



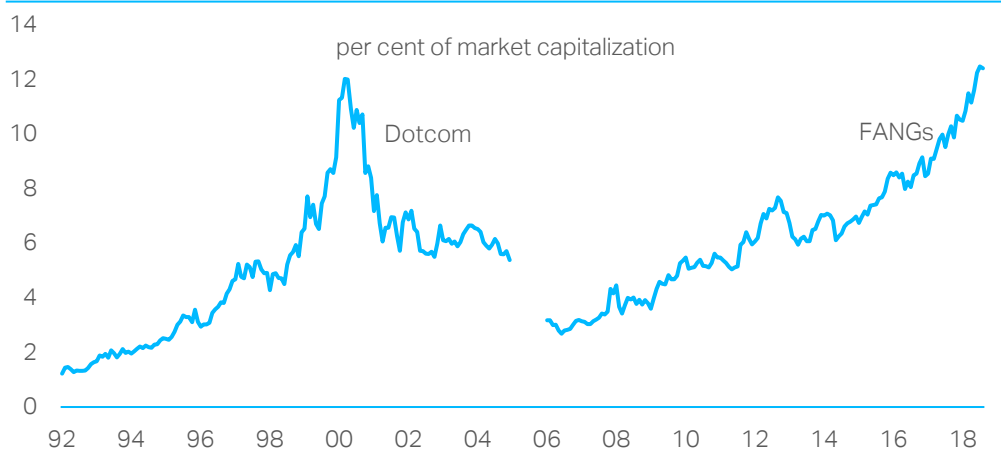
Macro Picture

NINETIES TUNES

Dario Perkins

Fed tightening, EM crises, tech "bubbles", a long expansion, potential yield curve inversion – there are striking similarities between the current macro environment and the late 1990s. But the nineties also produced a productivity boom. Toxic politics and poor technological diffusion could prevent a similar revival today.

Chart 1: Tech dominance of the US stock market



Source: Datastream, TS Lombard estimates

NO DIGGITY

Fed tightening from the mid-1990s triggered several waves of EM crisis. The situation looked particularly bad in 1998, when there was widespread fear of a global recession. Business sentiment plunged, corporate spreads widened and the yield curve inverted. But strong productivity and a booming tech sector kept the major economies growing.

BITTER SWEET SYMPHONY

Despite another tech boom, productivity in the current cycle has been dismal. We suspect this is partly a measurement issue and the statisticians will revise the data higher – another similarity to the 1990s. But technological diffusion has slowed and most companies have expanded via cheap labour rather than investing in new technologies.

KILLING ME SOFTLY

The political environment is also more toxic than in the 1990s. Trade wars are undermining investment and creating a more challenging environment for EMs. Most EMs are better placed than they were two decades ago, but Fed tightening is again causing severe strains. And this time there is no Committee to Save the World.

NINETIES TUNES

As the closest thing the world has to a global central bank, Federal Reserve tightening often has serious repercussions for the rest of the world, particularly EMs that borrowed in dollars while US interest rates were low. When Alan Greenspan raised interest rates through the mid-1990s, his actions triggered a series of financial problems in other countries. His first wave of tightening (1994-95) destabilized Mexico, the second (1997-98) caused financial calamity across East Asia. The situation looked particularly dire in the summer of 1998, when Russian default demolished the hedge fund LTCM, threatening to unleash a serious global crunch. Credit spreads widened, business sentiment plunged, the yield curve inverted and there were widespread fears of a global recession. US policymakers acted swiftly, arranging bailouts and creating the so-called Committee to Save the World. The Federal Reserve cut interest rates three times and other major central banks also eased policy. With a booming tech sector and a powerful revival in productivity, the long economic expansion continued for another couple of years.

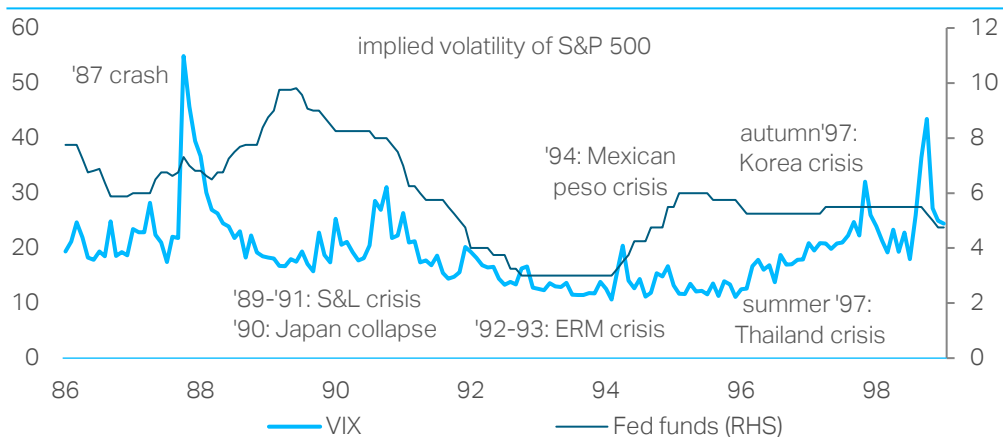
Though the recent bearishness in markets is yet to reach 1998 'crisis' levels, there are a number of similarities between the two episodes of financial turbulence. Once again, Fed tightening and a strong dollar have caused serious EM problems, with some countries – notably Turkey and Argentina – hit particularly hard. After an unusually long economic expansion, the US yield curve is flat by historical standards and it wouldn't take much of a shock to invert it, a reminder of the 'fake' inversion in 1998. Back then, a booming tech sector supported the stock market and kept the US economy growing. Could the same happen today? One crucial difference is US productivity, which has been surprisingly lackluster through the current business cycle. But it is important to remember that the 1990s productivity surge didn't initially show up in official data either, much to the bewilderment of Dotcom enthusiasts. While we see similar mismeasurement problems today, technological diffusion has slowed with the 'superstars' capturing the main gains.

