are in essence middlemen (or "financial intermediaries") that borrow to lend. They hold a lot of assets and a lot of liabilities at the same time [1].

In fact, the debts of financial companies often dwarf the debts of governments, households and non-financial firms (the charts above exclude debt of financial firms for this reason). According to the OECD, a club of rich countries, Luxembourg's financial sector had debts worth over 4,900% of the country's GDP in 2011. The dinky duchy is an extreme case. But the figures are also striking in other countries with prominent financial sectors, such as Ireland (where financial-sector debt amounted to 1,434% of GDP) and Britain (837%). The scale of these debts can seem alarming, although in theory financial firms are also supposed to hold assets of comparable value [1].

When firms or households hold a lot of debt, however, even a small fall in the value of their assets can bring them to the brink of bankruptcy. If a family owns a \$100,000 home and owes

\$90,000 to the bank, their net worth is \$10,000. But if the value of their home drops by 5%, their net worth halves. The steep fall in asset prices during the crisis caused even more severe losses: many families found their homes were worth less than their mortgages, while financial institutions that had borrowed heavily to invest found that their losses exceeded their equity (the money the owners put into the business) [1].

As well as being vulnerable to declines in asset prices, the highly indebted are also more exposed to fluctuations in their incomes. Their past borrowing leaves them less room for further borrowing to cushion financial blows. Thus, highly indebted households find it harder to “smooth” their consumption and similarly burdened firms find it harder to invest when their revenues dip [1]. That is, households cannot spend their way out of financial trouble.

To assess the threat debt poses to economic stability, Douglas Sutherland and Peter Hoeller of the OECD calculated trend rates of debt to GDP, smoothing out the cyclical ups and downs. They note that financial-sector debt tends to exceed its trend during big, long booms of the kind most rich countries enjoyed before the crisis [1].

But the build-up of this financial-sector debt makes it more likely that the boom will come to an end, Messrs Sutherland and Hoeller find. And the busts are often deeper, as was the case in the late 2000s. Much the same is true of household borrowing. They calculated that the odds of a recession were about one in ten when household debt is in line with its trend. But when it exceeds that trend by 10% of GDP, as it did in some of the worst afflicted countries before the crisis, the chances of a recession rise to about 40% [1].

Rather than looking at borrowing, other economists look at lending. They worry when credit from banks and other lenders to households and firms grows much faster than GDP, as happened in the US crisis in 2008, Japan’s in 1991 and the Asian crisis of 1997. Economies can succumb to long “financial cycles”, according to Claudio Borio and his colleagues at the Bank for International Settlements. Whereas a traditional business cycle manifests itself in the rise and fall of growth and consumer-price inflation, the financial cycle consists of longer, wider swings in credit and asset-price inflation [1].

It was the growing rate of default on home mortgages in the US that precipitated the GFC. These delinquencies, although not enormous in themselves, became impossible for some investment banks to bear, thanks partly to their own heavy debts. As the contagion spread throughout the financial sector in 2007-08, nervous or cash-strapped banks and other creditors stopped lending, thereby infecting the rest of the economy. Deep recessions and big financial rescues then led to a surge in government debt. That, in turn, raised fears about the solvency of various countries in the euro area, culminating in Greece’s default in 2012. Debt was, then, both a cause and a consequence of the crisis, and remains a big reason for its continuance [1].

Why does credit sometimes depart from its prior trend? It may depend on what it is spent on, argues Richard Werner of Southampton University. When a bank makes a loan, it credits the money to the borrower’s deposit account. In so doing the loan adds to the money supply. If that money is spent on a new car, factory or other freshly produced good, it contributes to demand, helping the economy to make fuller use of its productive capacity. If the economy is already near full capacity, it will probably just raise prices instead. But either way, the bank lending will add both to debt and to nominal GDP, the money value of economic output, leaving the ratio of debt to GDP largely unchanged [1].

However, loans can also be spent differently. They can be used to buy existing assets, such as homes, office-blocks or rival firms. Since the asset already exists, its purchase does not add

directly to GDP, which measures only the production of new goods and services. As a consequence, debt increases, but GDP does not [1].

Furthermore, the purchase of an asset, such as a home, will help push up the market price of that asset. Other homeowners will then become more willing to take on debt (because they feel wealthier) and more able to do so (because their home’s value as collateral has risen). In the years before the crisis, the net worth of US households continued to rise despite their accumulation of debt, because their home and other assets appreciated even faster. Borrowing to buy assets thus has a self-reinforcing effect: one person’s purchase makes another’s borrowing both more desirable and feasible [1].

Eventually the financial cycle peaks. Borrowers realise they do not have the income required to service further debt. At that point the cycle goes into reverse: as asset prices fall, collateral constraints tighten, squeezing borrowing, which results in further falls in prices. Unfortunately, one thing does not fall: the size of the debts that households and firms have incurred. The value of their liabilities remains obstinately fixed, as if written in sun-dried clay, even as the value of their assets plunge [1].

Households and firms will respond by “deleveraging”, seeking to lighten their debt burdens. They can do this in three ways: by defaulting, by selling assets or by spending less than they earn (and using the proceeds to repay debt) [1].

Although deleveraging helps repair household and corporate finances, at the level of the economy as a whole it can make things worse. Since one person’s outlay is another person’s income, depressed spending will hurt incomes, resulting in what Richard Koo of Nomura Research Institute has called a “balance-sheet recession”. Even if incomes and prices do not actually decline, they will fall short of their previous trajectory, while the money value of debts remains unchanged. The economic weakness caused by debt can thus make debt even harder to bear, a trap that Irving Fisher, a Depression-era economist, called “debt deflation” [1].

The deleveraging of the financial sector can be particularly deep, quick and nasty. Deep because banks hold a lot of debt relative to their equity (they are highly “leveraged”). Quick because those liabilities are typically of shorter maturity than their assets, giving banks little time to put their balance-sheets in order. Nasty because the process hurts their rivals and their customers alike. In 2007 and 2008 fire sales of securities by investment banks and other dealers depressed their prices, devaluing the portfolios of other banks with similar assets. Banks and other lenders also started calling in loans or at least withholding new ones, inflicting a credit crunch on the broader economy [1].

To help sustain demand, the central bank can cut interest rates, easing debt-servicing costs for borrowers (debtors spend less) and discouraging saving by the thrifty (savers spend more). The Federal Reserve cut its policy rate from 5.25% in the summer of 2007 to 0-0.25% in December 2008 and the Bank of England followed suit [1].

In addition, the government can spend more than it collects in taxes, so that the private sector can earn more than it spends. In another paper Mr Sutherland and his co-authors show that run-ups in borrowing by firms (especially financial firms) tend to cause subsequent increases in public debt. That is precisely what happened in many rich countries in the aftermath of the GFC, when heavy government spending helped to compensate for severe cuts in corporate and household budgets—and sparked a fiery debate about the risks that entails [1].

Two papers in 2015 identified the crucial variable that separates relatively harmless frenzies from disastrous ones – debt. In many cases, though certainly not all, stockmarket manias fall

into the less worrying category. Writing for the National Bureau of Economic Research, O. Jorda, M. Schularick and A. Taylor examined bubbles in housing and equity markets over 140 years. The most dangerous, they conclude, are housing bubbles fuelled by credit booms. The least troublesome are equity bubbles that do not rely on debt [3].

Five years after the bursting of a debt-laden housing bubble, the authors found, GDP per person was nearly 8% lower than after a “normal” recession (ie, one that is not accompanied by a financial crisis). In contrast, five years after a stockmarket crash, GDP per person is only 1% or so lower. If the stock bubble comes alongside a big rise in debt, the damage to GDP per person is 4%. The paper does not explain why housing bubbles are more costly, but a fair inference is that, whereas equity investments tend to be concentrated among the rich, plenty of people lower down the income ladder have wealth tied up in housing [3].

That makes sense. Stockmarket routs typically harm the economy via the “wealth effect”. When people see that their assets are worth substantially less than before, they spend less, leading to weaker demand and, ultimately, weaker investment. Debt can make this worse. Those who have borrowed to invest may be forced to sell assets to avoid defaulting, further depressing prices and wealth. Banks that have lent to investors or accepted shares as collateral will also suffer losses. That forces them to rein in their lending, harming the economy even more [3].

Markus Brunnermeier and Isabel Schnabel, from the Centre for Economic Policy Research, take an even longer view, examining 400 years of asset-price bubbles. Be it tulips, land, housing, derivatives or shares, they find that the consequences of a bursting bubble depend less on the type of asset than on how it is financed. High leverage is the telltale sign of trouble [3].

What does this mean for central banks? Before the GFC, the debate boiled down to “leaning versus cleaning”. Activist sorts argued that the monetary guardians should lean against the wind by raising interest rates when asset bubbles grew. The opposing camp, exemplified by Mr Greenspan, countered that it was too difficult to spot bubbles in advance and too costly to tighten monetary policy erroneously, so it was best to wait for them to burst before cutting rates to help clean up the mess [3].

Shifting the focus to debt changes the terms of the debate. As Frederic Mishkin of Columbia University wrote, policymakers must distinguish between bubbles inflated purely by exuberance and those pumped up by debt. The latter are also easier to identify: credit issuance is abnormally fast and underwriting standards slip. In such circumstances, regardless of the level of asset prices, the case for intervention is strong [3].

That still leaves the question of what central banks should do after a stockmarket bubble has burst. Those that come to the rescue of collapsing markets stoke moral hazard. Investors, believing that the central bank will always provide a backstop, are more likely to take unwarranted risks. This happened in the US when Alan Greenspan, as chairman of the Federal Reserve, famously created the “Greenspan put” through either actions or words that gave investors and speculators the impression the Fed would pursue policies (e.g., interest-rate cuts) that encouraged risk-taking and pushed equities higher and protected the stockmarket from a rout [3].

Nevertheless, stockmarket bubbles, accompanied by lots of debt, can cause severe economic damage when letting them burst without any succour. This is not a good option either. China’s response to a plunge in shares in 2015 was to let the government try frantically to limit the damage by pumping cash into the market, capping short-selling and ordering share buy-backs. China’s intervention was unusually heavy-handed.

However, halting stocks from trading, with nearly half of listed Chinese companies, does not eliminate the problem but simply masks it. It would be as if the US had enacted a moratorium on selling homes after the subprime crisis [3].

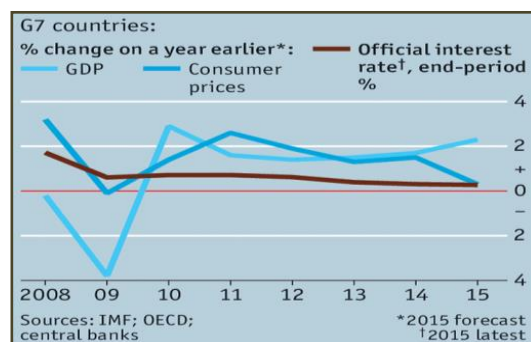
Not all bubbles are equally bad. Consider the link between the crash of 1929 to the Depression. But it is also easy to point to contrary examples. The bursting of the US’s dotcom bubble in 2000 wiped out \$5 trillion in market value, equivalent to half of GDP. Yet it was followed by a shallow recession [3].

If wealth does not rise sufficiently to justify the optimism, lenders will be disappointed. If debtors default, then this causes creditors to cut back on further lending, creating a liquidity problem even for solvent borrowers. Governments must then step in [2].

Eight years after the GFC, the same issues were still being fought over. Who should suffer the most pain—creditors or debtors? Is the best way to achieve growth short-term fiscal stimulus or long-term structural reform? In Europe, it also included how one reconciles local democracy with international obligations? [2]

The best way for governments to cope with too much debt is to spur growth. However, in the medium term developed countries struggled to reproduce their pre-crisis growth rates. In the absence of growth, a government’s choice comes down to three options: inflate, default or stagnate [2].

The inflation option means that nominal GDP rises rapidly, reducing the ratio of debt to GDP. The main constraint on this strategy is the speed with which creditors react by forcing up interest rates on newly-issued debt. The longer the maturity of their existing debt, the easier it is for governments to use this option. In practice, there has been very little inflation in the developed world. (Countries in the euro zone do not control their own currencies so have no power to inflate the debt away in any case.) The debt burden has been controlled by “financial repression”: holding real rates at very low, or negative, levels (see chart, GDP, inflation and interest rates). By making it easier for borrowers to service their debts, this staved off a repayment crisis in many countries, but it did not reduce much the overall debt burden [2].



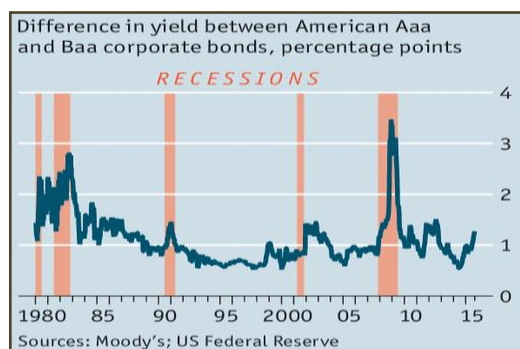
When debt is owed to foreigners, default affects foreign creditors. Countries have been defaulting to foreign creditors for centuries, of course, and they tend to be forgiven by investors after a few years. But economic conditions get pretty scary in the interim, as the Greeks know. The Greeks managed to default on private-sector debt in 2012, but it was not enough help given the collapse in their GDP. Also, the problem with default, when debt is so widespread, is that it simply shifts the liability somewhere else. If a country’s banks hold a large amount of government debt, and the government defaults, then the banks need to be rescued by the government, making the problem circular [2].

In 2015, there was no shortage of bad omens for the global economy: plunging commodity prices, wobbly equity markets, weak world trade, reduced profit forecasts for US companies

and lower long-term inflation expectations. Later that year, a new one joined the list: rising corporate-bond spreads [4].

These spreads—the difference between the interest rates paid by governments and blue-chip companies and those paid by riskier borrowers—reflect the risk of default. Rising spreads imply that investors are getting antsy about being repaid. That anxiety may well have stemmed from worries about the economy [4].

Spiking credit spreads have often been a harbinger of recession (see chart, yield differences). As David Ranson of HCWE, an economics consultancy, argues: “Yield spreads represent a market assessment of the strength of the economy and are not affected by any of the technical measurement problems that plague the GDP figures” [4].



As an indicator, credit is clearly not entirely reliable: a rise in spreads in 2012 was not followed by a downturn. In 2015, there was no sign of a rise in the default rate on high-yield debt: it dropped to 2.3% in August, according to Moody's, well below the historical average of 4.5%. However, the proportion of US corporate bonds classed as “distressed” (a yield at least ten percentage points higher than Treasury bonds) rose to 15.7%, a four-year high. Liquidity in the corporate-bond market was not great because banks reduced their market-making activity. This could have led to sharp price moves if institutions lost their enthusiasm for credit” [4].

Many pointed to the problems of energy and mining firms and argued that the rise in bond spreads was yet another manifestation of the fall in commodity prices. However, the fall in commodity prices was itself being driven by a worrying slowdown in demand from China and the rest of Asia. South Korea, seen as a bellwether economy, had suffered a 14.7% fall in exports from 2014 to 2015. Even India's central bank, presiding over one of the strongest economies in Asia, decided to cut rates citing flagging global demand [4].

Slower emerging-market growth created another problem for bond investors to worry about. The debt of non-financial firms in emerging markets quadrupled between 2004 and 2014, according to an IMF report. Over the same period, the average ratio of corporate debt to GDP in emerging markets rose by 26 percentage points. That debt would be harder to service as growth slowed [4].

The role of credit in driving booms and exacerbating busts is extremely important. Stronger credit growth tends to boost economic activity and push up asset prices—encouraging further credit growth since banks become more confident about lending in a world of higher asset values. This is a virtuous circle. But after the peak is reached, asset prices fall, banks become less keen on lending and activity declines—the circle turns vicious [4].

