The CPD Fest 2020

The Investment Landscape - What to Expect and How to Position Yourself

Presenter:

Cormac Lucey – Finance Lecturer & Economics Columnist

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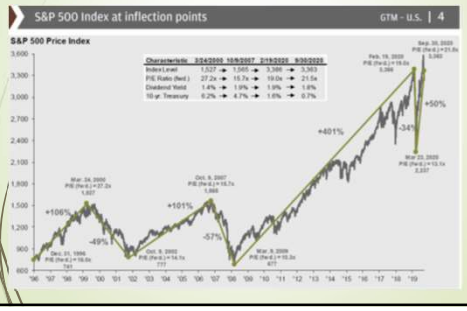

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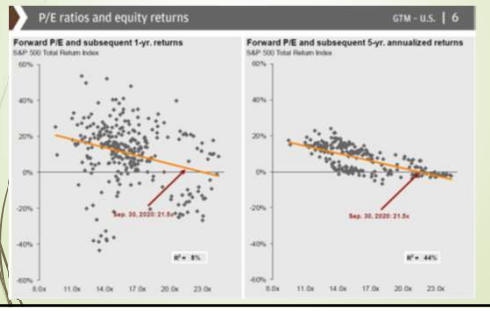

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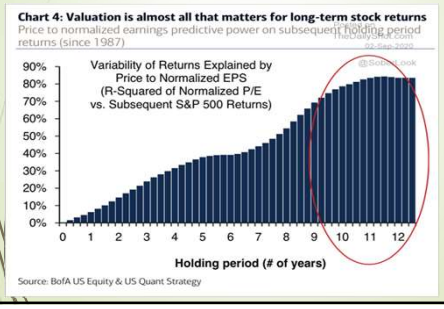

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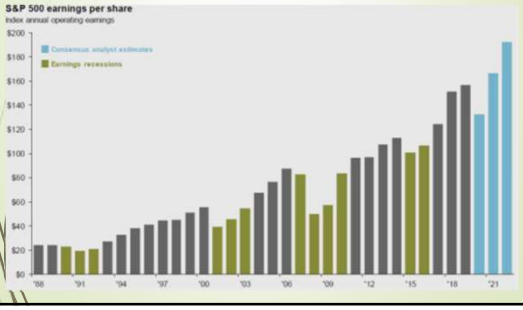

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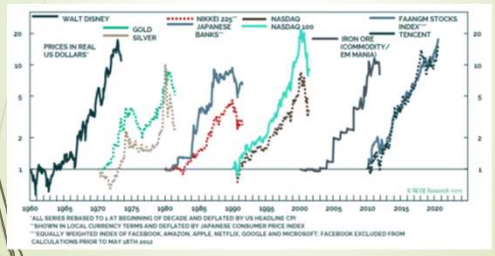

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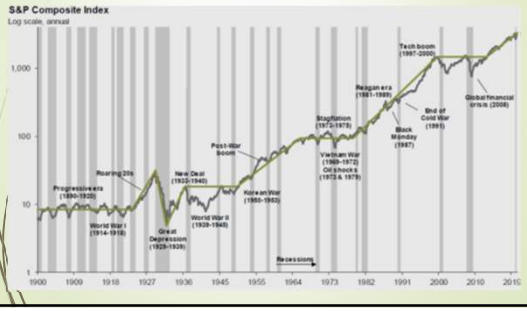

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Where are we now?
How did we get here?

Market cycles

Returns from the US Stock Market - Michael Alexander, "Stock Cycles"

Period	Duration - years	Annual real return
1906-1921	15	-1.9%
1921-1929	8	24.8%
1929-1949	20	-1.2%
1949-1966	17	14.1%
1966-1982	16	-1.5%
1982-2000	18	14.8%
2000- ???		

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2000- ???		2.4%

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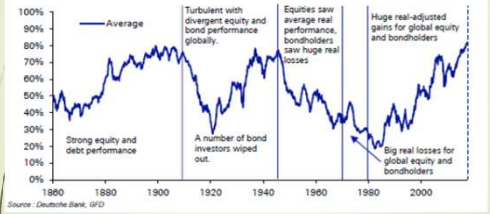
Figure 1: Aggregated 15 DM country average bond (nominal yields) and equity percentile valuations (100% = most expensive; 0% = cheapest)



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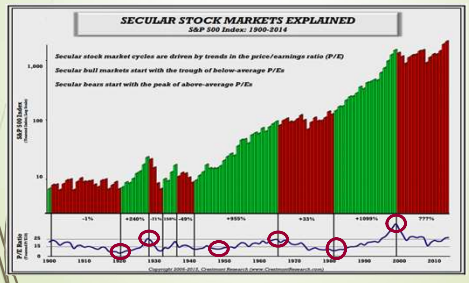

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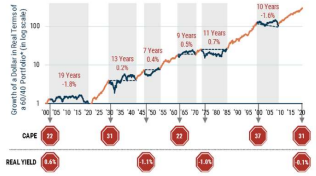
Where are we now?
How did we get here?