Most Emerging economies are arguably in a better financial position than they were in the 1990s, thanks to flexible exchange rates, longer-term borrowing and larger FX reserves. Yet some countries have still managed to build up sizable dollar debt positions, leaving them vulnerable to further dollar appreciation. These countries are likely to experience further periods of turbulence, perhaps severe. And we don't know if there is another LTCM out there, with hidden leverage and large EM exposure. The global political climate also looks less benign than in the nineties. Rather than a Committee to Save the World, the United States has created a committee to Make America Great Again. Uncertainty over US protectionism has already damaged global capex orders, undermining what looked (in 2017) like a promising revival in investment. If tensions escalate to the point of a full-scale trade war, it would be increasingly difficult to imagine a 90s-style productivity revival. Deglobalization would upset international supply chains, undermine efficiency and damage the existing capital stock – hardly conducive to another late cycle boom.

1. NO DIGGITY

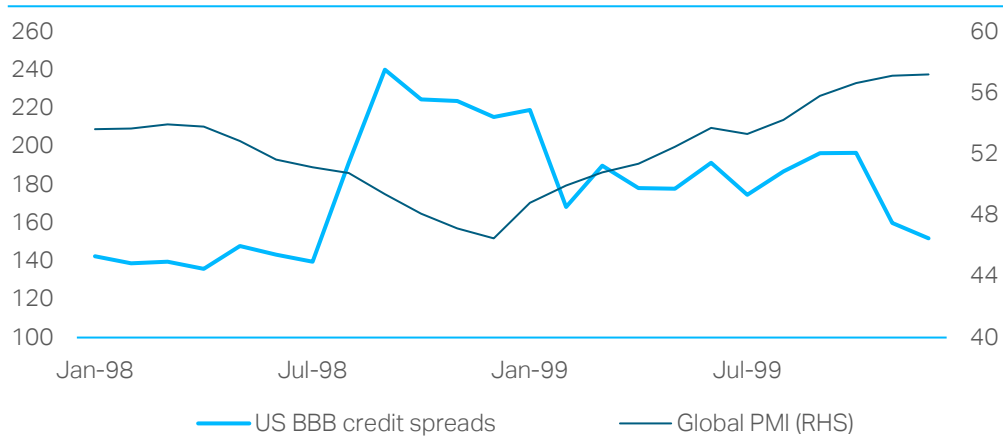
A Fed tightening cycle, a booming tech sector, exuberant stock markets, a flat yield curve, widespread EM problems, Presidential impeachment (??) – the current macrofinancial environment looks eerily similar to the late 1990s. When you look at macro data from the nineties you see what looks like a relatively tranquil period of steady economic growth and low inflation. In fact, the 1990s is still the longest US economic expansion in history. But the situation didn't always seem idyllic in real time, with the authorities having to negotiate their way through several periods of serious market turbulence. The Federal Reserve, of course, was usually at the centre of events. Two waves of policy tightening, first in 1994-95, and the again in 1997-98, threatened to destabilize global markets, hitting the emerging economies particularly hard. History doesn't repeat but it often rhymes.

Chart 2: 1990s Fed tightening



Source: Bloomberg, TS Lombard

Chart 3: 1998 global growth score



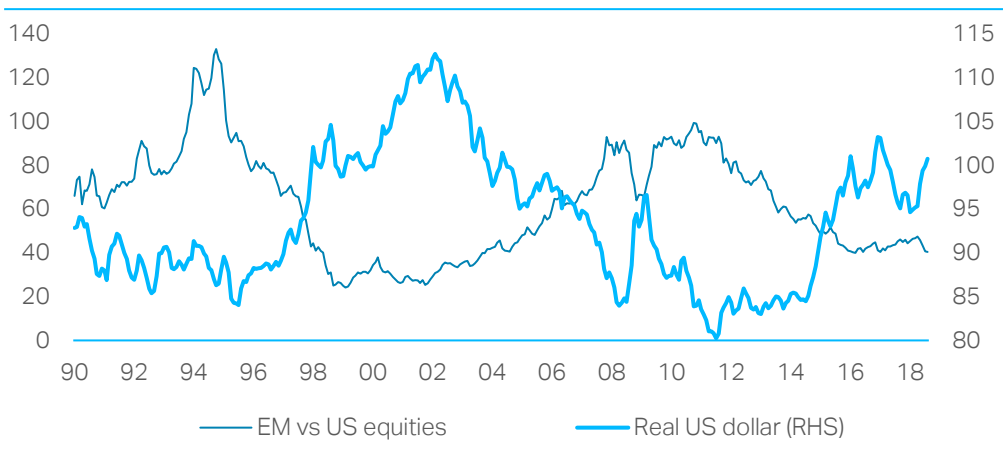
Source: Bloomberg, Markit, TS Lombard

Mo Money Mo Problems

Fed policy had been unusually simulative in the early 1990s, as officials tried to contain the fallout from a banking crisis (sound familiar?). Between 1990 and 1992, the Fed cut interest rates from over 8% to 3% - their lowest levels since the early 1960s. It then held policy steady for almost two years, again highly unusual by historical standards. With US

rates at 3% and Japanese rates even lower, the EMs attracted huge volumes of international capital. Rather than allow their currencies to appreciate, many emerging economies pegged their exchange rates to the dollar, importing loose US monetary policy. Asset prices and credit growth boomed. The first wave of Fed tightening, which started with a series of unexpected rate hikes in 1994, causing a surge in US bond yields and significant volatility in global markets. Mexico was the major EM casualty, falling into crisis when its government couldn't repay a large volume of short-term loans.