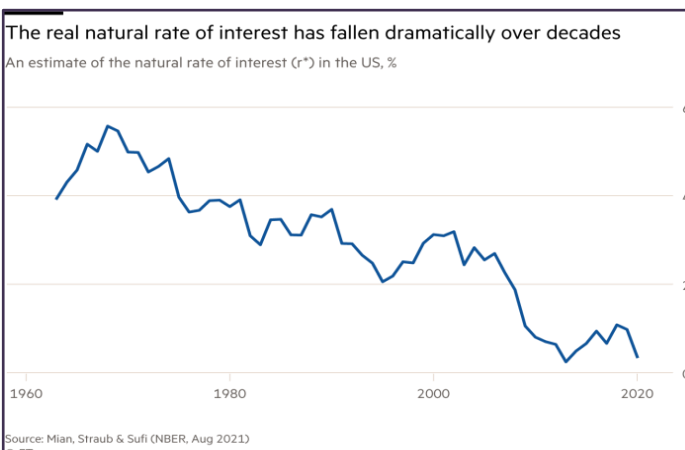
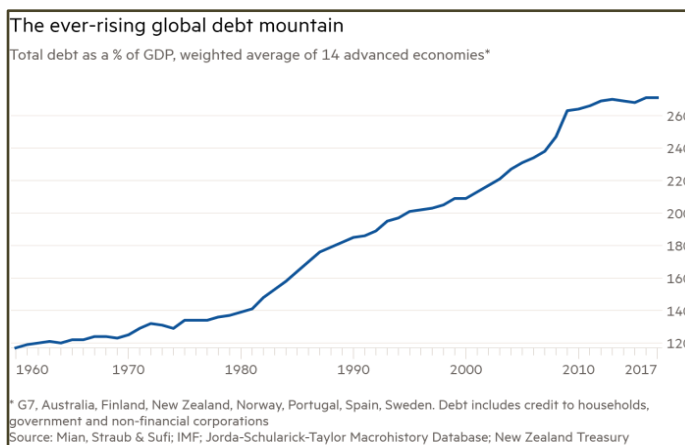
Andrew Haldane, the chief economist at the Bank of England, talked of a “large slug of global liquidity” that has “by turns inflated then deflated capital flows, credit, asset prices and growth in different markets and regions”. The Anglo-Saxon crisis of 2008-09 was the first manifestation of this problem, the euro-zone crisis of 2011-12 was the second, and the situation in emerging markets could be a third crisis, this time in emerging markets, he argues. Capital inflows to emerging markets stalled and the central banks of emerging markets were selling, rather than buying, assets [4]. Nevertheless, despite the symptoms and signals, and the wave of hardships felt globally, there were few defaults.

### Trends in global debt: GFC and Covid

If debt creates fragility, then why has the global economy become so debt-dependent (see chart, ever-rising global debt)? It was not the idle whims of central bankers, as some suppose. It happened because of an excessive desire to save relative to investment opportunities. This has suppressed real interest rates and made demand far too reliant on debt [6] (see chart, real interest rate [5]).

Mian, Straub and Sufi (2021; 2020) of Princeton, Harvard and Chicago, respectively, relate to the views of Marriner Eccles, US Fed Reserve chair from 1934 to 1948, on household debt.<sup>1</sup> They illuminate both the forces driving the rise in leverage and its consequences. They explain how debt overhangs weaken demand and lower interest rates, in a feedback loop [6].<sup>2</sup> The principal explanation for the decline in real interest rates is high and rising inequality and not demographic factors, such as the savings behaviour of the “baby-boom” generation over their lifetimes, as some argue [5].

The analysis starts with estimates of the real “natural rate” of interest, a concept that goes back to the Swedish economist Knut Wicksell. The natural rate, he explained, balances demand



<sup>1</sup> Mian, A., L. Straub and A. Sufi, “The Saving Glut of the Rich”, Feb. 2021. [https://scholar.harvard.edu/files/straub/files/mss\\_richsavingsglut.pdf](https://scholar.harvard.edu/files/straub/files/mss_richsavingsglut.pdf)

<sup>2</sup> Mian, A., L. Straub and A. Sufi, “Indebted Demand”, NBER Working Paper 26940, Apr. 2020. <http://www.nber.org/papers/w26940>

and supply in the economy, which shows itself in stable prices. Inflation targeting descended from this idea. US estimates of this rate fell from about 4% four decades ago to around zero prior to the end of 2021 (before inflation's return in 2022) [5].

As expected, the decline was matched in other high-income countries: in an open world economy, equilibrium real interest rates tend to converge. The paper notes: the decline "raises concerns about secular stagnation, threatens asset price bubbles, and complicates monetary policy". It helps to explain why central banks had to make large-scale asset purchases in crisis situations (i.e., the responses to the GFC and pandemic [5].

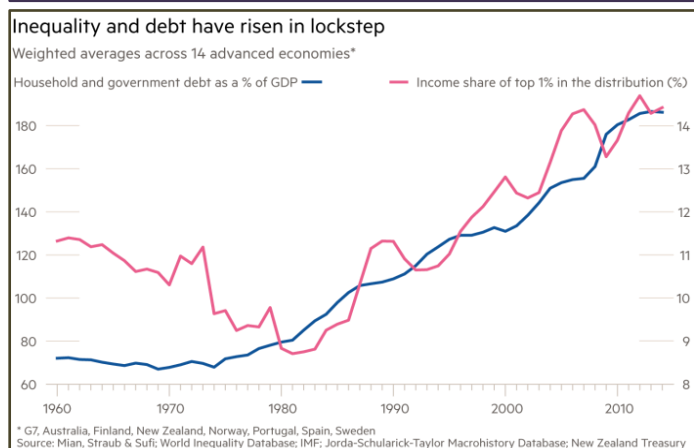
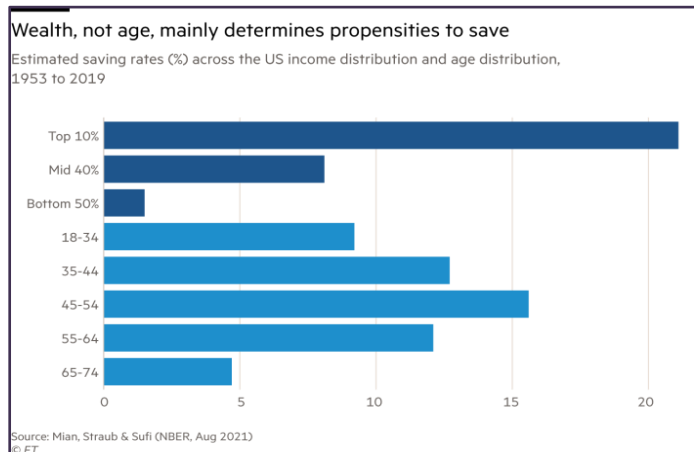
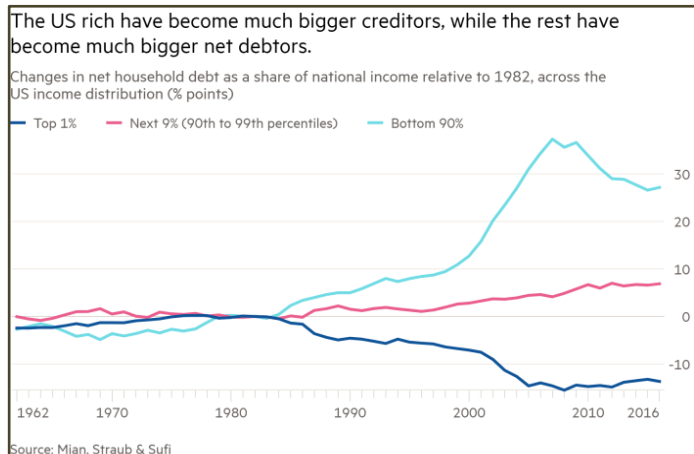
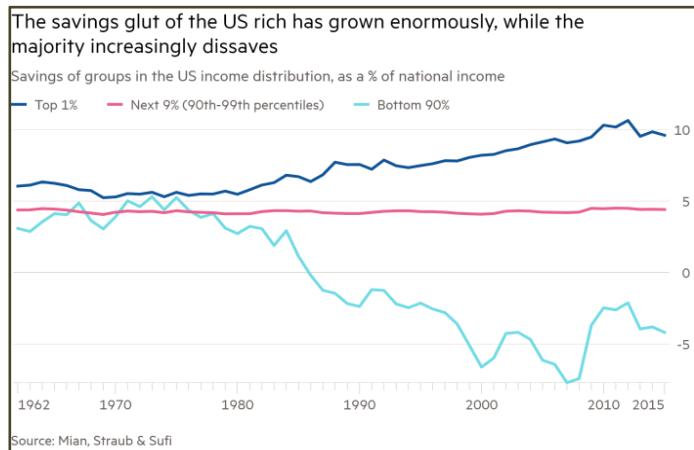
As Eccles said so clearly, beyond a point, inequality weakens an economy by driving policymakers into a ruinous choice between high unemployment or ever-rising debt. The paper on the savings glut makes two points. First, rising inequality in the US has resulted in a large increase in the savings of the top 1% of the income distribution, not matched by a rise in investment. Instead, the investment rate has been falling, despite declining real interest rates. The rising savings surplus of the rich has been matched by the rising dissaving, or consumption above income, of the bottom 90% of the income distribution (see charts, savings glut of the rich: rich become big creditors; [6] and savings propensities [5]) [6].

The chief users of excess foreign and domestic savings have been less well-off households and the government. There is a clear link between the saving of the rich and dissaving of the less rich, and the accumulation of credit and debt. Since 1982, the decline in net indebtedness of the rich has been matched by the rise in indebtedness of the bottom 90%. The argument that low interest rates hurt the less well-off is absurd. The less well-off are not net creditors. The rich hold claims on the less rich, not only directly, via bank deposits, but via equity holdings in businesses that also hold such claims [6].

Their main point is that savings rates vary far more by income within age cohorts than they do across age cohorts. The differences are also huge: in the US, the top 10 per cent of households by income have a savings rate between 10 and 20 percentage points higher than the bottom 90 per cent. Given this divergence, the shift in the distribution of income towards the top inevitably raised the overall propensity to save. As an explanation of rising propensities to save and the falling real interest rate, the shift of the baby-boom generation into middle age does not work, because rising savings have been continuous while the impact of the demographic shift on savings behaviour has not [5].

This phenomenon of rising household debt and rising inequality is not unique to the US (see chart, inequality and debt and income shares of wealthy [6]). Why does the rising debt matter? At the aggregate level, savings must match investment. So, what happens when the rich get richer and save more is that interest rates must fall. The impact of the lower rates on business investment has been quite feeble. The propensity to invest has been chronically weak, partly for demographic reasons. So, the offsets have had to come either from persistent fiscal deficits or from higher spending by the bottom 90 per cent. Both are fuelled by debt, while the latter is also powered by asset price bubbles, especially in house prices. As central banks pursue the natural rate downwards, they drive both of these processes. But, as debt ratios rise, natural rates fall still further, as the highly indebted become ever less creditworthy [5].

One answer, as David Levy (2019) argues that the economy becomes increasingly driven by finance and fragile, as



borrowers become ever more overburdened.<sup>3</sup> Another is the idea of “indebted demand” — a close relative of the idea of “balance-sheet recessions” propounded by the Japanese economist, Richard Koo. As debt soars, people are ever more unwilling to borrow still larger amounts. So, interest rates have to fall to balance supply with demand and avoid a deep slump. In these ways, we have ended up where we were even before Covid-19, with real interest rates at zero. This is one mechanism driving Summers’ “secular stagnation” [6].

Focus on the US first, because that is where global demand and supply tend to balance. But similar phenomena of rising inequality and soaring savings are to be seen in other big economies, notably China and Germany [6]. The excess savings of the rest of the world also showed up in persistent US current account deficits [5]. China used to export its excess savings to the US, before absorbing it in wasteful investment at home. Germany has driven trading partners into rising debt in the eurozone and beyond [6].

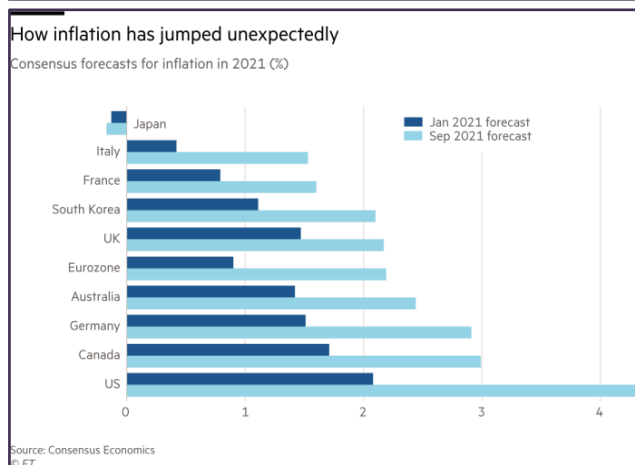
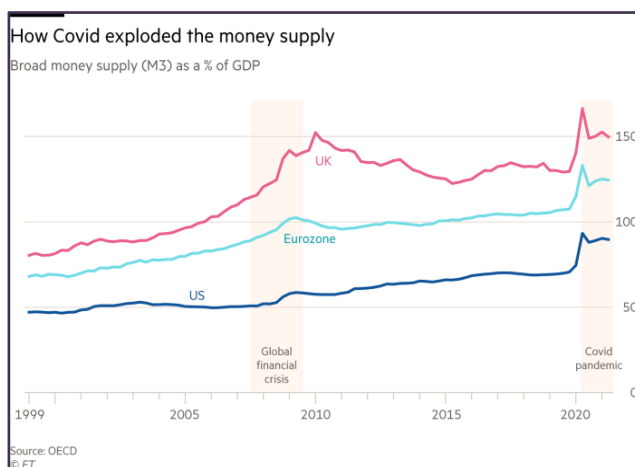
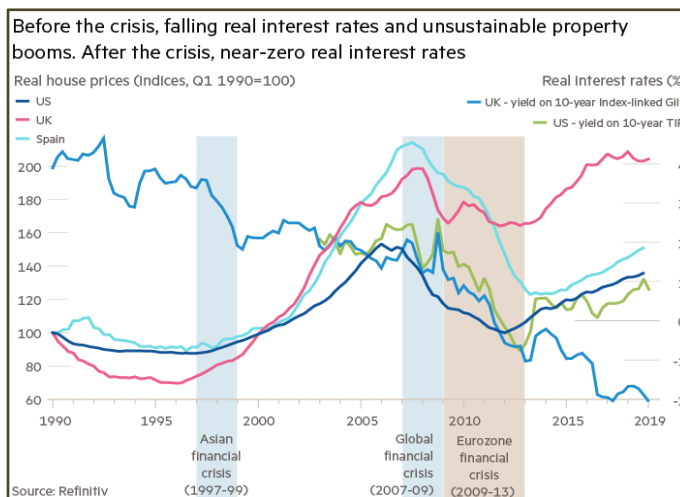
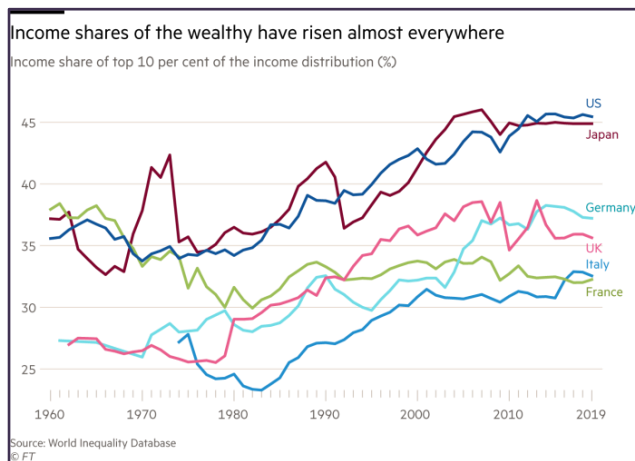
The GFC over 2007-12 should be seen as an outcome of these processes, resolved by rescuing the financial system, tightening regulation and doubling down on low rates across the yield curve [5]. In this environment, low (nominal and real) interest rates triggered rising property prices and an associated credit explosion, especially in the US and peripheral Europe. These credit bubbles drove demand worldwide in the early 2000s. They proved unsustainable, so bequeathing the post-crisis world since 2008 (see chart, before/after GFC, interest rates and property prices) [7]

The Covid crisis was a bolt from the blue, but the response was more of the same on an even bigger scale. In the latter response the huge increases in central bank reserves actually increased broader monetary aggregates (see chart, money supply growth). It is no surprise, therefore, that the combination of supply side disruptions with the strong demand generated “surprise” inflation (see chart, inflation) [5].