EXHIBIT 1: 60/40 "LOST DECADES" ARE MORE COMMON THAN YOU THINK

Most started with expensive stocks or bonds – today, both are



As of 9/30/20 | Source: Bloomberg, Global Financial Data (early history), Factset (S&P 500 returns and CPI), J.P. Morgan (J.P. Morgan GBI United States Traded), Shiller data; real yields are the yield on the 10-Year U.S. Treasury minus the 12-month trailing CPI.
*60% U.S. Equities (S&P 500), 40% U.S. Bonds (U.S. Treasuries) rebalanced monthly. Past Performance is not indicative of future results.

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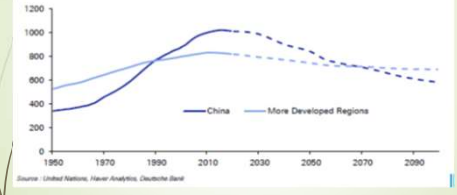
Figure 2: Working age population (millions) now starting to decline after huge recent decades' surge, with implications for inflation, a return to labour vs capital, and inequality



Source : United Nations, Haver Analytics, Deutsche Bank

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Figure 6: Years with a financial crisis since 1600 (internet search). Binary '1/0' outcome for each year

Source : Deutsche Bank, GFD

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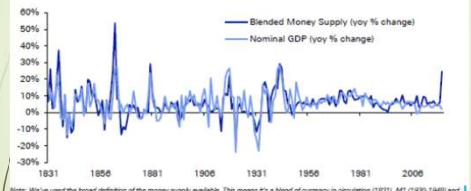

Note: We've used the broad definition of the money supply available. This means it's a blend of currency in circulation (1831), M1 (1930-1948) and M2 (1948-current). The Fed discontinued M3 in 2006, so we did not blend that in historically.
Source : GFD, Deutsche Bank

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Where are we now?
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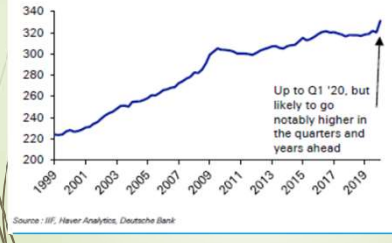
Figure 17: Total global debt (% of GDP)



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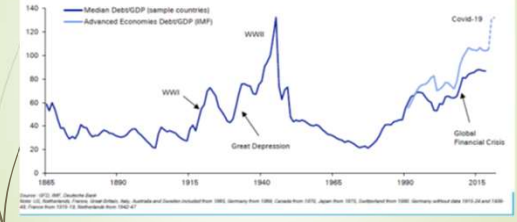

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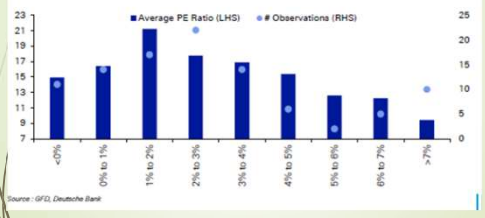
Figure 42: US PE ratio since 1920 by different inflation buckets... valuations generally higher in periods of low, stable and close to central bank targeted levels of inflation



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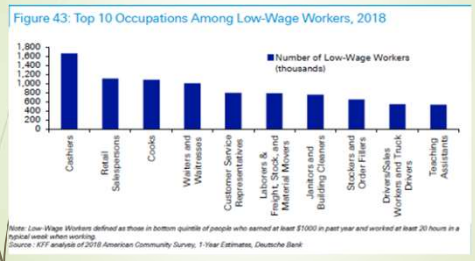

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What's likely to happen? Investment conclusions

1. An equity melt up
2. A new commodity super cycle
3. The return of inflation
4. Ideas for the 2020s

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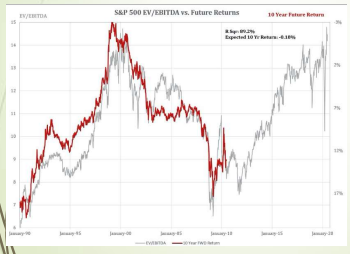
What's likely? Investment conclusions



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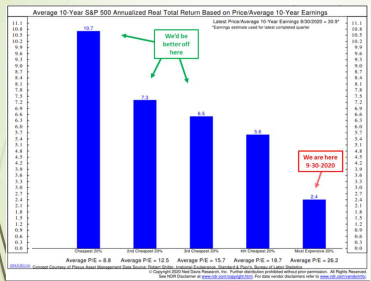
What's likely? Investment conclusions