Chart 4: USD and EM equities



Source: Datastream, TS Lombard

Firestarter

The Mexico crisis was relatively easy to contain and had few obvious spillovers. US Treasury Secretary Bob Rubin hastily arranged a \$50 billion bailout of new loans and guarantees. But the next round of EM volatility – which started in Thailand in the summer of 1997 – looked more ominous. As in 1994, this coincided with a new round of Fed tightening, this time by only 25bps but Alan Greenspan had warned about ‘irrational exuberance’ in stock markets and looked set to tighten forcefully. By the autumn of 1997, contagion had spread to other Asian economies, notably Korea – then the eleventh largest in the world. Worried about the systemic consequences of Korean collapse – European and Japanese banks were heavily on the hook – Rubin and his [‘committee to save the world’](#) promptly arranged another bailout, this time coordinating voluntary loan extensions from American banks.

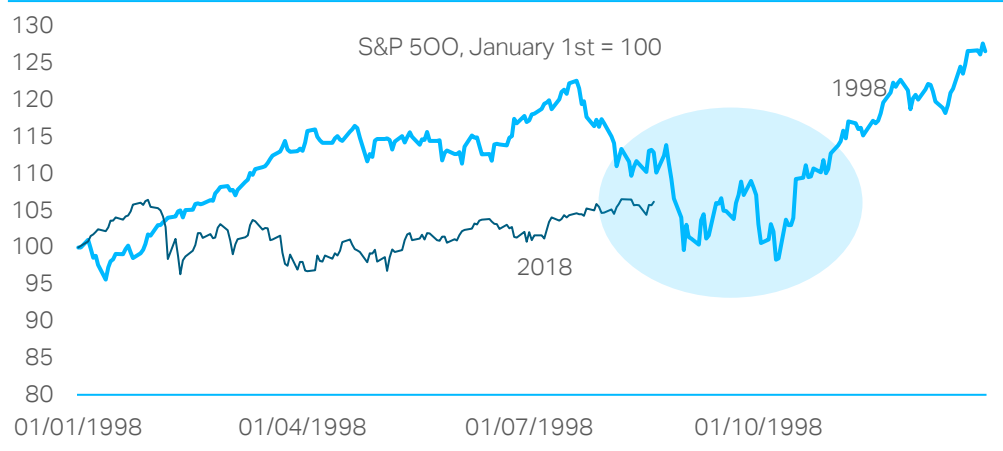
Chart 5: 1998 fake inversion



Source: Bloomberg, TS Lombard, dashed lines mark recessions

The Korea bailout helped to ease tensions and by the summer of 1998 there was little obvious impact in the US or Europe. Then, on 17 August – the day president Clinton testified to the grand jury admitting his ‘relations’ with intern Monica Lewinsky (a good day to publish bad news) – Russia defaulted. Compared with the crisis in Asia, Russian default triggered a more notable tightening in US lending conditions, widening corporate spreads. Fed transcripts reveal a near ‘freezing up’ in bond markets, though this received little press coverage due to the escalating Clinton scandal. Equity markets responded, with the Dow Jones dropping 6% in one day, wiping out the entire year’s gain. The US hedge fund LTCM was the most prominent US casualty of the crisis, requesting Federal Reserve assistance in order to avoid a cascade of defaults. US officials met once again to agree a bailout, this time a ‘voluntary’ capital injection from America’s 16 largest banks.

Chart 6: The 1998 crisis



Source: Datastream

There was a notable tightening in global credit conditions during the LTCM crisis. Business confidence plunged and global industrial activity slowed. With widespread speculation about a serious world economic downturn, the US yield curve also inverted – [one of the few times the US bond market has sent a false recessionary signal](#). Alan Greenspan responded by cutting interest rates by 25bps in September and then again in October and November. Other central banks quickly followed. Monetary easing had the desired effect, with global stock markets rallying strongly. After declining by almost 20% between August and September 1998, the Dow Jones returned to its pre-LTCM levels by early December. It then rallied strongly for the next two years as the dot.com mania took hold. The US economy also boomed in late 1998, with annual growth hitting 5%.

Baby one more time

While most commentators blame Fed policy tightening for the latest bout of EM turmoil, the situation is not yet as bad as it seemed in 1998. So far, the crisis has mainly hit only the most vulnerable countries. But suppose the problem spreads. There is already evidence that the global economy is slowing (weakness in China isn’t helping) and with only 25bps between two-year and ten-year US yields, it might not take much of a shock to sentiment to invert the US yield curve again – a move most investors would take as a clear recession signal. Tim Duy thinks the crucial thing about the 1998 ‘fake’ inversion was that it altered the stance of US monetary policy. Greenspan abandoned his plans to tighten policy further and instead cut interest rates. In doing so, he breathed new life into the US stock market, including the tech bubble. Would today’s Federal Reserve behave in a similar way? Arguably the Greenspan Fed had one important advantage over today’s FOMC – the economy was enjoying a powerful productivity revival in the late 90s.