How to escape from the debt trap? One step is to diminish the incentive to finance businesses with debt, rather than equity. The obvious way to do so is to eliminate the preference of creditors over debtors in almost all tax systems. The increased flow of credit is counterproductive when the fundamental problem is too much debt. Profs Mian and Sufi argued to shift from debt to equity financing of housing. There was a huge opportunity to replace government lending to companies in the Covid-19 crisis with equity purchases. At the then ultra-low interest rates, governments could create instantaneous sovereign wealth funds very cheaply [6].

Yet none of this would fix the ongoing dependence of macroeconomic stability on ever more debt. There were two apparent solutions. The first is for governments to keep on borrowing. But, in the very long term, this was likely to lead to some sort of default. The well-off, who are the principal creditors of government, are bound to bear much of the costs, in one way or the other. The alternative is to shift the distribution of income, to create more sustainable demand and so stronger investment, without soaring household debt [6].

In 1933, Eccles also told Congress, “It is for the interests of the well to do . . . that we should take from them a sufficient amount of their surplus to enable consumers to consume and business to operate at a profit.” That happened, partly by accident and partly deliberately, after the second world war. Ever-rising household and government debt will not stabilise the world economy forever. Nor should asset-price bubbles remain so central to our economy [6].

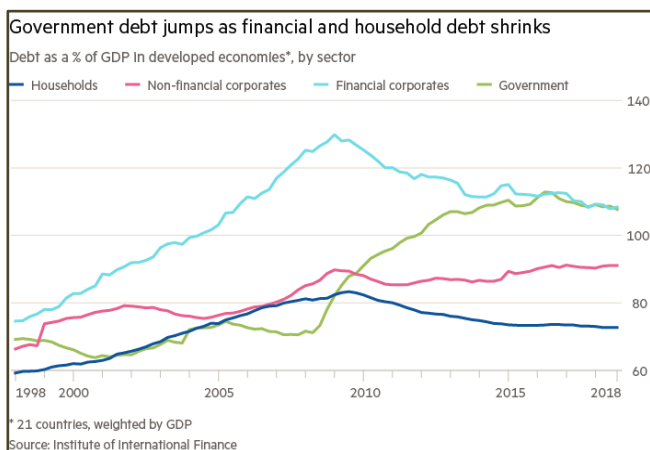


<sup>3</sup> Levy, D. A., Bubble or Nothing, Jerome Levy Forecasting Center LLC, Sep. 2019. <https://www.levyforecast.com/core/wp-content/uploads/2019/09/Bubble-or-Nothing.pdf?fd85af>

Ray Dalio (2018)<sup>4</sup> from Bridgewater Associates, a premier asset management firm, argues that **governments of countries whose debts are denominated in their own currencies can manage the aftermath of a crisis caused by excessive credit**. Above all, they can **spread out the adjustment over years**, thereby preventing a depression caused by a downward spiral of mass bankruptcy and collapsing demand. Dalio calls this a **“beautiful deleveraging”**. It is achieved by a **mixture of four elements: austerity; debt restructuring and out-right default; money “printing” by central banks, not least to sustain asset prices; and other transfers of income and wealth**. An important element in this deleveraging is keeping long-term interest rates below growth of nominal incomes. This has in fact been done, even for Italy [7].

US policymakers were the most successful in reacting comprehensively. In the 1990s, Japan took too long to adopt the right combination. So did the eurozone after 2008, largely to obstacles to active fiscal policy in such a currency union, but also because of ideological resistance to using the full capacities of the central bank. The UK’s response fell between that of the US and of Japan and the eurozone on the other [7].

Even if the needed policies are successfully adopted, they are always unpopular. So is the aftermath of any financial crisis. Sharing out losses generated by a crisis, followed by the inevitable weak recovery, always creates public rage. In response to the GFC financial and household debt fell relative to GDP in mature economies. Debt of governments and non-financial corporates did not (see chart **debt as % of GDP for developed countries** and session 5 slides on country debt comparisons). Crisis-hit economies were still below pre-crisis trend output levels and productivity growth was also generally low [7].



The two decades since 2000 can be divided into two periods: (1) “pre-crisis secular stagnation” where the world was characterized by low and falling real interest rates and hugely destabilizing property and credit bubbles; and (2) “post-crisis secular stagnation” where the world had near-zero real interest rates, partial deleveraging, weak growth and pervasive populist politics [7].

#### Corporate debt

After the GFC, officials and some bankers tried to redesign the financial system so that it acts as a buffer that absorbs economic shocks rather than as an amplifier making things worse. The corporate sector came out of the GFC in a relatively sober mood, only to begin borrowing heavily in the 2010s [8]. Global non-financial corporate debt rose from 84% of GDP in 2009 to 92% in 2019, reckons the Institute of International Finance [7]. The ratio rose in 33 of the 52 countries tracked. In the US non-financial corporate debt climbed to 47% of GDP from 43% in 2010, according to the Fed [8].

In 2020 **corporate debt was a concern, then worth \$74trn**. The scare had four elements: a queasy long-term rise in borrowing; a looming cash crunch at firms as offices and factories were shutting and quarantines imposed; the gumming-up of some credit markets; and doubts about the resilience of banks and debt funds that would bear any losses [8].

In Sep 2021 data showed that corporate borrowing in the world remained at an all-time high. The notable case was in China, where there was even more business borrowing as a share of GDP than in Japan at the peak of its bubble-related borrowing spree in the 1990s. But the problem is widespread (see chart, **company debt**) [9]. Corporate debt in the rich world stood at 102% of GDP in Mar 2021 compared with 92% before the outbreak of the covid-19 outbreak in 2020.



While defaults have eased toward the end of 2021 as economies recovered, many firms were burdened by higher levels of debt which could be felt for years to come. Even if interest rates remained low, the “debt overhang” could affect their willingness to invest or to hire new staff [9].

Intriguingly, **hangovers from corporate-debt booms rarely cause significant economic damage, even if creditors themselves suffer when firms default**. Moritz Schularick (2021), of the University of Bonn, and several coauthors, examined data on business cycles for 17 advanced countries over more than a century, and compared corporate-debt busts with those associated with household borrowing (e.g., GFC) [9].

The authors argue that lenders often have an incentive to restructure old corporate loans, reducing the risk of “zombie” companies persisting, and freeing up finance to support the next recovery. For household debt, however, restructuring thousands of individual loans is often impossible, and lenders may be more inclined to keep the loans on their books in the hope that house prices eventually recover. The risks to the economy are higher after commercial-property busts than for corporate debt where lenders mainly have their eyes on firms’ cashflows. This is one reason why the property-related debt woes in China are potentially disturbing [9].

#### Zombie companies

What happens with the mountain of debt that companies amassed over the two decades when interest rates were low and now rising. Since 2000 non-financial corporate debt increased to 81% in the US in 2022 and 110% in the euro area. The surge in borrowing costs will cause strain. The first comprises **businesses that have come to rely on less orthodox sources of credit, which are often those with the dickest prospects**. The **outstanding value of leveraged loans in the US**, typically provided by a syndicate of banks and non-bank lenders, **now matches that of junk bonds, and it has been growing briskly in Europe, too** [10].

<sup>4</sup> Dalio, R., *Principles for Navigating Big Debt Crises*, Westport, CT: Bridgewater, 2018.

[https://www.academia.edu/38244915/Principles\\_For\\_Navigating\\_Big\\_Debt\\_Crises\\_By\\_Ray\\_Dalio](https://www.academia.edu/38244915/Principles_For_Navigating_Big_Debt_Crises_By_Ray_Dalio)

A second area of vulnerability involves so-called zombie firms: uncompetitive enterprises, kept alive by cheap debt and, during the pandemic, government bail-outs. A zombie company is one that has been listed for at least 10 years, with consistently below-average revenue growth and an interest-coverage ratio of one or less, stripping out fast-growing but loss-making tech firms, pre-revenue businesses in sectors like biotechnology, where products take years to get to market, and revenue-less holding companies. On that definition, *The Economist* identified 443 zombies listed in the US, UK, and euro area (see chart, listed zombie companies). That was up from 155 in 2000, but still just 5.6% of all listed firms, responsible for 1.9% of total debt and 1.4% of total sales. Their demise could be the economy's gain, as mismanaged firms with low productivity that binged on bail-outs finally close, although that would be cold comfort to their employees and owners [10].



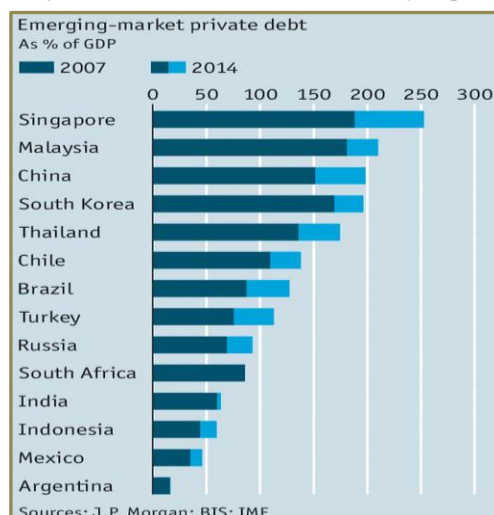
The third and biggest area of concern is firms that are merely unfit rather than undead. One way of capturing their prevalence is to look at firms with an interest-coverage ratio of less than two. That gets you to a fifth of the total debt of listed US and European companies—some \$4trn-worth (see chart, listed-company debt). Alternatively consider firms whose debts are rated just above junk status. Some 58% of the investment-grade non-financial corporate bond market is now rated bbb, according to Fitch, a ratings agency. The average yield on such bonds has more than doubled in the US in the past 12 months, to 6.1%. Unlike high-yield bonds, many of them come due soon and will need to be refinanced at much higher rates [10].

Ever since the GFC plenty of mature companies with slow sales growth have taken advantage of cheap credit to pile on debt to the verge of junk status to fund shareholder payouts. Many of the flakiest investment-grade borrowers were downgraded early in the pandemic, so the remaining ones are, on average, more robust. A nightmare scenario it is not inevitable, but it not inconceivable either [10].

### Trends in debt: emerging market economies (EMEs)

Since the mid-2010s, there had been a post-GFC credit boom in EMEs around the world, which was in large part a response to the credit bust in the rich world. China started taking on credit earlier on and had taken on the most credit by the mid-2010s. Fearing a depression in its richest export markets, the authorities in China brought about a massive increase in credit in 2009. Meanwhile a flood of capital escaping the paltry yields on offer in developed economies pushed interest rates lower in developing ones. This search for yield by rich-world investors took them to ever more exotic places. A dollar-denominated government bond issued in 2012 by Zambia, a copper-rich country with an average GDP per person of \$1,700 a year, offered just 5.4% interest; even so, it was 24 times oversubscribed as rich-world investors clamoured to buy. In 2013, a state-backed tuna-fishing venture in Mozambique, a country even poorer than Zambia, was able to raise \$850m at an interest rate of 8.5% [11].

In contrast to the credit booms in the US and Europe, where households were the main borrowers, three-quarters of the private debt burden in EMEs was shouldered by businesses; corporate debt ballooned from less than 50% of GDP in 2008 to almost 75% by 2014. Much of the lending was done in Asia, notably in China. But Turkey, Brazil and Chile also saw substantial increases in the ratio of company debt to GDP (see chart, emerging market private debt). Construction firms (notably in China and Latin America) increased their leverage a great deal. The oil and gas industry was a big player, too, according to the IMF's 2015 Financial Stability Report [11].



Growing debt in EMEs is generally not of itself something to worry about. It may be that savings are getting into local capital markets more effectively or that there are more, better investment opportunities [11]. Credit intensity – the amount of borrowing needed to generate a unit of output – surged, while productivity growth tumbled. The debt train appeared to be fast running out of track just as the world prepared for the end of quantitative easing and higher interest rates. There is no problem in having the debt to GDP growth go up as long as productivity growth can be turned around [12].

Sadly, those happy possibilities did not seem to account for what had been going on. While corporate leverage in EMEs went up, corporate profitability there was falling, says the IMF [11]. In the mid-2010s, Asia's engine of exports was failing to fire. Thanks partly to rising costs at home and changes in consumption in mature economies - exports to the US and Eurozone dropped from 14% of developing Asia's GDP in 2005 to just over half that level in 2014 [12]. There was plenty of evidence to suggest that rapid debt build-up was a hallmark of a period of indiscriminate lending that tends to end in tears [11].

There are two types of EME, and those with the largest debt are not in general of the type more disposed to acute crises. The



classic sort of EME has a CA deficit and is prone to inflation. Its central bank has to pay obsessive attention to the exchange rate: too low and it stokes inflation; too high and it hurts exports. The other kind, too new to feature in textbooks on emerging-market crises, has a hearty CA surplus, huge foreign-exchange reserves and decent public finances—but lots of private debt and an excess of goods-producing capacity, leaving it prone to deflation [11].

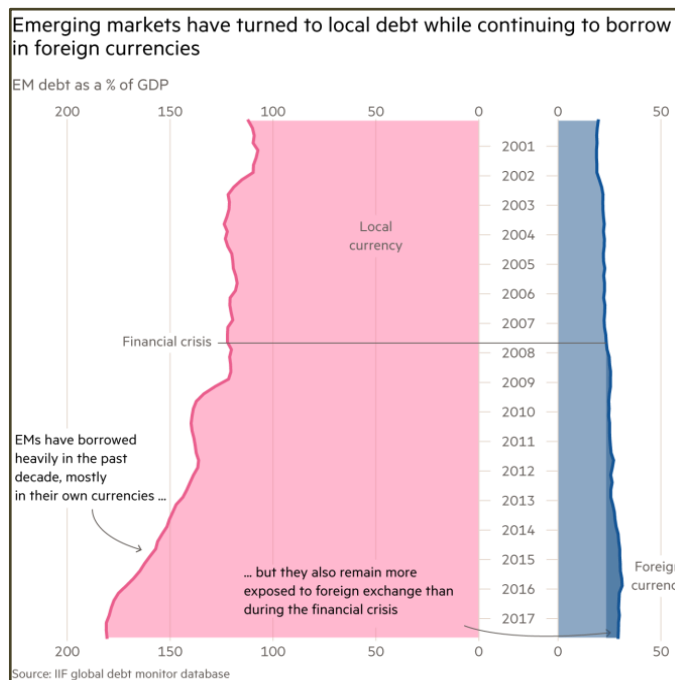
The most highly indebted EMEs, such as China and South Korea (perhaps Thailand), fall into a second category. They were unlikely to suffer an abrupt crash brought on by capital flight; they had formidable defences against a BOP crisis. But that stability also means the problems from excess debt can linger for years. With inflation absent, interest rates can be kept low, making carrying cost of debt manageable, at least for a while. Banks heavily influenced by governments may be unwilling to tackle non-performing corporate loans, because they result in factory shutdowns. Instead the debt overhang is perpetuated as bad loans are rolled over, creating zombie companies and industries. Overcapacity pushes down factory-gate prices, which hurts profits and investment. Capital is trapped in underperforming firms/sectors and saps GDP growth [11].