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What's likely? Investment conclusions

Predicting future returns

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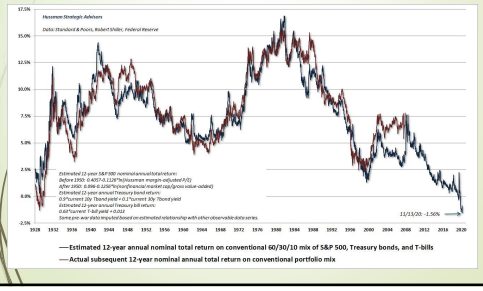
What's likely? Investment conclusions

Predicting future returns – Hussmann



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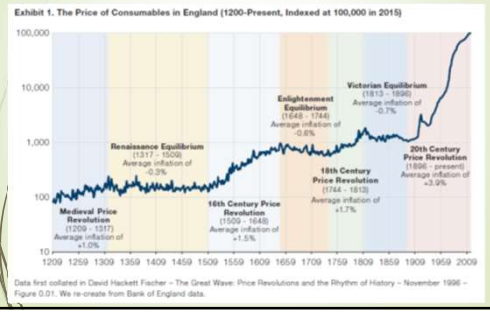
What's likely to happen? Investment conclusions

The return of inflation?



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What's likely to happen? Investment conclusions

Why are we in a deflationary world? MAN inflation regime roadmap

This is territory that has been much covered over the years including by ourselves (see for example A Japanese Roadmap for European Equities, 14 April, 2003), but in our view it boils down to:

- Debt – high debt loads discourage private sector consumption via Ricardian equivalence;
- Demographics – a rising share of old people who consume less and save more;
- Offshoring – replacing expensive home-grown supply chains with less expensive EM supply chains;
- Digitisation – substituting capital for labour by digitising previously human processes;
- Monopsony – few employers in any given urban centre, with employers dominating the labour supply. Hence wages are depressed and sticky. See Jonathan Tepper's '*The Myth of Capitalism*'.

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What's likely to happen? Investment conclusions

Why is the deflationary status quo unsustainable?

Basically, two reasons.

- First, we suppose it must be the case that high debt loads risk financial instability, discourage risk taking by capitalists and therefore impede capital formation.
- It's the second reason the status quo is unsustainable that is the real key to our thinking, though: inequality.

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What's likely to happen? Investment conclusions

How might it end?

Essentially we believe there is one good way out of a debt overhang and three bad ways out. The good way out is via growth. For this to work you need, ideally

- an under-levered consumer with lots of pent-up consumption demand;
- a demographic dividend with rapid growth in the working age population;
- a productivity boom so that higher inflation does not result in high unit labour cost growth, which in turn could kill the recovery;
- political control of the central bank, so that borrowing costs are not forced higher by bond market vigilantes.

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What's likely to happen? Investment conclusions

How might it end?
So that leaves the three unpalatable solutions to the debt overhang. What are they?

- Well, you can either choose to **default** on your debt;
- Or you can **devalue it** either by allowing inflation to accelerate or by letting your currency depreciate;
- Or you can take the "**Austrian cleanse" approach** favoured by our old friend Andrew Mellon, and deflate your economy, purging the system. And we know that's out, just by watching the revealed preference of the Authorities around the globe – no-one has an appetite for a depression.

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What's likely to happen? Investment conclusions

Inflation future
We dare to assume that politicians choose what is in our opinion the best way out of this mess. A new austerity is politically impossible and societally undesirable to an increasing majority of the electorate, as witness the many political upsets and the rise of extremist parties of both hues.

The imbalance must be redressed not just by raising real wage growth in the lower 60% of the population, but also by constraining growth in the level of real income of the top 40% and especially the top 1%. This can be achieved by a combination of

- higher fiscal spending,
- higher tax take and
- higher public borrowing, the latter all financed by the central bank.

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What's likely to happen? Investment conclusions

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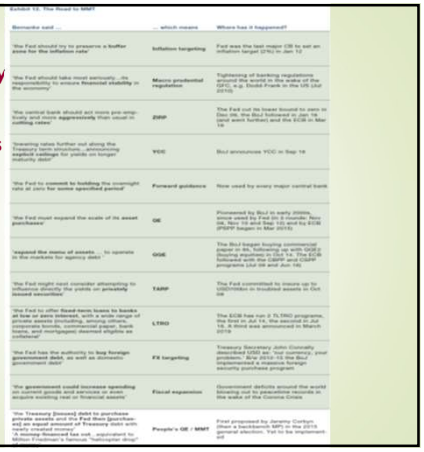
What's likely to happen? Investment conclusions



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What's likely to happen? Investment conclusions