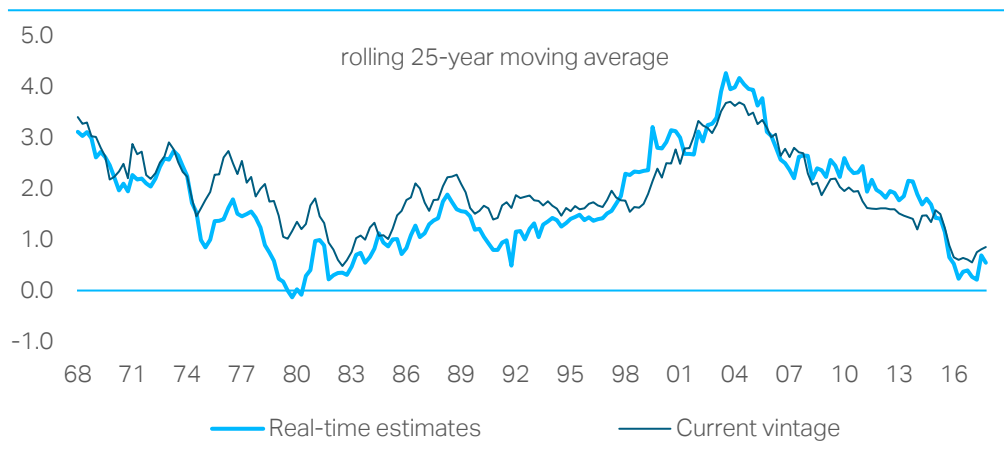
2. BITTER SWEET SYMPHONY

The 1990s productivity surge was important not only because it kept inflation in check, giving the Federal Reserve more flexibility to respond to global risks, but also because it strengthened investor confidence in the New Economy – adding more fuel to the dotcom mania. But it is important to remember that rising productivity didn't show up immediately in macroeconomic data. In fact, by the mid-1990s, economists were puzzled about why productivity hadn't improved more markedly given the widespread use of computers and heavy investment in new technologies. Alan Greenspan was among the first to question the reliability of the data, arguing that official statistics were not measuring real output correctly. Other officials, including Larry Summers, thought Greenspan was mad. But comparing current vintages of US data to the information available at the time, we can see the former Fed chair was right – the statisticians had missed a powerful new trend.

U can't touch this

This is another 90s theme that resonates today. Despite a booming tech sector and rapid advancement in the digital economy, most countries have recorded dismal productivity growth over the past decade. Mismeasurement could again be part of the problem. In fact, the national accounts always seems to under-report output per hour in early vintages of the data, with statisticians upgrading their estimates substantially over time. A recent paper by [Bognanni and Zito](#) illustrates the point, showing there have been several occasions in the past – including the 1990s – when long-term productivity trends looked as dire as they do today. The data were always revised higher. To quote from their paper: 'the real time inference from productivity was never more wrong than it was the last time average productivity looked like the [data we see today]. Other research by [Jacobs and Norden](#) reached the same conclusion, showing that upgrades to productivity are typically large and can occur at any point after publication, sometimes many years later. They also show how this has occasionally distorted FOMC forecasts, leading to unnecessary errors.

Chart 7: Productivity usually revised higher



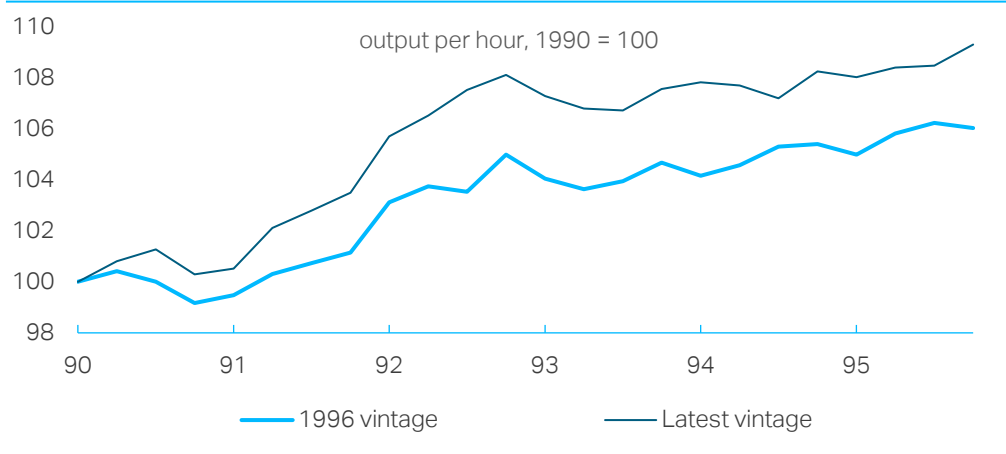
Source: FRED historical database

Virtual Insanity

This downward bias in productivity data is unrelated to new technologies, which have probably compounded this problem in recent years. We examined in previous macro pictures why the statisticians are struggling to incorporate the new digital economy. Economists have uncovered a long list of potential measurement problems, including (i) new forms of intermediation services (Airbnb, eBay etc.); (ii) the blurring of the boundary

between consumers and producers (e.g. hotel and flight booking etc.), (iii) free and subsidized consumer products (Wikipedia, YouTube etc.); (iv) Large time savings (e.g. Google search and maps); (v) complementary investments in intangible capital, which are not recorded in GDP; (vi) cross-border flows of intellectual capital; and (vii) distortions to prices and volumes, including unrecorded quality improvements.