Brazil and Turkey, which then were at more immediate risk, are EMEs of the more classic type. They saw a build-up in private debt after 2007, much of it in the corporate sector. Big CA deficits made them reliant on foreign lending to sustain GDP growth. As the prospect of interest-rate increases by the US Fed draws capital back to the US, such countries become more vulnerable to further currency weakness. That stokes inflation. Higher interest rates are required to curb inflation and to slow capital outflows but makes servicing debt more costly. Thus, the pressure to address the debt problem is greater and the impact on the economy is potentially more dramatic. These countries are those most at risk of true crises. Not all the EMEs in this sort of danger have CA deficits. Malaysia ran a surplus, but probably belonged in this category because of its high private-sector debt (181% of GDP), its weakening currency and its strong trade ties to China's slowed the economy [11].

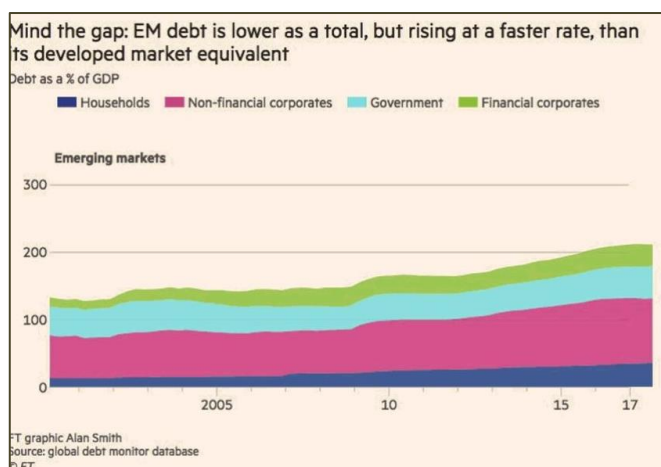
A third sort of EME includes: economies that were either less blighted by private-sector debt or had other reasons to be optimistic about growth. India belonged here. Like others in Asia, India saw corporate credit soar after 2007. Its investment boom hit the buffers earlier than in other places; overall private-sector debt was a comparatively modest 60% of GDP in 2014 (though this is part because the market for consumer debt is under-developed). The central bank put pressure on state-owned banks to recognise bad debts, and bankruptcy legislation helped clear up the mess that was pending [11].

India's economy was less affected by the slowdown in China than other Asian economies, and the halving in oil prices which hit Asian producers like Malaysia hard was a boon to India, which imports 80% of the oil it consumes. The CA moved closer to balance, in part because of low oil prices but also because of the prompt action taken after concerns about capital starting to leave EMEs sparked a mini-crisis (the so-called "taper tantrum" from slowing quantitative easing) in 2013 [11].

Across the EMEs, businesses, households and governments loaded up on an estimated \$40tn of cheap debt during the decade of loose monetary policy in the developed world that followed the GFC. That period was nearing its end as the US continued its "normalisation" of monetary policy— with more interest rate rises expected in 2018. Several analysts questioned whether the emerging world's debt pile was sustainable (see chart, EM turn to local debt) [13].



“The premise on which lenders keep lending to borrowers as they become more indebted is that the backdrop will stay benign,” says Sonja Gibbs, senior director for global capital markets at the Washington-based Institute of International Finance (IIF), an industry association. The reasons for growing concern were clear. EME debt surged. In China, it rose from 171% of GDP in 2008 to 295% in Sep 2017. The combined debts of a group of 26 large EMEs monitored by the IIF rose from 148% of GDP at the end of 2008 to 211% in September 2017 (see chart, EM debt by holder) [13].



Bond issuance by governments and companies in EMEs continued at a fast pace, at more than \$1tn in 2016 and 2017, with investors undeterred by Mozambique's renegotiation of its debt in 2016 or by the prospect that Angola would follow suit. “People would buy anything so long as it offered them yield and diversification,” one banker told the *Financial Times* [13].

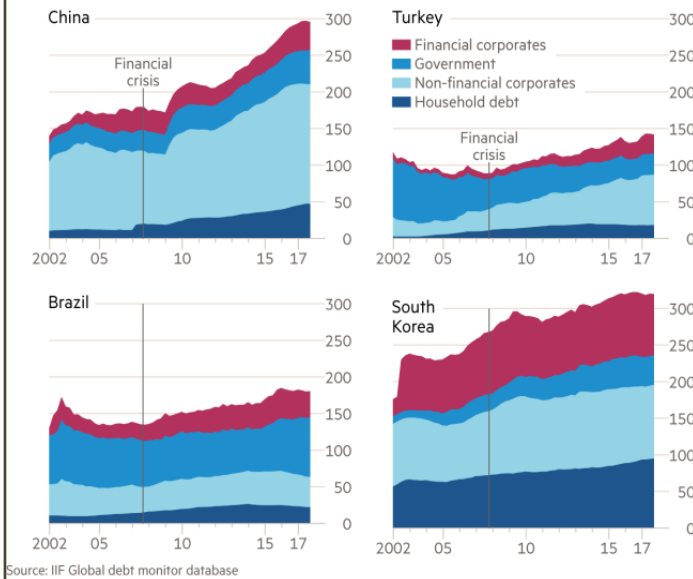
To trade EMEs bonds one must know two things: a country's ability to pay its debts and its willingness. The debt-to-GDP ratio is a good shorthand for ability to pay and those rates had rapidly risen. EMEs usually had lower ratios (about 50%) than rich countries (105%), whose bonds are considered a safe store of value. There is no magic threshold at which default risk becomes acute, but investors are less jumpy when the debt ratio is stable or falling [14].

Those urging caution suggested that EMEs would be wise not to assume that financial conditions would continue to be as easy. Inflation was always a concern. Some argued that if quantitative easing was what drove rising global asset prices, then quantitative tightening, under way in the US and to begin

### In many EMs debt continues to grow

This is especially a concern in countries such as Turkey, Brazil and South Korea, where interest rates are more likely to rise than to fall.

Debt as a % of GDP

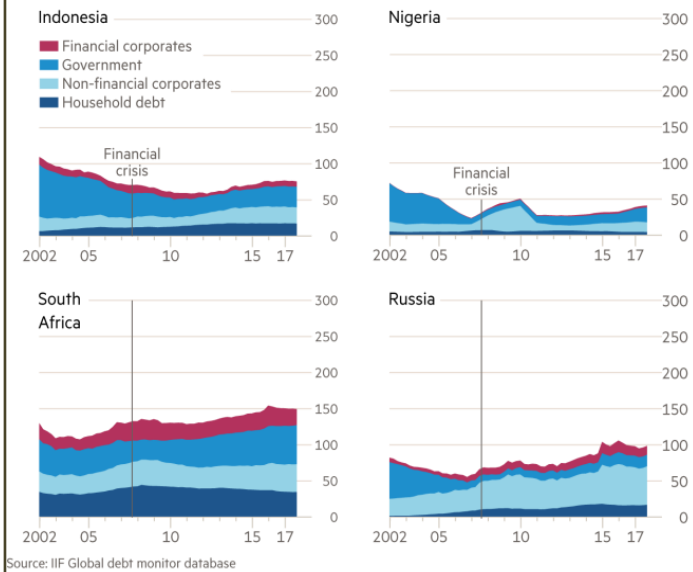


elsewhere, should have the opposite effect. Many argued that

### Some EMs have managed to keep control of debt levels

Indonesia, Nigeria, South Africa and Russia are among countries whose inflation and interest rates are more likely to fall than to rise.

Debt as a % of GDP



EMEs were better prepared to face these shocks because of their better CA balances. Governments weaned themselves off foreign currency debt and had tapped deeper capital markets at home by issuing bonds in local currency, giving them a greater degree of control if conditions turned bad [13].

Yet the amount of debt issued in foreign currencies, while it fell as a share of the total, continued to rise in relation to EME GDP and stood at about 30%. Many borrowers were exposed to the danger of having to pay foreign currency debt out of revenues in weakening local currencies, should the US dollar strengthen (which happened post-covid). Higher US interest rates and a stronger dollar is a double whammy to those with dollar debt [13]. China, Turkey, Brazil and South Korea are cases in point where debt levels increased since the GFC

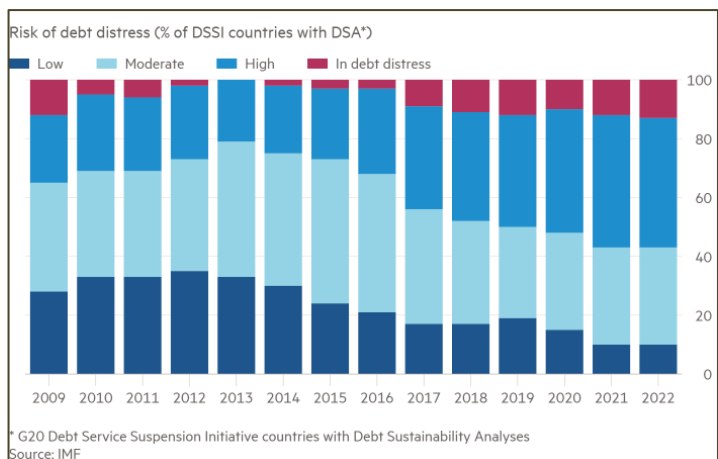
(see chart EM debt grows). This contrasts with Indonesia, Nigeria, South Africa and Russia whose debt was kept under control (see chart, EM debt levels under control) [13].

The economics literature addressed the trends in EME debt and concerns with repayment. Reinhart and Rogoff (2008), from the Universities of Maryland and Harvard, noted that governments often restructure or default on foreign debts at surprisingly low levels because of their large levels of domestic debt, often unseen and therefore not factored into calculations by lenders.<sup>5</sup> In parallel, many EMEs reduced the level of government debt as a share of their total, with more taken out by the private sector. The shift was broadly welcomed for distancing debt from public policy and spreading risk across a national economy. However, Reinhart and Rogoff also noted that corporate defaults were frequently precursors to government defaults, “as governments have tended to shoulder private sector debts”. When things go wrong, in other words, each country has just the one balance sheet. The blurring of lines between the public and private sectors and between financial and non-financial corporations made the issue more urgent [13].

Valentina Bruno of American University and Hyun Song Shin of the BIS (2017) examined the rise in foreign-currency bond issuance by companies in emerging markets and found that such companies tend to borrow more in US dollars when they already hold old large amounts of cash.<sup>6</sup> The proceeds typically go into bank deposits and money market instruments to capture the difference between US and local interest rates, adding to the amount of lending available locally. Other work by the BIS points to the role of the weak dollar in encouraging investment in emerging markets, because it makes finance cheaper and more abundant. It can even support emerging market exports — a counterintuitive proposition based on the premise that exports increasingly depend on long and complex supply chains, which also rely on cheap and abundant credit. The risk was that the dollar would strengthen [13].

### Post-pandemic EME debt

The pandemic and post-pandemic shock hit low and lower-middle-income developing countries hard. Tackling the debt crisis that loomed had to be a priority. According to Kristalina Georgieva, managing director of the IMF, in Jan 2023 “about 15% of low-income countries are already in debt distress and an additional 45% are at high risk of debt distress. Among EMEs, about 25% are at high risk and facing default-like borrowing

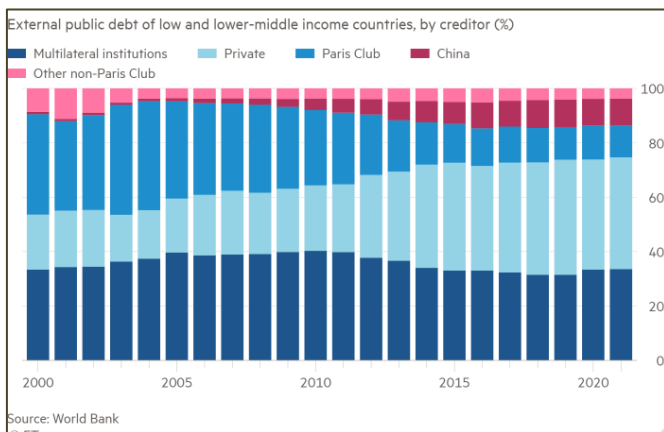


<sup>5</sup> Reinhart, Carmen. and Kenneth Rogoff, “This Time is Different: A Panoramic View of Eight Centuries of Financial Crises”, NBER Working Paper No. 13882, Mar 2008. [https://www.nber.org/system/files/working\\_papers/w13882/w13882.pdf](https://www.nber.org/system/files/working_papers/w13882/w13882.pdf)

<sup>6</sup> Valentina, B. and HS Shin, “Currency Depreciation and Emerging Market Corporate Distress”, Nov 2017. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2883488](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2883488)

spreads” (see charts, [risk of debt distress](#)). Sri Lanka, Ghana and Zambia were already in default [15].

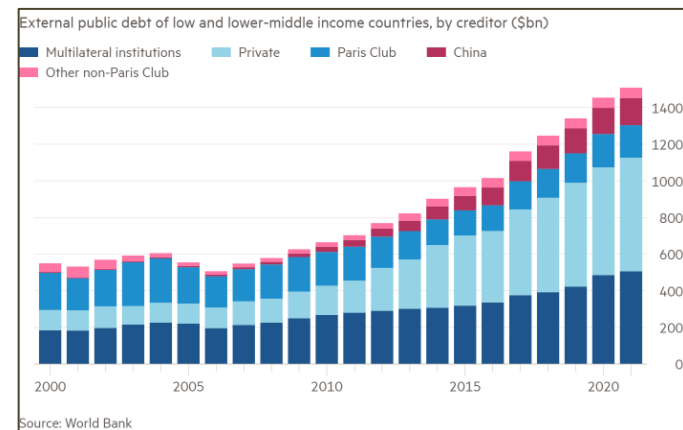
Why has this happened? The answer is that low and lower-middle-income countries took on too much of the wrong kind of debt (see chart, [external debt, by creditor](#)). That mainly reflected the lack of good alternatives. The world opened a debt trap, by making the terms of borrowing attractive but risky. Covid-19, soaring energy and food prices, higher interest rates, a strong dollar and a global slowdown have rendered the costs prohibitive, duly closing the trap upon vulnerable countries



[15].

When debt becomes unaffordable, it needs to be restructured. Restructuring has become more difficult than it was in the 1980s, after the Latin American debt crisis of 1982. Back then, the main creditors were a few large western banks, western governments and western-dominated international financial institutions (IFIs). It was relatively easy to coordinate these entities [15].

Between 2000 and 2021, the share of public and publicly guaranteed external debt of low and lower-middle-income countries (other than held by IFIs) owed to bondholders jumped from 10% to 50%, while the share owed to China rose from 1 to 15%. Meanwhile, the share held by the 22 predominantly western members of the Paris Club of official lenders fell from 55 to 18% (see chart, [external public debt](#)). Thus, coordinating creditors in a comprehensive debt restructuring operation has become far harder, because of their greater number and diversity. Moreover, no one wants to restructure debt owed to themselves if that would merely benefit other creditors, not the country itself [15]. In 2023, half of the 38 countries on the World Bank’s list of countries in or near default had China as their biggest state creditor [16].



China’s external lending took off with President Xi’s Belt and Road Initiative, the \$838bn programme launched in 2013 to build infrastructure in about 160 mostly developing countries. Since 2020, it has been clear that the wheels were coming off with stalled projects and an increase in non-performing loans, amounting to China’s first overseas debt crisis.

With EME economies coming on hard times, it was not only China’s loans that required restructuring. However, there exists no effective framework for bringing all these creditors together. Nor is there any credible template for restructuring that debt [15]. Western financiers have been in a stand-off with China, a lender too big to ignore but too irascible to involve in restructuring or debt forgiveness. Before China’s lending spree, Western countries built a multilateral framework to restructure troubled debts. Starting in 1956, lenders banded together on the basis that all would reschedule payments on the same terms [16].

China refused to play by the old rules. In an attempt to bring it into the fold, the G20 drew up a new set in 2020, the “Common Framework for Debt Treatment” [16][15]. The other (and frequently much bigger) creditors are not engaged [15]. In practice it is a Paris Club-led process that turned out to be an empty agreement. In theory, signatories are to accept similar restructuring terms, but in reality, they have too little in common to get the process going [16].