Exhibit 16. Investment Strategies for Inflationary Times – Summary Table

	New Winners	Old Winners
Types of Funds	Alternative Risk Premia	Traditional Risk Premia
	L/S vehicles	L/O vehicles
	Alternative Multi-Asset Funds	Traditional Multi-Asset Funds
	... with a special emphasis on inflation-protection	... 60/40, risk parity, or other proportions
Assets	Real Assets, such as:	Nominal or Paper Assets, such as:
	... Inflation-Linked Bonds	... Nominal Bonds
	... Commodities (eg Gold)	
	... Asset-backed Securities (RMBS, CLOs)	
	... in FX, long commodity producer vs importer (eg AUD/JPY)	
Equities	Value	Quality / Growth / Low Beta / MinVol
	Pricing Power vs Margin Pressure	Financial engineering through leverage and buybacks
	High Fixed-Rate Debt	Multi-nationals with global supply chains and optimal tax structures

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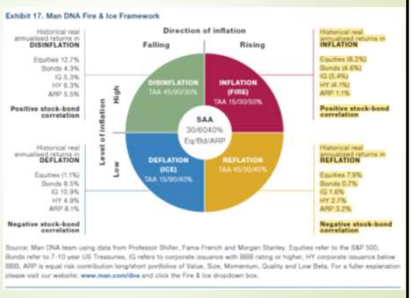
What's likely to happen? Investment conclusions

Reflation first, Inflation later. The French cult movie La Haine opens with the telling of the story of a man who falls from a 50 storey building. "So far, so good" the man tells himself reassuringly while passing each floor.



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What's likely to happen? Investment conclusions

Variant Perception – The Next Commodity Supercyle

There are 3 big secular drivers of this supercycle:

- The long era of monetary-policy dominance is over, leading to a heightening of inflation risks not seen since the 1960s
- Investors are deeply underweight and will need real assets such as commodities as a hedge against inflation
- Commodities are generationally cheap, both compared to themselves and to other assets

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What's likely to happen? Investment conclusions

Steve Sjuggerud … Meltup!

- The actions of 2020 are darn similar to what we saw coming out of the Great Recession... a terrible shock to the economy followed by massive stimulus from the U.S. government and Federal Reserve.
- Except today, the amount of money pouring into the system – thanks to Congress and the Federal Reserve – dwarfs anything we saw last time around. I expect this fuel to light an incredible fire under the U.S. economy and stock market.
- And the end result is the furious Melt Up that's currently underway. The Melt Up is a powerful idea... But few investors truly understand it. It's based on a simple premise: **Stocks often have their biggest, most explosive gains at the ends of major bull markets**. In short, before the big "Melt Down" arrives, we have the big Melt Up. It's the final push higher before the bear market kicks in. The most recent major example of this happened at the end of the 1990s bull market. The Nasdaq Composite Index soared more than 86% in 1999 alone. Now that was a Melt Up.

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What's likely to happen? Investment conclusions

Steve Sjuggerud … Meltup!

- For years here in True Wealth, we've had a "working script" for investing... Our True Wealth script can change as the facts (and investor perceptions) change. But since 2009, our core investing script has been simple: The Fed will keep interest rates lower than you think, for longer than you can imagine. And that will cause asset prices (like stocks and real estate) to soar higher than you can imagine.
- My friend, if it ain't broke, don't fix it. The game isn't over yet! Stocks and real estate have already soared. The Melt Up will help bring prices even higher... to a point that doesn't feel comfortable. Believe me, you will know when it feels crazy – and we're not at "crazy" yet.

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What's likely to happen? Investment conclusions

Steve Sjuggerud … Meltup!

- Stocks have roared back from the COVID-19 bust. But with the Fed's fuel in place, I expect we'll see much higher highs in the months to come. Not only that, but low interest rates make stocks a better value than you probably realize. For these two reasons, you want to be invested today.

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What's likely to happen? Investment conclusions

Steve Sjuggerud … Meltup!

- At a 31.6 CAPE, the earnings yield is around 3.2%. But remember, 10-year government bonds pay less than 1% today. So the earnings yield on stocks is around 2.2 percentage points better than bonds. Tech stocks are back in a bull market. And they were for most of 2020. So, we're buying tech stocks. Simple.
- Remember, tech stocks are roaring back to life. They were better positioned than most to survive the crisis. And now, consumers are leaning on these companies more than ever.