Chart 8: Greenspan was right



Source: BEA, TS Lombard

The authorities remain skeptical about the significance of these statistical errors and continue to argue that mismeasurement cannot explain the global productivity slowdown. Since we last examined this issue, both [the OECD](#) and [the IMF](#) have published detailed reports defending existing measurement techniques. The OECD even tried to put some numbers on these digital innovations, suggesting any distortions were trivial. They argue, for example that better measures of IT prices would only add around 0.2% to annual GDP growth, while they value Uber at just 0.04% of GDP and Wikipedia at 0.1% of GDP. Former Commerce Department economist Brent Moulton also weighed in on the debate, with a 90-page document arguing that these statistical errors are no larger now than they were in the past. He updated the influential [Boskin Commission Report](#) from 1996, finding that any bias in the CPI since then has probably become smaller, rather than larger.

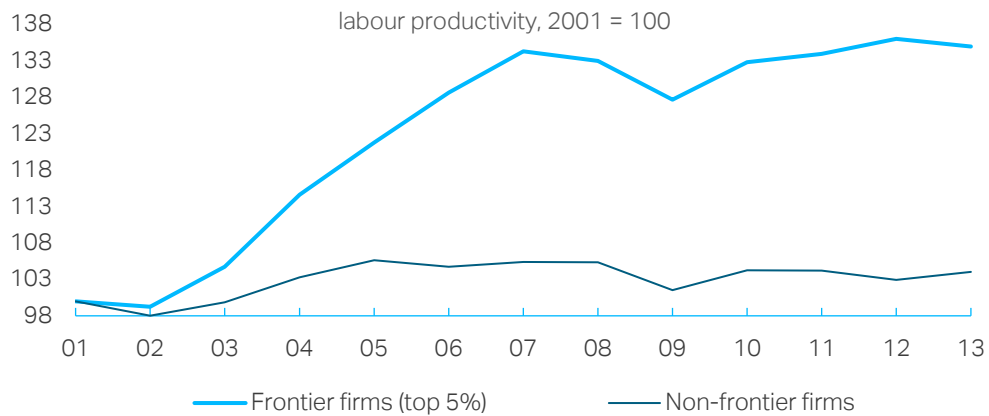
We continue to think there is more to this story than most commentators realize and though GDP might not be the best measure to capture these effects, this should at least push economists towards alternative measures of consumer welfare. Recent BEA revisions, which improved ICT capital deflators and incorporated new cloud technologies, amount to relatively minor adjustments given the scale of the potential problem.

Ghetto superstar

The more profound criticism of the current tech boom is that it has not yet influenced the way most companies conduct their business. Unlike the widespread adoption of PCs and office equipment in the 1990s, most of the benefits have been secured by a relatively small number of companies – including the FANGS. This explains another increasingly important shift in the US economy; rising market concentration and a marked divergence in both productivity and profits between the ‘superstars’ and a fat tail of inefficient laggards. In a [previous macro picture](#), we showed how this shift might also have contributed to the puzzle of widespread labour shortages and subdued wages. While the superstars invest heavily in new technologies and become super-profitable (keeping

prices down), the non-superstars have instead relied on cheap labour as a way to expand their businesses. Faced with acute labour shortages, SMEs are now struggling to grow.

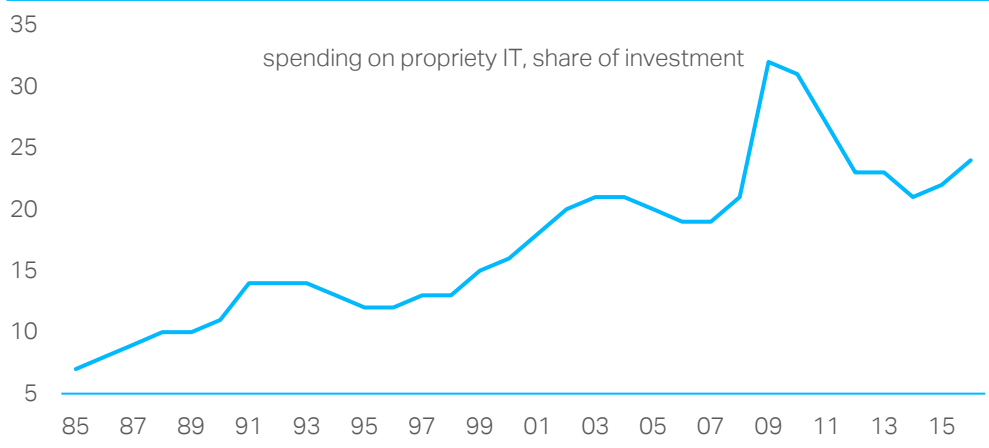
Chart 9: Superstar productivity divergence



Source: OECD estimates

What explains this lack of diffusion? The tech optimists, including Erik Brynjolfsson, blame a simple time lag. They argue that the most impressive capabilities of new technologies such as [Artificial Intelligence](#) will eventually be used more widely but they require complementary investments in human capital and involve significant adjustment costs, including organizational changes. Perhaps as labour becomes scarce and wages recover, more firms will look to make these investments. The Bank of England's Chief Economist [Andrew Haldane also gave an interesting speech](#) on this subject, showing that while there are still institutional and skill barriers that mean most UK companies are falling behind the superstars, average adoption lags for new technologies had trended lower over time.