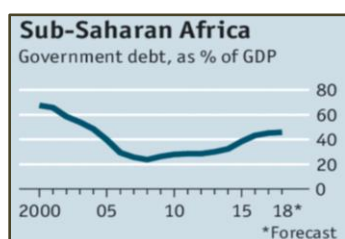
According to the IMF itself, the framework does not have traction. Equally, there is no approach to debt restructuring that is at all likely to deliver what is needed – a new start for heavily indebted crisis-hit countries [15]. Restructurings have halted since the pandemic. Four countries – Chad, Ethiopia, Ghana, and Zambia – asked for help under the framework. Only Chad secured a deal, which rescheduled rather than cancelled payments. However, Chad’s debts were only \$3bn and China’s stake were small (\$264m, or 2% of Chad’s GDP) [16].

China’s refusal to accept write downs is the main issue. Beijing’s various ministries are simply not set up for forgiveness. Another difference in perspective is related to the Common Framework. Only loans by states are other states’ business. Private creditors and international institutions get off more lightly, rarely being called upon to cancel a dollar. But China does not separate its political promises to develop the world’s poorest countries from the country’s commercial activities. One of the government’s two main policy banks, China Development Bank, lends to poor countries at market rates. China is adamant that this disqualifies its loans from being bound by rules meant for states [16].

China seems to prefer working alone. Cooperating with other lenders involves sharing information. China prefers doing its negotiations in private. Since 2008 the Chinese state has restructured the finances of more countries (71) than all members of the Paris Club of mostly Western countries put together (68), according to the World Bank, but it has done so on its own terms. It has taken repayment in commodities, or future proceeds, or taking over stakes in the infrastructure that was built with the loans. With lenders in a stand-off, the IMF’s role in restructuring is hamstrung [16].

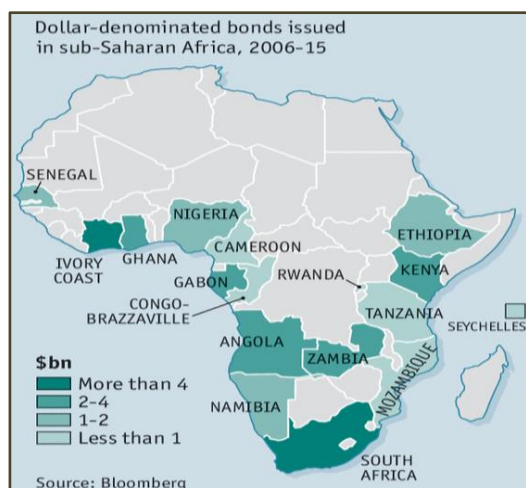
## Africa discovers the downside of foreign borrowing

In the late 1990s, the IMF and World Bank initiated the “heavily indebted poor countries” (HIPC) scheme to provide debt relief and low-interest loans to cancel or reduce external debt repayments of poor countries. Around 2000, much of sub-Saharan Africa was still frozen out of the global financial system. Reckless lenders had lent too much to irresponsible (often unelected) governments. Some crooked officials stole billions, stashed their loot abroad leaving fellow Africans with the bill. By the mid-2000s international pressure helped to wipe out much of the debts of 36 countries, 30 of which were in Africa (see chart, sub-Saharan government debt). Ghana (with a public debt of more than 120% of GDP) and Mozambique (more than 200%), could not cover the interest payments on existing loans, never mind service new ones. Unable to borrow, such countries could not invest in roads, ports, schools and clinics [17].



Before the mid-2000s, African bonds were a rare sight. Of all the countries south of the Sahara, only South Africa had ever sold a dollar-denominated bond to foreign investors. By 2016, 16 more had. Excluding South Africa, African countries issued \$6.75 billion of dollar debt in 2015, just short of the record \$7 billion sold in 2014. Africa’s bond bonanza suited both investors and governments. Rich-country pension funds looked to Africa for higher yields because their own government bonds offered measly returns. By issuing debt in dollars, African governments could avoid the double-digit rates they had to pay to borrow at home [18].

Public debt to GDP increased by an average of 5% during 2013-16 [17]. The optimism reigned for a while. Governments were able to issue bonds thanks partly to debt cancellation, which brought down external debt in the region from a peak of 76% of GDP in 1994 to 25% by 2008 (see chart, \$-debt issued 2006-15). Past debts were often owed to official creditors, such as the World Bank, and came with strings attached. Bond markets are less fussy, another reason why governments like them. Of 30 African countries that benefited from debt relief, ten had since issued dollar bonds. Ghana, the first to do so, issued its debut bond in 2007, just a year after most of its debts were cancelled. Ghana’s debut dollar bond was four times oversubscribed. Zambia, buoyed by a copper boom, did even better: its ten-year bond, issued in 2012, was 24 times oversubscribed, and sold at a yield of 5.6%—lower than the equivalent Spanish bond at the time [18].



Suddenly, Africa seemed less creditworthy. Regional growth slowed to 3.5% in 2015, down from 5% in 2014. Lower commodity prices hit government revenue. Currencies were depreciating. The prospect of further interest rate increases in the US forced emerging-market governments to pay a higher premium to attract investors. Ghana sold a 15-year bond at a yield of 10.75% in October 2015; Zambia, Angola and Cameroon also paid more than 9% on new issues [18].

It was countries with collapsing currencies that looked most foolhardy. The Zambian kwacha lost 42% of its value against the dollar in 2015, almost doubling the cost of servicing its debt. Ghana’s debut on the bond market was accompanied by an increase in current spending, including a rise for civil servants; its debt rose above 70% of GDP after three years of double-digit deficits. Ghana turned to the IMF in 2015, and Zambia would follow suit. Elsewhere bond issues provoked political rows: in Kenya, opposition leaders claimed some of the money raised had been stolen [18].

In 2018, Zambia spent more on debt service than on education. Governments’ debt crowded out other borrowers. Local banks often found it easier to buy government bills than to do the hard work of assessing the creditworthiness of local businesses, which are asked to pay ruinous interest rates of 20-30%. The fate of banks is thus tied to the health of the government’s finances, making the whole financial system brittle. Africa was not yet in a debt crisis but many countries could find themselves back in the debt trap they had escaped [17].

The problems are not universal. Some countries, such as Ethiopia, continued to grow strongly. The median debt-to-GDP level in the region, though rising, was only 42%. And the structure of bond repayments affords some breathing-space. Their average maturity was 11 years, so until the 2020s most countries need worry only about interest, which was fixed. The annual cost of servicing existing bonds would typically remain below 1% of GDP. “There won’t be a huge African debt crisis tomorrow,” says Amadou Sy of the Brookings Institution, a think-tank, “but now is the time for governments to get their act together” [18].

One thing they could do is issue bonds in local currency, rather than dollars, and so eliminate the risk of fluctuating exchange rates. Foreign investors are wary of taking on that risk themselves. Most local-currency bonds are issued by just a handful of countries, distinguished by their size (Nigeria) or market development (Kenya, Ghana). Investors worry about small markets freezing up [18].

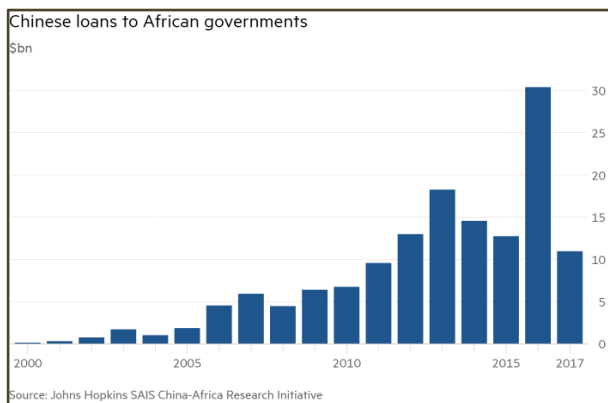
Countries can build up domestic institutional investors (at present, banks buy most local bonds). Nigeria, for instance, has worked hard to reform its pension system, and pension-fund assets have grown at a rate of 25-30% over the past five years. Even so, yields on dollar debt were much lower than domestic rates: Ghana paid 24% on a local-currency bond in November 2015. With tax revenues falling (from lower commodity prices), African governments would need to borrow from somewhere. Dollar debt was becoming dearer, but it was not disappearing [18].

Some may have expected the IMF to step in with bailouts and austerity programmes, meaning that their lending is protected. And countries such as China began underwritten loans for infrastructure projects to project soft power and to keep their own construction firms busy [17].

The IMF warnings of rising debt levels in low-income countries made big headlines in 2018 with bailout talks with Pakistan and requests for help from Angola, Zambia and others. This forced the Fund to confront a pressing question: how far is debt distress in the developing world due to lending by China? The trouble is, no one has the information needed to answer this

question — and so ensure that Beijing plays its part in any write downs of debt to official creditors [19].

China stepped into the gap left by western donors, offering no-strings finance for political allies and for projects advancing its commercial and geopolitical interests (see chart, Chinese loans to Africa). In the absence of official data, it is hard to assess even the scale of lending. Researchers at Johns Hopkins University estimate that the Chinese government, banks and contractors loaned some \$143bn to African governments and state-owned enterprises between 2000 and 2017. Information on the maturity, cost and terms of loans is next to non-existent [19].



## CAPITAL CONTROLS

“Capital control” is a loosely defined term. Capital controls were first widely imposed in the 1930s by countries going off the gold standard [20]. Those controls usually took the form of outright prohibition or quotas on the amount of money that could be moved in or out of a country [21]. The post-war Bretton Woods agreement institutionalized controls to allow countries some monetary flexibility within the system of fixed exchange rates that it created. The Bretton Woods system unravelled in the 1970s, as countries were forced off unsustainable exchange rates. A new consensus grew up in its place, prizing free movement of goods and capital [20].

The case for the free movement of capital is similar to that for free trade, an area where economists’ long-held convictions had remained firm. Voluntary exchange across borders should make everyone better off. Borrowers receive better access to credit at lower cost; lenders can earn higher returns on a diverse array of investments [22]. The mantra was for developing countries to pursue financial liberalisation for prosperity. Instead of discouraging foreign investors, and crafting rules to stop local capital from fleeing abroad, they were advised to open. This would give them access to global savings to invest and grow faster. When joining the OECD, the group of rich economies, Mexico and S. Korea were pushed to open their capital markets further [23].

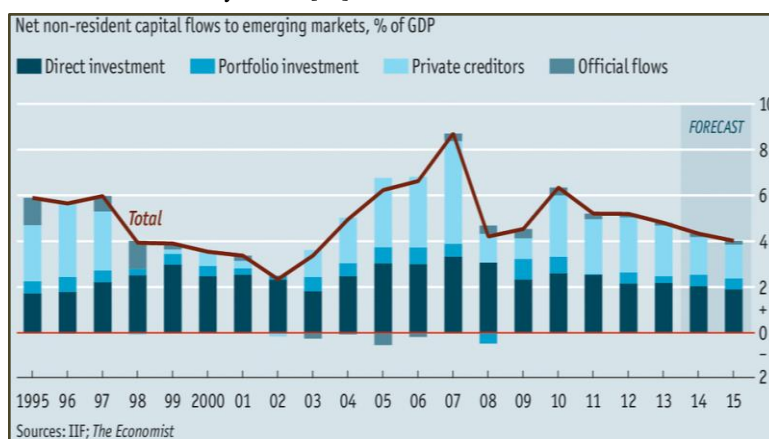
In 1996, at the World Economic Forum, the theme of the conference was changed from “sustaining globalisation” to “managing volatility” because of the advent of the Asian financial crisis (AFC). Among economists, 1998 was unsettling. The abrupt reversal in economies that were hitherto deemed miraculous challenged the conventional wisdom that letting capital move freely across borders was a good thing. Popular sentiment in East Asia blamed the crisis on the sudden and destabilising withdrawal of foreign capital. It was suggested, things would have been calmer if less capital had been allowed to enter in the first place. In September 1997, then Malaysian prime minister, Mahathir Mohamad, likened the global capital

markets to “a jungle of ferocious beasts”. Critics noted this as a deflection of attention from his own policy failures [23].

Yet large temporary capital inflows have paved the way for big economic trouble. The AFC, like the 1995 Mexican crisis before it, showed that some types of capital can flow out even more quickly than they flowed in, causing serious economic harm in countries with badly regulated financial systems. The sudden influx of cash inflates asset prices (bubbles) and propels exchange rates beyond reasonable levels, and that its eventual exodus imperils financial stability [22]. East Asian countries eased capital controls during the 1990s, and they enjoyed huge inflows of foreign money, amounting to 5-10% of GDP (see chart, net non-resident capital inflows), which went hand-in-hand with fast growth. The subsequent crash brought recognition that free-flowing capital can throw up unforeseen difficulties. “In retrospect”, Alan Greenspan, former US fed chairman, confessed that, “it is clear that more investment monies flowed into these economies than could be profitably employed at reasonable risk” [23].

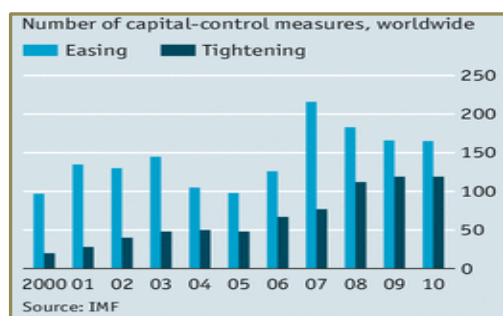
Real financial markets are more complex than the textbook models. Investors are erratic, swayed by waves of excessive optimism followed by waves of excessive pessimism. It is impossible to eliminate moral hazard, which causes people to take excessive risks in the expectation that a central bank or the IMF will bail them out when things go wrong. This means that market forces do not allocate capital perfectly. [23].

To limit these risks, James Tobin, a Nobel prize-winner in economics, suggested a small tax on foreign-exchange transactions. This would make short-term speculation more costly while having little effect on long-term investment. But a “Tobin tax” could be easy to dodge by moving currency trades to a country that does not tax them. It would not necessarily solve problems such as those in East Asia, where the biggest sellers of local currencies were not speculators but local firms desperately trying to hedge or repay dollar-denominated debts. Limits on short-term foreign borrowing gained support among economists and the IMF and World Bank were rethinking the practical ways of using capital controls [23]. Its economists argued both that capital controls were costly because they induce distortions to resource allocation and that they were not effective because they are easily evaded. However, these arguments contradict each other: if controls have no effect, how can they distort [24]?



By the 2000s, the IMF economic orthodoxy on capital controls weakened, especially with the economic uncertainty of the GFC. That contributed to a change in views on controls on capital inflows and resulted in the introduction of more controls (see chart, capital-control measures) [20]. The new conventional wisdom was that while free capital flows brought more benefits than risks, temporary controls on capital inflows could be a useful tool. The ideological swerve was presented in an IMF paper, concluding that controls were a “justified part of the

policy toolkit' to deal with surging inflows [24].<sup>7</sup> So, the IMF, once an ardent defender of capital mobility, now reckoned that limited and internationally co-ordinated controls on capital inflows were warranted in some circumstances. Taxes on foreign purchases of debt or equity, for instance, may limit destabilising currency appreciations and financial bubbles. Restrictions on foreign bank-lending may reduce financial turmoil and protect banks from big losses [20].



The paper provided some clarity on the effectiveness of inflow controls. The authors found that GDP fell less sharply during the financial crisis in countries that had such policies in place. Prior research showed that the maturity structure of a country's external liabilities got longer as a result of capital controls. The composition of inflows also mattered. Countries with a larger overall stock of debt had bigger credit booms and suffered bigger growth collapses during the crisis. So too did countries with more foreign direct investment (FDI) in the financial sector. Unlike other types of FDI, these flows contribute to debt growth because they include lending from parent banks to local subsidiaries. "The use of capital controls was associated with avoiding some of the worst growth outcomes" [24].