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What's likely to happen? Investment conclusions
Goldman Sachs - Top Ten Market Themes for 2021
1. Vaccine-led recovery to lift cyclical assets
2. Navigating the Path
3. A Steeper Real Yield Curve
4. Europe: Two Steps forward, One Step Back
5. China: Forging Ahead, with Assets in Tow
6. A New Commodity Bull Cycle
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Investment landscape
Where are we now? What do valuation levels, market liquidity and central bank statements indicate about our investment prospects?
How did we get here? A review of market trends over recent years.
What's likely to happen? Why we may be about significant sectoral rotation (away from Faangs and towards cheaper and more traditional cyclical stocks). Why, after lying dormant for several decades, inflation may finally be about to make a comeback.
What are the investment conclusions of all this?

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Global

Strategy

Long-Term Asset Return Study

Date
8 September 2020

The Age of Disorder

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Executive Summary

Economic cycles come and go, but sitting above them are the wider structural super-cycles that shape everything from economies to asset prices, politics, and our general way of life. In this note we have identified five such cycles over the last 160 years, and we think the world is on the cusp of a new era – one that will be characterised initially by disorder.

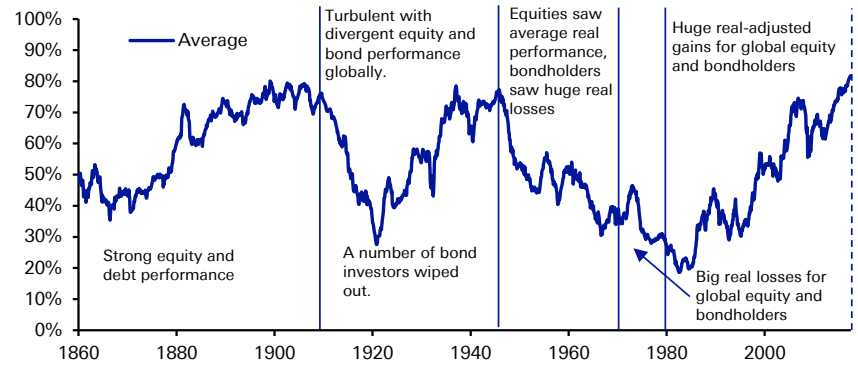
Not all disorder is 'bad'. Indeed, if the themes of the world economy swing like a pendulum, then it may be that some have swung too far from a 'sensible centre' and are due to revert. This can have a cleansing effect. What is worrying, though, is that several themes appear poised to revert at a similar time. This is the point – that simultaneous changes to structural themes will create a level of disorder that will define a new era.

Before we review the key themes of the upcoming "Age of Disorder", we must note that while some historical super-cycles have begun and ended abruptly, others were slower to evolve and end. The most recent era – the second era of globalisation, during 1980-2020 – is much more like the latter. It started slowly and has been gradually fraying at the edges over the last half-decade. The end of this era has been hastened by Covid-19 and – when, in years to come, we look at the rear-view mirror – we may see 2020 as the start of a new era.

By our measure, there have been five distinct eras in modern times, with a sixth likely starting this year:

1. The first era of globalisation (1860-1914)
2. The Great Wars and the Depression (1914-1945)
3. Bretton Woods and the return to a gold-based monetary system (1945-1971)
4. The start of fiat money and the high-inflation era of the 1970s (1971-1980)
5. The second era of globalisation (1980-2020?)
6. The Age of Disorder (2020?-????)

Figure 1: Aggregated 15 DM country average bond (nominal yields) and equity percentile valuations (100% = most expensive; 0% = cheapest)



Source : Deutsche Bank, GFD

The era of globalisation to we are likely waving goodbye saw the best combined asset price growth of any era in history, with equity and bond returns very strong across the board. The Age of Disorder threatens the current high global valuations, especially in real terms. We believe this coming new era will be marked by at least eight themes, which we will briefly summarise in this executive summary and then expand upon in the full note.

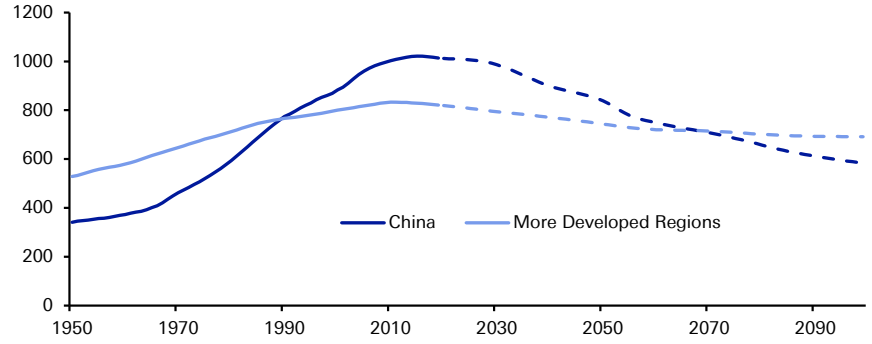
1. Deteriorating US/China relations and the reversal of unfettered globalisation.
2. A make-or-break decade for Europe, with muddle-through less likely following the economic shock of Covid-19.
3. Even higher debt and MMT/helicopter money becoming mainstream.
4. Inflation or deflation? As a minimum, it is unlikely it will calibrate as easily as we saw over the last few decades.
5. Inequality worsening before a backlash and reversal takes place.
6. The intergenerational divide also widening before Millennials and younger voters soon start having the numbers to win elections and, in turn, reverse decades of policy.
7. Linked to the above, the climate debate will build, with more voters sympathetic and thus creating disorder to the current world order.
8. We're in the midst of a technology revolution with astonishing equity valuations reflecting expectations for a serious disruption to the status quo. Revolution or Bubble? Also, if WFH becomes more permanent, it will cause major changes to societies and economies. Big cities were huge winners in the previous era, and this could now reverse.