Chart 10: Propriety investment



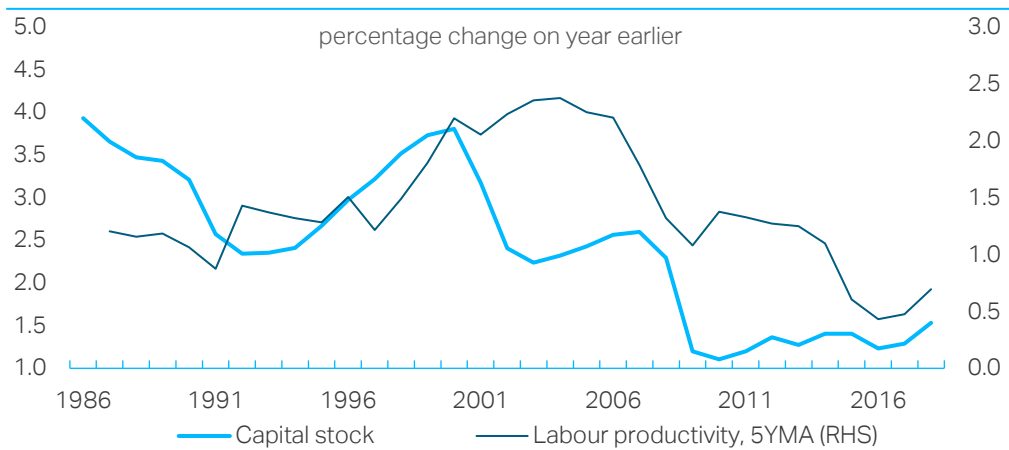
Source: James Bessen

Nothing compares 2 U

[James Bessen at Boston University](#) provides a potentially more pessimistic explanation for the superstar divergence. He argues that the gap reflects a shift in the way these companies invest in technology. During 1990s Dotcom boom, most companies would buy off-the-shelf hardware and software, technologies that were available to everyone. Today the superstars are more likely to invest in their own propriety IT systems. IT spending that goes into hiring developers and creating software owned and used

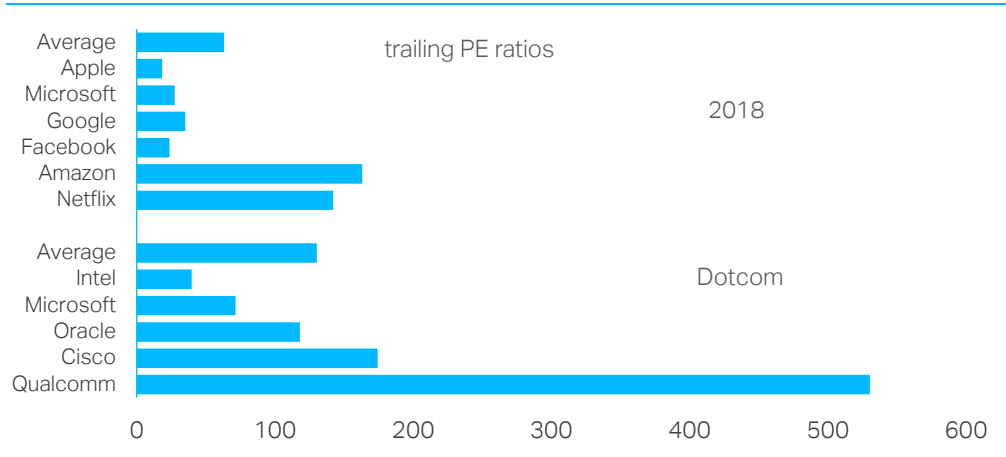
exclusively by a firm is now the key to competitive advantage. Today's big winners built their own software and even their own hardware, inventing and perfecting their own processes. Bessen shows that propriety IT investment can explain both the rise in market concentration and the gap in productivity between firms. The basic problem is complexity and since it has become impossible to obtain critical technologies, M&A is often the only solution. If true, this could damp the potential spillovers from these investments to the wider economy, limiting their application as General Purpose Technologies.