Previously, the fund urged countries facing surging capital inflows to allow their exchange rates to appreciate or to accumulate reserves [24]. Controls could be imposed during temporary surges in inflows, but the exchange rate should adjust when it came to permanent shocks [25]. However, exchange rates can overshoot, with consequences for the competitiveness of a country's exports. Also, if reserves are adequate, then further accumulation is not optimal. If allowing exchange rates to adjust is not a viable option, the fund advocated interest rate cuts to make the country less attractive to foreign funds. Some countries risked overheating if rates were cut further [24].

So, did the meltdown on Wall Street show that financial globalisation itself to be part of the problem? The meltdown of the US financial system of 2008 looked different from the emerging-market crises that overwhelmed Thailand in 1997 or Russia in 1998. In the latter case, there was no currency collapse, no government default. In the late 1990s, there were no collateralised-debt obligations or credit-default swaps [26].

Yet, there are parallels between US crisis and the emerging-market episodes. In all of them vast CA deficits were financed by huge capital inflows. The afflicted countries saw housing speculation, asset bubbles and cheap loans followed by a credit crunch and the seizing up of the financial system. Wall Street's meltdown raised the same questions as the crises of the 1990s: what would the direct effects on emerging markets be? If the world's richest economies are vulnerable to global financial turmoil, should developing countries not seek to insulate themselves from it [26]?

The consensus in favour of capital mobility has always been less clear-cut than that in favour of free trade, for two main reasons. First, capital flows can push a currency far above its

intrinsic value, widening the trade deficit and hollowing out domestic manufacturing. Second, they can fuel borrowing booms, especially in countries with underdeveloped financial systems, leading to devastating busts when the money flows out. Hence the IMF's original charter prohibited controls on cross-border trade, interest payments and profits but allowed them on capital [21].

Two papers<sup>8</sup> cast light on these questions. They conclude that, although financial globalisation has big costs, these can be minimised and potential gains increased by better policy. Financial globalisation itself ought to be seen not so much as a bad thing, but as too much of a good one [26].

Most emerging markets see their ability to attract foreign money as proof of good management [26]. The most important factors in making capital flows safe are sound financial systems in emerging economies themselves. By contrast, financial crises in emerging economies stem from policy mistakes, such as poor bank supervision. However, even a well managed but small economy might be overpowered by the force of vast international capital flows. Some limits on such flows, particularly the most volatile and pernicious short-term kind, might therefore be warranted [27].

Carmen and Vincent Reinhart's results suggest capital flows are a cause for caution. Taking the experience of 181 countries since 1980, the authors reckon that middle- and low-income countries had a roughly 20% chance of suffering a banking crisis and a 30% chance of a currency crisis, external-debt default or inflation spike (to more than 20% a year) if they experienced what the authors call a "capital-flow bonanza" in the three years beforehand. (They define such a bonanza as an unusual shift of the current account into the red, using that as a proxy for capital inflows since the capital and current accounts mirror each other.) These seem unenviable odds [26].

The authors point out that the countries might have suffered disasters anyway, without being showered with money. That turns out to be true—but their chances were quite a bit lower: between 14% and 24% for countries that did not attract so many dollars. In other words, a foreign inflow, as well as financing good things such as public infrastructure and corporate investment, is also associated with debt defaults, inflation and currency crises [26].

The authors focus on the level of capital flows, rather than their composition. Presumably, countries that attract more FDI suffer less than those that have a greater amount of footloose portfolio investment or short-term bank lending. But overall, most countries that suck in foreign money show the classic signs of an economic bubble. Using a subset of 66 countries for which there are more detailed figures, the authors show that share prices rose by more than 10% in real terms in the two years before what they call a bonanza, then fell relentlessly for four years, ending below where they started. House prices went up by more than that—15% in real terms over four years during a bonanza—before falling back [26].

So why would countries seek out foreign money at all, if its impact is so malign? The answer is that it is not so much the amount of investment that is the trouble; it is its volatility, and especially its tendency to dry up. Another difference between the GFC and the Asian one is that in 1997-98, more debt was sovereign. The GFC was more corporate, taken out by Indian, Chinese and other emerging-market companies. That implies a global credit tightening has as big an impact on emerging markets as slowing import demand in the rich world [26].

<sup>7</sup> J. Ostry, A. Ghosh, K. Habermeier, M. Chamon, M. Qureshi and D. Reinhart, "Capital inflows: The role of controls", Feb 2010.

<sup>8</sup> C. and V. Reinhart, "Capital flow bonanzas", National Bureau of Economic Research, Working paper o. 14321.

G. Calvo, A. Izquierdo and L.F. Mejia, "Systemic sudden stops", NBER Working paper no. 14026.

The second study points out that “sudden stops” of capital inflows tend to be an inverted U-shape: the poorest countries are the least vulnerable to global financial shocks; middle-income countries are the most; but, as you get richer and more integrated into global finance, your vulnerability tends to fall again—and that remains true despite the crisis in America. So it might still make sense for countries like India and Brazil to carry on liberalising. Moreover, as the Reinharts show, a big part of the problem is that capital flows are endemically boom-bust: money floods in and out. They argue that fiscal policy should be used to smooth out such cycles: governments should reduce deficits or run surpluses during bonanzas—the opposite of what they usually do. This implies something of a paradox. Capital flows are supposed to be a reward for good economic behaviour. But as Dani Rodrik, a Harvard professor, says, “these policy conclusions turn capital inflows into an imperative for even deeper reform” [26].

Foreign capital fled emerging markets during the GFC, but lured by their better growth prospects and repelled by rich countries' low interest rates, money gushed into emerging economies such as Brazil, Peru, South Africa and Turkey [24]. This resurgence of capital to emerging markets was an “international monetary tsunami”—rising to \$721.6 billion in 2010 from \$435.2 billion in 2009—resulted from the difference in interest rates and the very low rates in the rich world (see left-hand chart, net inflows to emerging markets) [22][24]. The interest-rate differentials between rich and EMEs helped drive the flow of capital (see right-hand chart, benchmark spreads). The 2006-10 gyrations in capital flows reinforced fears of tides of capital destabilising economies [22].



Policymakers fear that this flood of capital could lead to asset-price bubbles and overvalued currencies. To stem the tide, countries implemented control measures. Brazil's tax on portfolio inflows to Peru's higher charge on non-residents' purchases of central-bank paper [25].

The fund's reconsideration of capital controls suggests that it was trying to adapt its advice to global economic realities, but the initial paper said little about what an effective, non-distortionary system would look like [24]. Such policies—particularly capital controls that apply specifically to foreign investors or treat them differently from nationals—have long been controversial. Countries that use them are often accused of doing so to keep their currencies artificially undervalued. Critics

reckon that with their prospects improving emerging markets should just let their currencies rise. Emerging economies retort that the reason capital is flooding their way may have less to do with their long-term prospects than with temporary factors such as unusually loose rich-world monetary policy, over which they have no control. Adding to the confusion is the absence of any internationally accepted guidelines about what is acceptable when it comes to managing capital flows [25].

In April 2011, the IMF released two more documents designed to provide clarity on which measures were justified, and when. First was a “framework” for policy advice approved by the fund's board, which laid out the IMF's official thinking. The second, an IMF research paper led by J. Ostry, provided the analytical backing for the framework paper and explains the conditions under which various policy instruments might help to manage capital flows. The aim was to ensure the IMF's advice is consistent, although not all are convinced the fund's own thinking on managing capital flows is settled [25].

Mr Ostry's team point out that persistent inflows might be even more dangerous in terms of asset-price bubbles. It concedes that controls may be useful to target inflows that are expected to endure, because of the threat to financial stability. The IMF's analysis suggests that low US interest rates could have a larger effect on flows to emerging economies than those economies' own growth performance. The framework paper is much more conservative, arguing that capital-flow measures “are most appropriate to handle inflows driven by temporary or cyclical factors”. The paper cautiously endorsed the use of controls in situations where a country facing a capital surge had a currency that was appropriately valued, had already built up enough

reserves and had no further room to tighten fiscal policy. The fund reckons these conditions were not all that rare: 9 of 39 emerging markets studied would have been justified in late 2010 to resorting to such controls because they had exhausted other options [25].

The IMF historically preferred “prudential” measures designed to stop inflows from destabilizing financial systems and that did not discriminate between residents and foreigners, over capital controls that erect barriers designed to stop the exchange rate from rising. Ostry et al. point out that some prudential measures distinguish between local-currency and foreign-currency transactions, making them more like capital controls since foreign-currency liabilities

are more likely to be owed to foreigners. Thus, it may make sense to treat such prudential measure and capital controls similarly, but the framework paper maintains that countries should first apply “capital-flow measures that do not discriminate on the basis of residency (e.g., currency-based prudential measures)” [25].

Since the IMF's qualified endorsement of controls in 2012, there has been an explosion of research about how they should operate.<sup>9</sup> The emerging consensus is that well-designed capital controls should be targeted and limited, such as taxes on short-term foreign borrowing or minimum “stay” requirements for foreign direct investment (FDI). Strict prohibitions against all cross-border flows are frowned upon as too blunt, except in extreme cases. As for timing, the ideal is that controls should be counter-cyclical. When capital surges in, governments ought to

<sup>9</sup> IMF paper, “The liberalization and management of capital flows: An institutional view”, Nov 2012.

M. Chamon and M. Garcia, “Capital controls in Brazil: Effective?”, Aug 2014.

B. Eichengreen and A. Rose, “Capital controls in the 21<sup>st</sup> century”, Centre for Economic Policy Research, Jun 2014.

J. Aizenman and G.K. Pasricha, “Why do emerging markets liberalize capital outflow controls? Fiscal versus net capital flow concerns”, NBER Working Paper, Mar 2013.

“International banking and financial market developments”, *BIS Quarterly Review*, Dec 2014.

A. Fernández, A. Rebucci and M. Uribe, “Are capital controls prudential? An empirical investigation”, NBER Working Paper, Nov 2013.

tighten controls; when cash departs, controls can be relaxed.

This seems a neat solution, reconciling the dream of free-flowing cash to the untidy reality of global finance, but it is far from the final word [28].

There are three big snags with the idea of on-off capital controls. First, even stringent controls can be pierced. Perhaps the best example is China, one of the staunchest practitioners. The Bank for International Settlements noted that international bank lending to China reached \$1.1 trn in June 2014, doubling in 18 months. Much of that was trade finance, ostensibly for foreign firms to buy Chinese goods. In reality, Chinese firms used it to sneak in money. The BIS also noted that many Chinese firms were issuing debt via foreign subsidiaries, leading to “FDI” inflows that are really loans [28].

The biggest impact of capital controls appears to be on the composition of flows. Money that in their absence would go straight into stocks instead enters in the guise of FDI. Given that FDI in emerging markets far outstrips portfolio inflows, there is ample scope to get around the rules. If gushers of cash find their way past even well-guarded, permanent walls such as China’s, then hastily built counter-cyclical barriers will be at least as porous [28].

The second big flaw with on-off controls is it disregards the revealed preference of nations. The debate is almost always framed as how to regulate inflows. On examining the record of what governments have actually done, it turns out that they devote far more attention to stemming outflows [28].

J. Aizenman of U. of Southern California and G.K. Pasricha of the Bank of Canada examined 664 changes to capital-control regimes in emerging markets since 2000. Restrictions on capital outflows were eased 274 times, more frequently than any other kind of change. Opening the door to outflows can meet the same basic aim as blocking inflows (net inflows should decline) but the optics are very different. In the former, regulators loosen their grip on the economy, a signal of confidence to global markets [28].

Finally, there is scant evidence that an on-off approach to capital controls is even practical. Few countries have ever attempted it. B. Eichengreen and A. Rose of U. of California, Berkeley conclude that decisions to strengthen or slacken controls have little relationship to inflation or growth—that is, they are not counter-cyclical. This is in line with other research showing that even after the global financial crisis, there was no consistency in the way different countries used capital controls. China and Indonesia loosened restrictions as their economies boomed, the opposite of a counter-cyclical approach [28].

Brazil’s experience lends support to the sceptics. From late 2009, when inflows into emerging markets surged, Brazil gradually ratcheted up capital controls. M. Chamon of the IMF and M. Garcia of PUC-Rio conclude that a first series of measures from 2009 until mid-2011—taxes on debt and equity inflows—did not slow the real’s appreciation, which had been the government’s main objective. A big increase in FDI suggests that investors simply found other channels [28].

Measures taken in the second half of 2011 to target offshore equity derivatives finally appeared to have an impact, weakening the real by as much as 10% relative to what might have been expected. Other factors were also at play: the central bank started cutting interest rates in late 2011. The various restrictions also inflicted damage on the Brazilian economy, raising funding costs and deterring investment. The dismal

growth performance during 2011-14 is hardly an endorsement for the on-off approach [28].

A. Korinek, U. of Maryland<sup>10</sup>, distils the lessons of research spurred by recent emerging-market crises to explain how cross-border investment can lead to financial instability. Investment in a market can boost its growth outlook, making additional investments more attractive and prompting an upward spiral in capital flows. When the cycle reverses, the opposite dynamic develops. The euro zone provides a rich-world example. Pre-crisis inflows set off property and wage booms, leaving behind uncompetitive economies when they receded. Korinek thinks that bubblikeness could justify a tax on capital inflows that rises in line with countries’ indebtedness and should be higher for foreign-currency-denominated debt [22].

It is the impact of inflows on currencies that most vexes governments. In 2012, Ostry et al.<sup>11</sup> strengthened the theoretical case for limiting capital inflows to prevent a surge in currencies above fair value. Where production in export industries depends on “learning by doing”, or the steady accumulation of expertise over time, even a temporary hit to exports from a currency appreciation could prove deadly. Yet Ostry also argued for a high bar for such intervention [22].

A risk from imposing capital controls is that they can be hard to roll back because they suit vested interests. The political influence of powerful Chinese manufacturers were an obstacle to freeing up their capital account, hampering the rebalancing of China’s economy towards domestic consumption. Spillover effects are another risk. A single country responding to destabilising inflows with capital controls can deflect money elsewhere [22].

Research by K. Forbes<sup>12</sup> of the Massachusetts Institute of Technology and M. Fratzscher, T. Kostka and R. Staub of the European Central Bank assessed the impact of Brazilian taxes on foreign purchases of fixed-income assets between 2006 and 2011. Controls worked; without hikes in the tax in 2008, 2009 and 2010 investors might have accumulated \$30 billion more in Brazilian debt and equity, roughly 5% of total foreign portfolio investment in the country. However, controls are also a blunt instrument. Investors cut their exposure to Brazilian equities even though the tax was assessed on debt, suggesting that the government’s signal that it was willing to intervene was more important than the direct effect of the tax. Investors also reduced their exposure to other economies deemed likely to follow the Brazilian example, but increased their allocation of money to other markets that, like Brazil, are closely linked to Chinese growth [22].

Such deflections are not necessarily bad, according to Ostry, Ghosh and Korinek. If an economy has good reason to limit flows—e.g., to prevent a dangerous domestic bubble—then the world is better off for the redirection of money. But bad outcomes could easily result. Countries that take only their own interests into account (such places do exist, alas) may impose controls that are too strict, diverting cascades of hot money elsewhere. The countries that receive it may intervene in turn, with a net effect of much less international capital movement than all countries would prefer [22].

A more co-ordinated approach might mitigate the risks of the nastier spillover effects. When there are surges of capital towards multiple destinations, for example, lots of countries may intervene simultaneously to mute inflows. That intensifies the risk of an escalating capital-control war as each country tries to ward off flows that have been deflected by others. Thus, there

<sup>10</sup> A. Korinek, “The new economics of prudential capital controls: A research agenda”, IMF Economic Review, Aug 2011.

<sup>11</sup> J. Ostry, A. Ghosh, and A. Korinek, “Multilateral aspects of managing the capital account”, IMF Staff Discussion Note, Sep 2012.

<sup>12</sup> K. Forbes, M. Fratzscher, T. Kostka and R. Staub, “Bubble thy neighbour: Direct and spillover effects of capital controls”, NBER Working Paper No. 18052, May 2012.



is a case for a multilateral framework to ensure that countries act with the effect on others in mind [22].