Although some of these themes have been around for some time, it is only recently that they have begun to feed off each other to hasten the demise of the second era of globalisation. Their increased interaction has thus created the conditions to start their own new era of much change.

The key to understanding this new age of disorder, then, is to see how its themes emerged during the most recent era of globalisation. This was the era that began around 1980, when the world accelerated the move to abolish regulations and capital controls, which subsequently boosted free trade (and global capital flows) and begat a more liberal world order. Global demographics massively supported this phenomenon and ensured a huge increase in workers, many of them from China and other low-income countries. By the mid-1980s, the second era of globalisation was in full flow.

This era was win-win for most of the globe, and everything fell into place over the next three to four decades. Inflation fell largely due to a huge surge in workers (now behind us), and there was also downward pressure on wage inflation due to global labour market integration. In addition, there was help from direct central bank policy, including increased independence around the world. Lower inflation meant lower bond yields (real and nominal) and lower interest rates, and this all allowed for ever-higher equity valuations and profits. As a result, equities generally performed very well relative to what was slowing developed-market growth.

Figure 2: Working age population (millions) now starting to decline after huge recent decades' surge, with implications for inflation, a return to labour vs capital, and inequality



Source : United Nations, Haver Analytics, Deutsche Bank

The cracks in this era began to emerge after the GFC, which revealed that ever-higher leverage had papered over the problems that globalisation had created in many Western countries. Firmly in the spotlight were issues including low real wage growth, the outsourcing of many low-paid jobs, and increased inequality. In response, authorities used heavy intervention (especially monetary) to prop up the existing system (rather than reform it), but populism and resentment built. The Brexit and Trump victories were manifestations of this anger in the UK and US, but populism increased across the globe. It was then that most people realised the era of full-feted globalisation was certainly fraying and the problematic issues it had incubated were about to take centre stage.

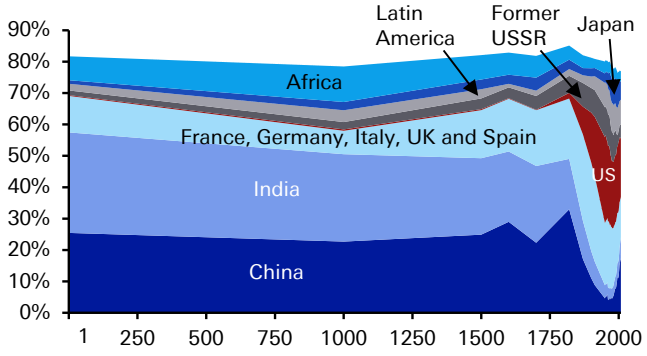
As the Age of Disorder begins, we believe one of the biggest issues will be the political tension between the US and China. Indeed, this should characterise the era of disorder because China has been at the heart of the most recent era – that of globalisation. The future of this relationship can only be forecast by understanding the past. We delve into this in more detail later, but to summarise: China is looking to restore the position it held for much of history as a global economic powerhouse. To illustrate, from two thousand years ago until the early nineteenth century, the country represented around 20-30% of the global economy. It then suffered under colonial powers, particularly in the century before Mao established the modern Chinese state in 1949. By the early 1960s, China's share of the global economy hit an all-time low of 4%. It is now back to 16%.

While China's fortunes rapidly grew during the era of globalisation, so too did tensions with the West. Partly, this came from the incorrect assumption in the West that as China developed it would increasingly become more Western in its outlook and values, and fully integrate into the liberal world order, which contains much American architecture. With hindsight, this was naïve as China has a long, proud and powerful history with its own values.