Chart 11: US investment slump



Source: OECD, TS Lombard

Chart 12: Tech valuations 2000 vs 2018

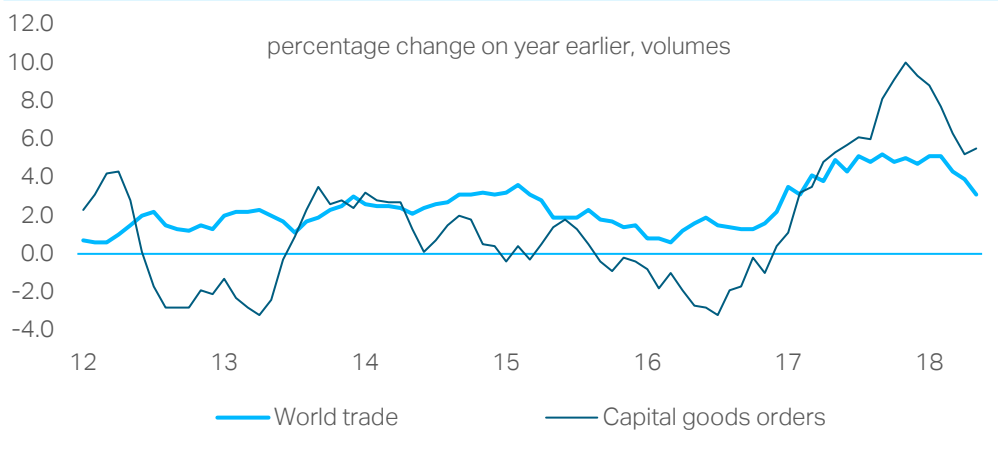


Source: Datastream, TS Lombard

3. KILLING ME SOFTLY

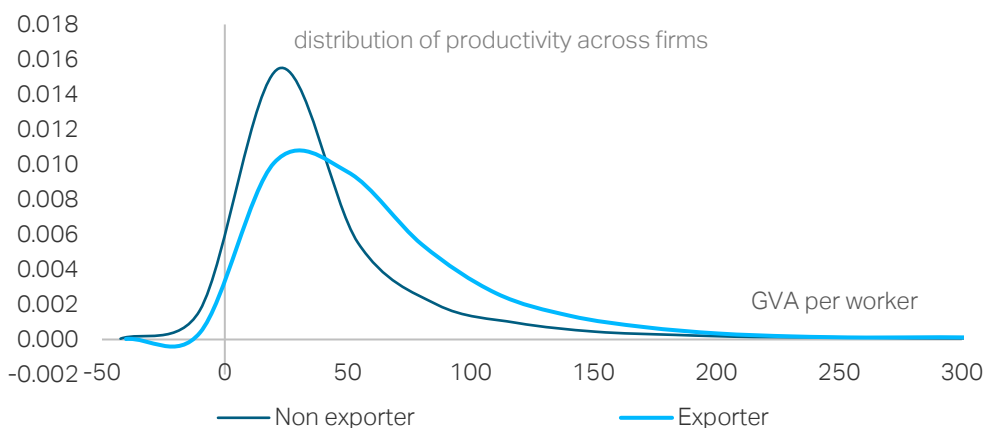
It seems unlikely we will see a 1990s-style productivity revival without wider technological diffusion and stronger investment, particularly among SMEs. So the escalating threat of global trade wars is deeply unhelpful. Global investment rates actually picked up 2017 but trade-related uncertainty seems to have curbed capital spending in 2018. If businesses are nervous about future export demand, they have a strong incentive to postpone capex and wait for the situation to become clearer. And, of course, should a major trade war materialize, the outlook for both investment and global productivity would become materially bleaker. Protectionism would not only [cause major supply disruption](#), making parts of the existing capital stock obsolete, but it could also damage long-term efficiency. Bank of England analysis shows exporters are typically around one third more productive than non-exporters (see Chart 14).

Chart 13: Global investment slowdown



Source: Bank of England August 2018 Inflation Report

Chart 14: Exporters more productive



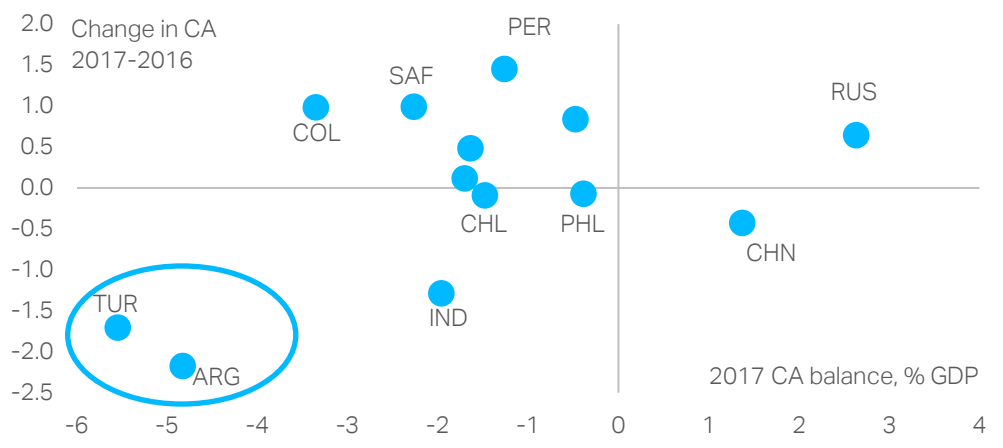
Source: [Bank of England estimates](#)

It's not Right, But it's Okay

This more toxic political environment takes us back to the crisis in emerging markets and the challenges they face over the next couple of years. When EMs struggled in the 1990s,

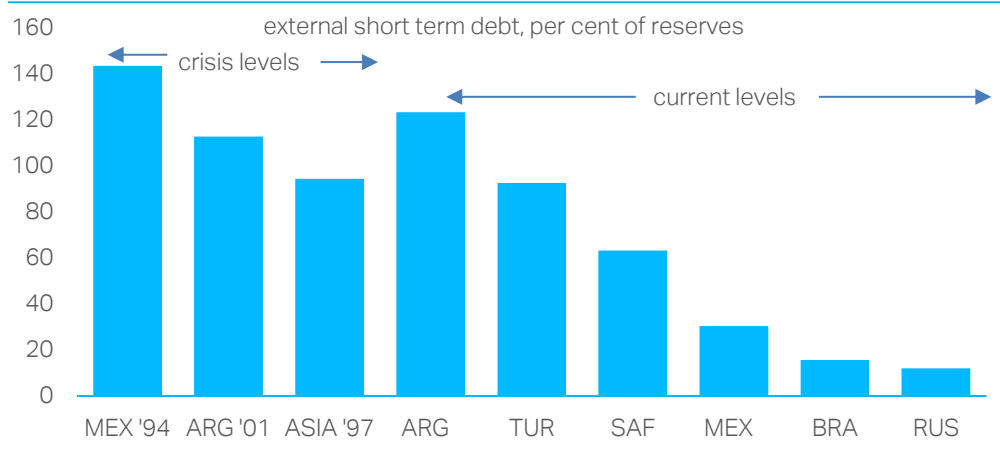
they at least had a US administration determined to push free trade and arrange international bailouts if these were necessary to preserve wider global financial stability. Today's administration is taking a different approach to its international relations. Meanwhile, US protectionism and America First policies are adding to the strength of the dollar, which together with Fed tightening and US fiscal stimulus is proving a dangerous combination for the emerging economies, particularly those with large USD debts.