This co-ordinated action should extend to the countries that export capital as well the countries receiving it. Capital flows driven by interest-rate differentials between rich and EMEs dwarf those caused by capital controls in other emerging markets, after all. This suggestion is political dynamite: source countries would bristle at any attempt to control their monetary policy. But “prudential” measures that limit the exposure of domestic financial institutions to high-risk foreign investments would be a more politically acceptable way of selling co-ordination [22].

US commercial-bank investments fuelled financial instability in Latin America in the 1980s, for example, and also left US money-centre banks on the brink of insolvency. The authors suggest that the mandate of home-country regulators of cross-border banks could be extended to cover activities of these institutions that cause instability in other countries. There may be room for capital-constraining policies that make life easier for lenders and borrowers alike [22].

#### Case of Iceland

In 2008 Iceland, one of the worst-hit casualties of the financial crisis, became the first industrial country in decades to impose capital controls, to limit a flight of capital from its busted banks. The contagion from the effects of the GFC plunged Iceland into economic and financial difficulties. Amid a striking lack of supervision, the three biggest banks, Glitnir, Kaupthing and Landsbanki, amassed assets up to 14 times larger than Iceland’s GDP [29].

In the years before the crisis investors had piled into Icelandic assets, and locals had taken out plenty of debt denominated in foreign currencies (because that foreign-denominated debt carried lower interest rates than those on offer in Icelandic currency, the krona) [30]. A pre-crisis economic shift occurred in Iceland, from fishing to finance. When the central bank raised interest rates to discourage this, the result was perverse: lots of foreign capital flowed in (at the lower rates), to invest in high-yielding Icelandic assets. Meanwhile, Icelandic firms were piling on cheap foreign debt, which amounted to 170% of GDP by 2009. Households merrily borrowed abroad too [29].

These debts were manageable so long as the krona was strong and inflation was low. However, in 2008, when short-term financing for banks started to dry up around the world and capital began rushing out of the country, the currency tanked and inflation soared. The krona lost over 50% of its value in a matter of months (and 70% on a trade-weighted basis in one year [30]). Iceland had little choice but to impose capital controls – restrictions on money leaving the country. The aim was not to prevent people from withdrawing money from banks, as in Cyprus (and Greece). Rather, the controls were supposed to prevent foreigners selling krona-denominated investments and to stop offshore krona—those owned by foreigners [including the creditors of the failed banks [31)]—from flowing in [31].

A collapse in the krona would have been fatal for Iceland’s economy, for two reasons. First, Iceland’s household would not have been able to repay their foreign-currency debt (since their earnings were krona). Second, a collapsed currency would have provoked high inflation because Iceland’s substantial flow of imports would have become extremely expensive [30].

Capital controls protected Iceland in a few ways. They slowed capital flight; investors that built up big positions in Icelandic assets were prevented from selling them, converting the proceeds to foreign currency and taking them out of the country. The controls also limited the extent to which investors holding krona-denominated assets abroad could get a hard-currency return. They prevented those assets from being brought back to

Iceland and sold for krona, which could be exchanged for other currencies. These limits kept the krona from depreciating as much as it would otherwise have done [30]. The new regime froze offshore holdings of foreign-owned krona-denominated assets worth about 40% of GDP [29].

Though Iceland’s GDP fell by 10% from 2009 to 2010, Icelandic firms struggled to attract foreign investors. The country’s Chamber of Commerce calculates that between 1993 and 2008, when capital flowed freely, export revenues generated by local firms with foreign operations grew at an annual rate of 8%. After the controls, they shrunk at an annual rate of 2%. The curbs on sending money abroad stoked a property bubble at home—by the beginning of 2014 nominal house prices increased at an annualised rate of 9% [29].

Nevertheless, the capital controls prevented a complete meltdown, and the economy recovered faster than many expected. Iceland returned to growth and had one of the lowest unemployment rates in Europe with the IMF hailing its “strong” average growth rate of 2.25% since 2012, faster than in crisis-hit euro-zone countries [31]. In 2015, the number of tourists doubled since 2007. Downtown Reykjavik was bursting with backpackers and Chinese tour groups. Cranes dotted the city as once-abandoned buildings were spruced up [29]. The IMF loan taken was repaid early in 2015. GDP rose by 7.2% from 2015 to 2016 [30]. However, capital controls and a continued household debt burden stopped many Icelanders from feeling that the crisis was over even by 2015 [29].

Iceland was hailed internationally for letting its banks fail and prosecuting and jailing some of their chief executives as part of its clean-up. But the continuing presence of capital controls was seen by many as undermining that success. “The pernicious effect of capital controls is that it almost signals you are a village idiot among countries,” said Jon Danielsson, director of the Systemic Risk Centre at the London School of Economics, pointing to the likes of Venezuela and Cyprus. He added: “A country needs to be able to have a currency without capital controls to be taken seriously, and it’s a precondition to get investments” [31].

Having nearly capsized in the stormy seas of international capital flows, in June 2015 the government announced the lifting of the controls. Investors with money tied up in Icelandic assets would be able to move it out of the country, and Icelanders would be free to buy foreign currencies. However, the lifting of capital controls came with one big caveat. The hitch was that those who were owed money by the estates of Iceland’s failed banks, worth about 500 billion kronur (\$3.8 billion), or 30% of GDP, had to agree to haircuts and maturity extensions on the debts involved before they could sell them and transfer the proceeds out of the country [29].

Creditors of the failed banks faced a choice under Iceland’s plans to deal with about IKr1,200bn (\$9bn) of problem assets. They could try to reach agreement by the end of the 2015 on “composition” — whereby the assets of the failed banks were liquidated without bankruptcy — in which case they would be subject to so-called stability conditions [31].

If they did not reach agreement, a one-off stability tax of 39% would be imposed on the failed banks’ assets. Both approaches would result in payments to Iceland of about IKr680bn after deductions, the government said. Iceland was to use the proceeds to pay down government debt rather than reduce household indebtedness as had once been mooted [31].

In 2017, hoping a further liberalization would cool the economy a little, another loosening of controls was announced. By stopping Iceland’s outward investment, the controls continued to inflate domestic asset prices (housing prices climbed by about 16% a year). Also, allowing outflows would reduce pressure on the krona, which rose by 16% against the euro in

2016. Iceland's problem was that its economic cycle was out of sync with other rich countries, said Fridrik Mar Baldursson of Reykjavik University. Before the crisis investors sought to profit from the gap between high Icelandic interest rates and lower rates elsewhere, by borrowing abroad to invest in Iceland. With the krona interest rate at 5%, the "carry trade" resurfaced. The central bank was hamstrung: if it lowered rates to deter foreign money, it risked stoking up the domestic economy further. So, controls on capital outflows were lifted in March 2017. Those on inflows were tightened to try and dim the attraction of investing in Iceland by making investors keep 40% of their money in non-interest-bearing accounts for at least a year [30].

#### Case of Cyprus

In 2013, Cyprus became yet another country to restrict the movement of money. The capital controls imposed by Cyprus were hard to square with the idea of a "single" currency. The greatest concern for policymakers in the European Union may be that capital controls are often accompanied by devaluations. In the Cypriot case, that would imply a departure from the euro zone. If Cyprus's controls had begun to look like a prelude to exit, depositors elsewhere on the periphery of the euro area might have become very nervous [20].

To plug holes in the island's massive banking sector, its government penalised uninsured bank deposits, and threw capital controls into the bargain to prevent nervous depositors from rushing for the exits. Cypriots could take no more than €300 (\$385) out of banks each day and no more than €1,000 with them off the island. Transactions larger than €25,000 required central-bank approval. Deposit flight was modest relative to expectations, and controls were promised to be temporary [20].

Scepticism remained about the wisdom of controls on capital outflows, like those in Cyprus. Some reckoned that such controls could aid crisis management, pointing to the experience of Malaysia in the late 1990s. At the time capital flight threatened to weaken Asian currencies and swell their foreign-currency debts. The IMF advised fiscal and monetary austerity to help convince foreign money to stay put, but Malaysia took a different course, imposing heavy restrictions on foreign-exchange transactions. Freed of the need to defend its currency from capital outflows, it was able to loosen monetary policy. Though economists still debate the effects of the strategy, Malaysia seemed to perform well compared with its neighbours. By 2002 it had eliminated its controls [20].

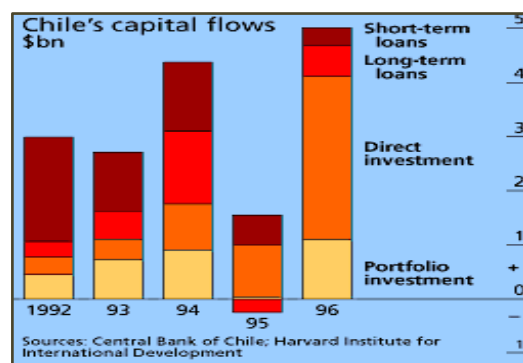
Others cited mixed results in Argentina. Dismal growth led to a loss of confidence in Argentina's dollar peg in 2001. That, in turn, led to capital flight as depositors rushed to convert their pesos into dollars. In late 2001, the Argentine government curtailed bank withdrawals and foreign-exchange transactions, a programme dubbed the *corralito* ("little fence"), before devaluing the peso substantially [20].

The *corralito* ended in 2002 and Argentina enjoyed several years of strong economic growth. Yet the government still interfered with international transactions whenever peso depreciation and inflation threaten economic trouble [20].

#### Case of Chile

Chile, which in 1982 had a financial crisis strikingly similar to that in East Asia, was the exemplar of the market-based approach to capital controls. Despite being a supporter of the free market, Chile actively sought to discourage short-term inflows of foreign capital.<sup>13</sup> Its reliance on short-term foreign money diminished since 1992 (see chart, Chile's capital flows). But when the evidence was examined in detail, Chile did little

to bolster the case that controls on capital inflows should be treated as temporary protections while banks are weak [27].



Chile imposed three types of controls. First, 30% of all non-equity capital (loans and bank deposits from abroad) entering Chile had to be deposited without interest at the central bank for one year. This amounted to a tax on capital inflows, and the effective tax rate became very high if the money remained in the country only briefly. Second, Chilean firms and banks could tap international capital markets only if two bond-rating agencies rated their paper as high as Chile's own government bonds. Third, any foreign money going into Chile had to stay in the country for at least one year, a requirement that discouraged many hedge funds and pension funds from investing in Chile at all. A firm borrowing from abroad, for example, had to deposit 30% of the loan for one year in a non-interest-paying account at the central bank [27].

Chileans worried about the turbulent impact of short-term capital flows even in their well-managed economy. Although Chile's banks are among Latin America's healthiest, policymakers showed no signs of reducing their controls [27].

Chile enjoyed steadier growth than most other EMEs, but whether that is a result of its capital controls is uncertain. Some studies conclude that the controls worked for a while to reduce the overall level of capital inflows and to encourage long-term over short-term investment. However, two Chilean economists, M. Soto and S. Valdes-Prieto, found that the impact of the controls may have been smaller than it seems. Chilean firms may have borrowed less from foreign banks, but other short-term flows increased, so total short-term capital inflows did not decrease [27].

Chile's experience suggests that even if desirable in theory, capital controls may be difficult to enforce in practice. It does not follow from this that governments are wholly at the mercy of sudden inflows and outflows of capital. The evidence, from Chile and elsewhere, is that the extent to which such capital movements are destabilising depends largely on the strength of a country's financial system and the soundness of its economic policies – things under the control of governments. Four lessons stand out [27].

- First, economists agree that countries should liberalise their domestic financial systems before opening up to foreign capital. East Asia failed to do this. Interest-rate ceilings, government-directed lending and insider relationships between banks and borrowers all served to channel credit without regard for rates of return. Foreign money pushed in the same directions, and led to excessive investment [27]
- Second, financial liberalisation requires strict bank regulation and supervision, to prevent a reversal in capital flows or a sharp rise in interest rates from breaking the banks. This includes placing ceilings on banks' foreign-currency exposure. Chile has been a leader in improving bank

<sup>13</sup> "The return of private capital to Chile in the 1990s: Causes, effects and policy reactions". By Raul Laban and Felipe Larrain. John F.

regulation. A rock-solid banking system is one reason why Hong Kong, with the most open financial markets in East Asia, weathered the storm better than its neighbours [27].

- The third prerequisite is exchange-rate flexibility. Free capital movement and pegged exchange rates are a dangerous mix (unless a currency is fixed under a currency-board as in Hong Kong, where all local currency must be fully backed by US dollars). Not only does a fixed rate prevent a central bank from using interest rates to prevent an economy from overheating (because higher interest rates would push up the value of the currency), but it also encourages too much foreign-currency borrowing when foreign interest rates are lower than local ones. Chile shows exchange-rate uncertainty helps to keep borrowers at home [27].
- Lastly, financial markets need reliable information to work efficiently. If lenders had had better information about the borrowing of South Korea's private sector or the reserves of Thai banks, they would have pulled back sooner, and the eventual problems would have been less severe [27].

Roberto Zahler, former governor of the central bank of Chile, argued persuasively that emerging economies must beware of massive short-term foreign capital inflows. He pointed out that real interest rates in poorer emerging economies are higher than in rich ones because the capital stock is lower, which means that investments earn a higher return. When foreign money pours into a country, its real interest rates, in theory, should fall to the level of rich countries' rates. But, he argued, the only way this can occur in the short run is if there is a massive rise in the country's asset prices. Thus, free capital flows are likely to lead to stockmarket and property bubbles [27].

Such bubbles inevitably encourage a consumption boom, Mr Zahler contends, leading to a larger current-account deficit, increasing the odds of a currency crash even if the financial sector is strong. Paradoxically, an emerging economy which investors regard as stable will have this problem even more strongly than one which investors deem risky. The logical conclusion is that small developing countries, whatever the state of their banking systems, should maintain some controls on short-term capital until the expansion of their capital stock brings their real interest rates close to those of rich countries. The controls can be eased gradually [27].

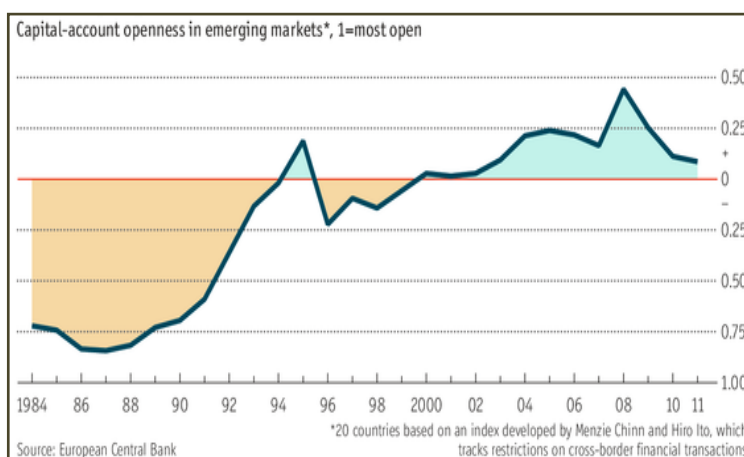
Mr Zahler's argument for capital controls have merit, but they are no panacea, and it is easy for government to overuse them. For a start, investors will eventually find ways around controls. More important, few emerging economies are as well managed and boast such sound financial systems as Chile. It does not argue against financial liberalisation, but it is risky. However, in weaker economies, capital controls could easily be misused to delay much needed reforms [27]. Economies with dodgy financial systems should open up to foreign capital more cautiously. It is more important to strengthen the domestic financial system to benefit from a free flow of capital without falling victim to the costs.

The IMF summarized the use of capital controls by surveying the evidence. The IMF reckons outflow controls work best as a means to buy time for broad reforms aimed at improving the investment climate. They are not an enduring solution on their own. Depositors find ways to circumvent the restrictions through financial ingenuity and corruption. Trade restrictions may be needed to guarantee their integrity, lest corralled money buy goods to be shipped abroad and resold for foreign exchange [20].