A clash of cultures and interests therefore beckons, especially as China grows closer to being the largest economy in the world. From the West's point of view, China would not be in its current position if the West had not accepted China into its economic orbit during the latest era of globalisation. Now, the Covid-19 pandemic will likely speed the symbolic point at which China overtakes the US economy as the largest in the world. China has seen a post-Covid V-shaped recovery already, while it has become obvious that recovery in many Western countries will

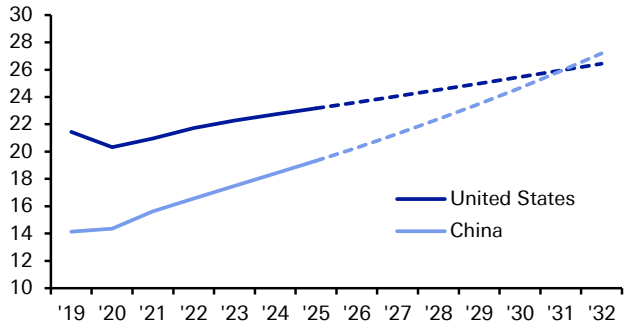
be a lengthier process. Assuming its current trajectory continues, China could become the world's largest economy around the end of this decade or soon thereafter. Regardless, the crossover point with the US seems only a matter of time.

Figure 3: Shares of global GDP through history



Source : Madison Database, Deutsche Bank

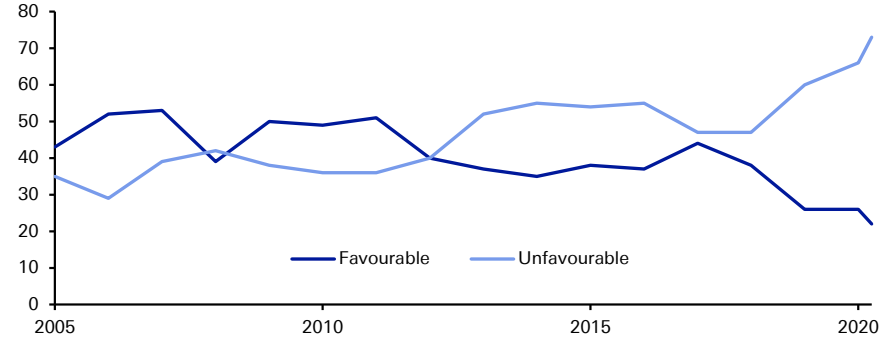
Figure 4: Real GDP (2019 USD, trillions)



Note: Based on DB's forecasts to 2025 and then extrapolating those growth rates beyond that point
Source : IMF, Deutsche Bank

As the economic gap between the US and China narrows, many worry about the so-called Thucydides Trap. This refers to the fact that on 16 occasions over the last 500 years, a rising power has challenged the ruling one, and on 12 occasions it ended with war. While a military conflict today seems highly unlikely, an economic battle is likely to ensue, with the benign global trading conditions of the globalisation era likely to be resigned to the history books. The result of the US election in November is unlikely to change the direction of travel. Over the course of this decade, relations will likely deteriorate into a bipolar standoff as both the US and China seek to prevent encirclement by the other. Companies that have embraced globalisation will be stuck in the middle if relations sour as we fear.

Figure 5: Percentage of US adults who say they have a(n) ____ opinion of China



Source : Pew Research Center, Americans Fault China for Its Role in the Spread of COVID-19, July 30 2020, https://www.pewresearch.org/global/2020/07/30/americans-fault-china-for-its-role-in-the-spread-of-Covid-19/

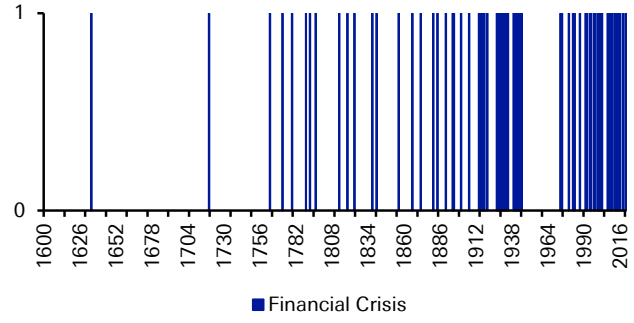
The second theme of the Age of Disorder is that the 2020s could be a make-or-break decade for Europe. The strains on the continent were evident prior to Covid-19, but the virus has probably reduced the chance of the 2020s being a muddle-through decade like the 2010s. The economic divergence between countries will likely be even more pronounced and, as such, it feels like the probability of both integration and disintegration has increased over the last six months. On the one hand, the

Recovery Fund is a genuine and welcome step in the right direction, but it needed to be. On the other hand, given the economic issues ahead, further measures will probably become necessary in the years ahead to prevent maximum disorder.

Even if further economic stimulus can be negotiated as needed, it is likely to be done against a backdrop of consistent volatility and brinkmanship, particularly if domestic politics across the continent gravitate away from those consistent with further EU integration. With the Covid economic shock, that must be a greater possibility now. So the chances of muddling through for Europe have decreased, while the potential for both further integration or disintegration has increased post-Covid. Even if integration wins out, it may still take an acute threat of disintegration to concentrate political minds.