Chart 15 : EM current-account positions



Source: IMF World Economic Outlook

Chart 16: Less vulnerable than in the 1990s

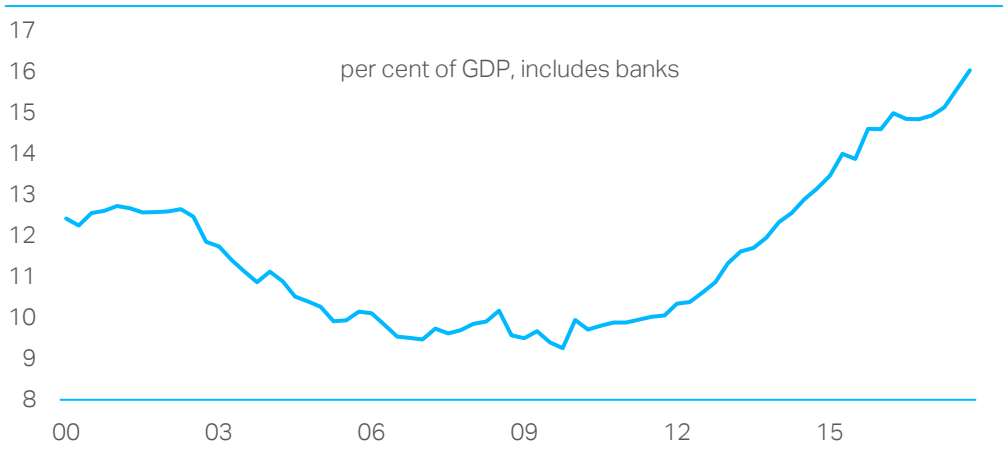


Source: World Bank, TS Lombard

On some financial metrics, EMs look less vulnerable than they did in the 1990s. Most have flexible exchange rates, which provide a shock absorber. The majority have built up their defences, lengthening the maturity of their debts and increasing their FX reserves. But some countries remain vulnerable, notably those that are already under significant market pressure. And while EM governments have avoided the 'original sin' of the 1990s when they borrowed internationally in dollars, the private sector – particularly corporates – still has significant exposure. It is easy to see why a rising US currency causes problems. As the dollar rises, the value of their liabilities increases relative to their assets, leading to a deterioration in their net worth. International banks become less willing to lend. [Our analysis](#) suggests Argentina, Turkey, Chile and Mexico are the worst offenders.

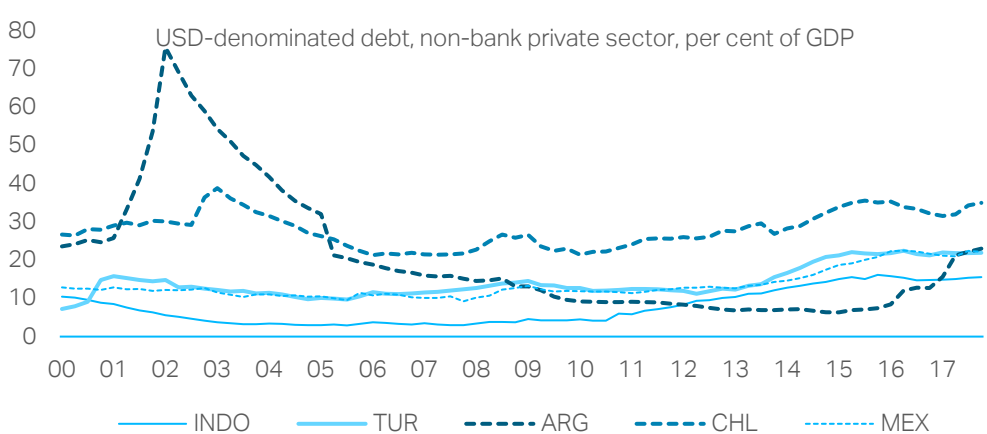
Even if the Emerging economies avoid a crisis of 1990s-proportions, we suspect some countries will continue to face a tough environment. The full extent of these problems will depend on how much further the Federal Reserve tightens, the severity of China’s recent economic slowdown and the degree to which the trade war escalates. None of these pressures look likely to dissipate quickly. The Fed is also stepping up its QT programme and though [we are skeptical that Fed ‘liquidity’ inflated asset prices in developed economies, there is plenty of evidence that QE-related flows had a significant impact on EM securities after 2009](#). IMF analysis suggests that reversal of these portfolio flows could have a powerful impact on EM valuations during the rest of this year and into 2019.

Chart 17: Offshore USD credit to EMs



Source: BIS, IMF, TS Lombard

Chart 18: USD offshore debt by borrower



Source: BIS, TS Lombard

Don't look back in Anger

The current macroeconomic environment feels a lot like the late 1990s. Federal Reserve tightening, EM crises, tech bubbles, perhaps even a hidden New Economy boom. For the playbook to be complete, the crises in the emerging economies will need to intensify, business sentiment deteriorate, the US yield curve invert and the Federal Reserve cut interest rates – only to inflate financial-market bubbles and keep the global economy

growing for another couple of years. Yet the analogy isn't perfect. The political environment is clearly more toxic, with the committee to Make America Great Again replacing the Committee to Save the World. Technological diffusion has also slowed down and if protectionism discourages investment, hopes for a revival in productivity – perhaps the most important macro theme of the 1990s – will evaporate.

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