Other countries re-imposed controls to deal with the aftermath of the GFC. India reimposed controls to slow an exodus of

capital. Between 2009 and 2011 Brazil, South Korea, Thailand, Indonesia, among others, introduced controls to discourage inflows of hot money that they feared would drive their currencies to uncompetitive levels. But the post-crisis controls were explicitly temporary. The sort now in favour are lighter-touch, market-based ones such as taxes on certain types of flows, changes to withholding taxes and differential reserve and liquidity requirements for foreign funds [21].

These moves reversed a decades-long trend towards greater openness to foreign capital (see chart, capital-account openness) and made the intellectual climate more hostile to it. However, they more amount to a selective embrace of globalisation, rather than a rejection [21].



No country exemplifies this better than Brazil. In 2008, as the first waves of the crisis washed over it, the Brazilian central bank lowered bank reserve requirements to ease credit and offered foreign-exchange swaps to Brazilian companies trying to roll over foreign-currency debt. In late 2009, as Brazil raced out of recession and money began to pour in, the authorities switched direction, initially imposing a financial-transactions tax of 2% on foreign purchases of stocks and bonds. In 2010 the tax was broadened and raised to 6% [21].

Brazil's central bank made it clear that foreign investment was welcome. The goal, says Mr Pereira, the deputy governor, was to smooth exchange-rate fluctuations and make his country's banks less vulnerable to a sudden outflow of capital. The measures were not intended as a substitute for monetary and fiscal policy [21].

The Brazilian government put it rather differently. Guido Mantega, the finance minister, spoke of the need to act on the exchange rate and help Brazilian industry survive what he called "currency wars" triggered by easy US monetary policy. Brazilian industry had pushed for the controls, complaining about the high exchange rate [21].

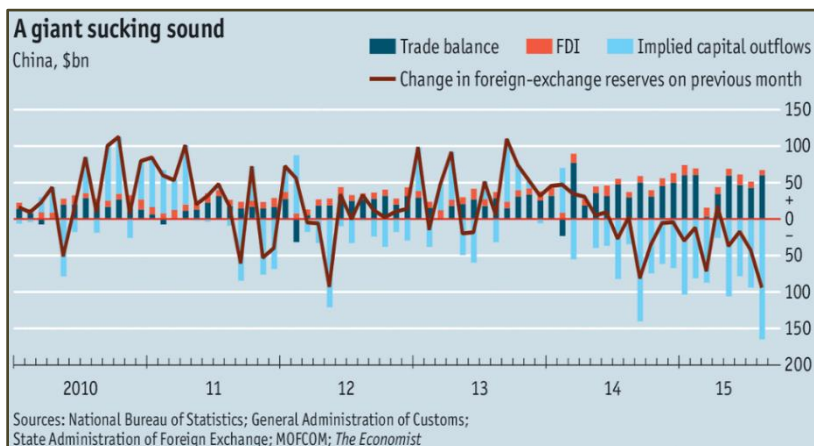
In 2013, capital abruptly started to pour out of Brazil. As Brazil's currency, the real, plummeted, the country suspended its financial-transactions tax, then intervened in foreign-exchange markets and again offered swaps to Brazilian companies in need of dollars. Officials argue that the reversal would have been far worse had capital controls not tempered the inflows in the first place. "We knew this was going to come, and we prepared ourselves," says Mr Pereira [21].

### China's capital controls

Macau, a former Portuguese colony, is administered separately from the rest of China. Yuan held within China can be transferred to Macau with a Chinese bank card and exchanged into another currency. This is normally a transaction officially limited by China's capital controls [32].

In 2015, there were more transactions than normal. Capital outflows were on the rise because of worries about China's

**economy.** During the summer of 2015, China's stockmarket crashed, resulting in big losses, and the government let the yuan weaken. Outflows soared. Official data put the outflow leaving China at more than \$150 bn of capital in August 2015—a record (see chart, giant sucking sound) [32].



In response, the government cracked down on underground banks, running money across borders and matching onshore and offshore transactions. Police raided Macau's pawnshops and made arrests for money laundering. Casinos and jewelry stores in Macau are one conduit for taking cash out of China. That slowed things down, but some money traders, to avoid attracting attention, still operated by breaking big yuan transfers and converting them up into smaller stacks of Hong Kong dollars for a fee of only 3% [32].

There are other methods especially for bigger transactions, e.g., overpaying for imports, buying fake consultancy services and forging deals with foreign subsidiaries. Cross-border currency trades are also available on online marketplaces [32]. There was also the impression that there was an endless flow of Chinese money going into luxury goods, penthouses and other trophies in London, New York, and Paris [33].

The big question is how dangerous these outflows are for the economy. As cash streamed out via the capital account, China received vast inflows through its CA. Through the 3<sup>rd</sup> quarter of 2015, China registered a massive \$365 bn trade surplus [32].

Falling Chinese foreign-exchange reserves (for four straight quarters during 2014-15) was evidence that even more money left through other channels [32]. Reserves hit an all-time high of \$3.99tn at the end of June 2014 before falling. "Capital outflows (totaling a net \$200bn through the 2<sup>nd</sup> quarter of 2015) became sizeable and eclipsed anything seen in the recent past," wrote Robin Brooks at Goldman Sachs [34].

Straight arithmetic implied several billion dollars in outflows. However, this was a gross simplification because the strong dollar exaggerated the fall in reserves by devaluing assets in other currencies held by the central bank [32]. While analysts broadly agreed that China experienced capital outflows on an unprecedented scale, they disagreed about the size, causes, and the risk to the economy [34].

The outflows rattled authorities as evidenced by the vigorous intervention to defend the yuan. One perspective was that China's economic slowdown was worsening and risks from spiralling debt and wasteful investment were propelling the country toward a financial crisis. The trend in outflows point to capital flight, i.e., capital outflows were a sign of waning confidence in China. Outflows would drain liquidity from the domestic economy, making it harder for companies and local governments to raise funds [34].

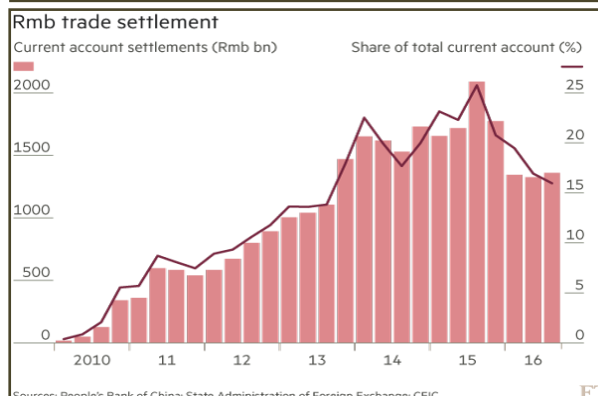
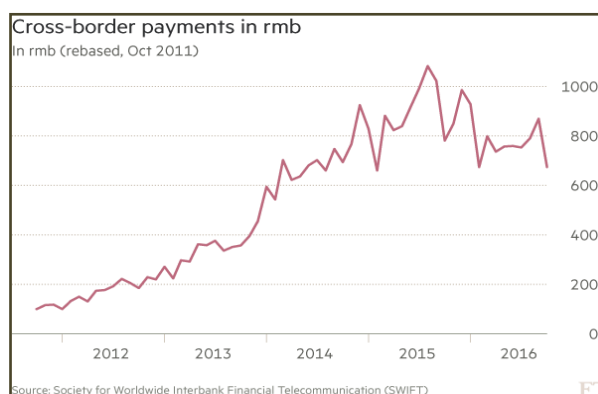
With the Chinese stock market suffering big losses, capital outflows did take on greater importance. Higher US rates would

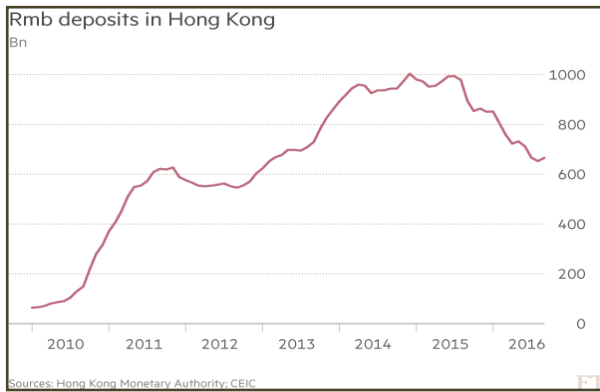
likely draw capital out of China and other emerging markets, which could place even greater downward pressure on Chinese share prices [34]. Some wondered how long China could sustain this intervention. The real threat would come if millions of households lost faith and decided to take their cash out of the country. In that respect, Macau's pawnshops were a worry, and even if underground banks were readily available, relatively few took the risk of using them. As long as that inhibition held, China would be able to weather the capital flight [32].

Another perspective was that moderate capital outflows were a sign that China was liberalising capital controls and abandoning its obsession with accumulating foreign reserves. The domestic liquidity concerns were unwarranted because the People's Bank of China had new mechanisms to expand the money supply to replace the liquidity once created by foreign capital inflows [34].

In October 2015, China's central bank issued one-year bills in London's offshore renminbi debt market, a move viewed as cementing London's status as the centre of renminbi business outside greater China. That same month the IMF decided to add the renminbi to its reserve-currency club, the Special Drawing Right basket, describing it as a "milestone in the integration of the Chinese economy into the global financial system" [35].

However, by the end of 2016, its global push slowed or reversed, as measured across a range of indicators (see charts, cross-border payment, trade settlements, and RMB deposits). The share of China's foreign trade settled in its own currency shrunk from 26% to 16% from 2015 to 2016. Renminbi deposits in Hong Kong — the currency's largest offshore centre — were down 30% from a 2014 peak of Rmb1tn. In May 2015 foreign ownership of Chinese domestic financial assets stood at just Rmb3.3tn after it had peaked. In terms of turnover on global foreign exchange markets, the renminbi was only the world's eighth most-traded currency — squeezed between the Swiss franc and Swedish krona — barely changed from ninth position in 2013. What appeared to be structural drivers supporting





greater international use of the Chinese currency appeared more like opportunism and speculation [35].

Between the renminbi's de-pegging from the US dollar in July 2005 and its all-time high of 6.04 versus the dollar in January 2014, the renminbi gained 37% as it followed a nearly uninterrupted path of appreciation. An expectation that this would continue drew hundreds of billions of dollars in foreign capital into China, often exploiting loopholes in regulations designed to discourage speculative inflows, as investors hoped to profit from risk-free currency gains [35].

The tide turned. The renminbi hit an eight-year low versus the dollar late November 2016 and was on track for its worst one-year fall on record (see chart, rmb per US\$). Investors offloaded renminbi assets and exploited those same loopholes to move funds in the opposite direction [35].



Timeline of RMB-USD movements:

- (1) July 2005 – 8.2765 – China ends strict Rmb peg to US\$
- (2) July 2008 – 6.8211 – China re-institutes US\$ peg in response to financial crisis
- (3) June 2010 – 6.8262 – Rmb resumes 'dirty float' as crisis recedes
- (4) August 2015 – 6.3231 – Rmb weakens sharply after central bank reforms daily guidance mechanism
- (5) December 2016 – 6.8998 – Rmb on course for its worst one-year fall on record [35].

"After years of living in a prosperous economy and behind a relatively closed capital account, domestic households and corporates have a strong desire to diversify assets offshore," said Wang Tao, chief China economist at UBS. For China, that added to the capital outflow pressure stemming from concerns over its slowing economy and spiralling debt. Interest rate cuts by the People's Bank of China in 2015 further reduced the appeal of renminbi assets for yield-hungry investors. Against this backdrop, China moved to tighten approvals for foreign acquisitions by Chinese companies, as well as other transactions that require selling renminbi for foreign currency, casting further doubt on China's commitment to currency internationalisation. "There is a fundamental conflict between preserving stability and allowing the freedom and flexibility required of a global currency," says Brad Setser, senior fellow at the Council on Foreign Relations and a former US Treasury

official. "Now that the cost is becoming clear, Chinese policymakers may be realising they are not willing to do what it takes to maintain a global currency. "Capital controls certainly set back the cause of renminbi internationalisation but they may well be the appropriate step for both China and the world, given the outflow pressure China faces" [35].

For China's reform-minded central bank, however, the goal of renminbi internationalization — and the prestige value of SDR membership — served as justification for China's moves toward capital account liberalization, the process of opening its domestic financial markets to foreign investment. It was also a means of persuading Communist party leaders in Beijing and financial elites to accept reforms that were, in reality, more important for China's domestic financial system than for the renminbi's international status [35].

Since 2010, when the internationalisation drive began, many of those reforms were adopted: deregulation of bank deposit and lending rates, a deposit insurance system and a more flexible exchange rate. If foreign investors are to hold large quantities of China's currency, they must have access to a deep and diverse pool of renminbi assets — and the peace of mind of knowing that they are free to sell those assets and convert proceeds back into their home currency as needed. Most notable among those measures was the decision to eliminate quotas for foreign institutions to invest in China's \$8tn interbank bond market. "Stock connect" programmes through Hong Kong allow global investors to buy Chinese domestic shares in both Shanghai and Shenzhen. Until early December 2016, regulators had steadily loosened approval requirements for foreign direct investment, in to and out of the country [35].

However, those reforms occurred at a time when capital inflows and outflows were roughly balanced, which meant that liberalisation did not create strong pressure on the exchange rate. At the end of 2016, the situation was very different. "I think [the government's] assumption has been that they could open up the capital account to foreigners and suddenly money would flow in," says Imrad Ahmad, investment director for emerging market fixed income at Standard Life Investments in London. "That certainly hasn't been the case. Why would institutional investors want to hold renminbi assets when there is this embedded exchange-rate depreciation trend, on top of concerns about growth and financial stability?" [35]

Beijing faced a stark choice: either row back on freeing up capital flows, as it did in 2016, or relinquish exchange-rate controls rate and accept a hefty devaluation. "Managing the renminbi's exchange rate while also allowing for freer cross-border flow of capital hit its limits," said Eswar Prasad, economics professor at Cornell University and former IMF director for China. Many economists believe that a floating exchange rate is the optimal response, but the PBoC remained active in the foreign exchange market as buyer and seller. During 2014-16, this meant selling dollars from foreign exchange reserves to counteract pressure for RMB depreciation [35].

The result was a hybrid policy referred to as a "dirty float": the exchange rate is responsive to market forces but PBoC intervention limits the extent of its movements. This strategy was expensive, contributing to a decline in reserves from \$4tn in June 2014 to \$3.1tn at the end of November 2016. Defenders of the PBoC believed such aggressive action to curb depreciation was worth the price because it prevented panic selling by global investors. Critics countered that costly forex intervention merely delayed an inevitable exchange-rate adjustment. For years, the IMF, US Treasury and other outside experts urged China to embrace a floating exchange rate. In theory, such a step should eliminate the need to tighten capital controls or to spend precious foreign reserves on propping up the exchange rate. Instead, the currency would weaken until inflows and outflows balance [35].

As early as 2012, the PBoC governor Zhou Xiaochuan clarified that loosening cross-border capital flows and foreign-exchange conversion did not mean abandoning all control. “We will reserve the right to monitor and restrict capital flows in some sensitive areas,” said Mr Zhou, who repeated that position in the years since [35].

Economists argue that the fate of renminbi internationalisation ultimately depends on far-reaching economic reforms rather than short-term responses to rising capital outflows. These include measures to tackle rising debt, restructure state-owned “zombie enterprises” that drain resources from more productive parts of the economy and recapitalise a banking sector where non-performing loans were believed to be a larger problem than official data indicated. Mr Prasad warned that the practical effect of tighter capital controls could be less significant than the message that the tightening sent. Instead, he said the authorities needed to focus on reforms to restore the confidence of both domestic and foreign investors [35].

“When you reimpose capital controls after having rolled them back, it can sometimes have a perverse effect,” says Mr Prasad, author of *Gaining Currency: The Rise of the Renminbi*. “It creates concern about how the authorities perceive the state of the economy and the risks inherent in it. “What they need to do is much harder — actually to get started on the broader reform agenda and show that they are serious about it” [35].

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