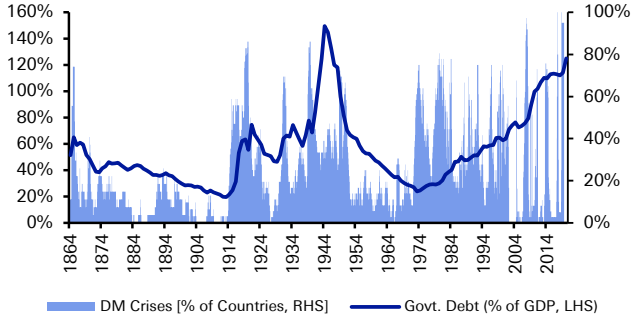
A key problem Europe faces is that many of its countries have too much debt, and this leads straight to our third theme in the Age of Disorder. Far from being just a problem in the European periphery, debt is a global issue – and it is only because central banks have distorted free markets that global borrowing can be financed at a viable interest rate. Given central banks have committed to underwriting the post-Covid recovery, they will have an even more outsized role over the years ahead. Our work in a previous long-term study "The Next Financial Crisis" suggests that periods of higher debt lead to a higher intensity of financial shocks and crises. This trend will be amplified by the Covid-19 crisis and means we will likely see more crises, more disorder and even more money printing in the years ahead. Yes, lower interest rates mean we can run with more debt, but a high-leverage society is always likely to be more shock-prone.

Figure 6: Years with a financial crisis since 1600 (internet search). Binary '1/0' outcome for each year



Source : Deutsche Bank, GFD

Figure 7: Percentage of DM countries in 'financial stress' vs. G7 government debt to GDP

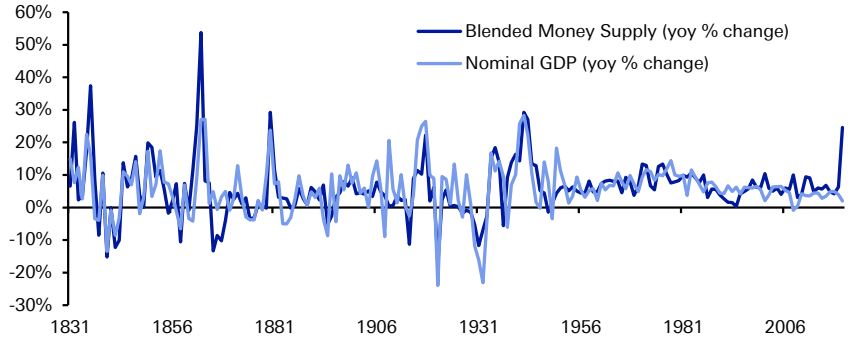


Source : Deutsche Bank, GFD, Haver Analytics

The extent to which we can reduce the huge global debt burden depends heavily upon the fourth theme in the Age of Disorder – inflation. On this topic, DB is still split on whether the debt and Covid-19 crises will be inflationary or disinflationary. Although this team is in the inflationary camp, we acknowledge that the outcome is path-dependent. If we move to a MMT/helicopter-money type world, where both fiscal and monetary policy are expansionary, it is pretty easy to see a jump in inflation. For us, Covid-19 has forced global policy makers to cross the Rubicon with regards to expansionary fiscal policy, and it is unlikely that they'll go back to the austerity of the early-2010s – and with ultra-loose monetary policy almost guaranteed, this will put us in a completely different world order to that seen previously and create a very different macro environment. However, if we're wrong

and governments prioritise the repair of their balance sheets, then – even if central banks keep printing – we are likely to be stuck with low inflation for a longer period. With so much debt, such a scenario will also almost certainly ensure its own elements of disorder ahead.

Figure 8: US money supply and nominal GDP growth. Are we setting the scene for a rise in inflation?

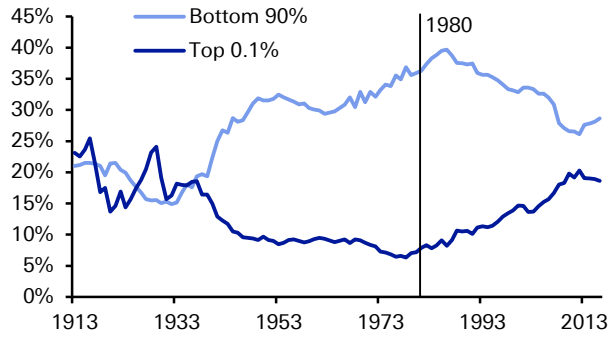


Note: We've used the broad definition of the money supply available. This means it's a blend of currency in circulation (1831), M1 (1930-1948) and M2 (1949-current). The Fed discontinued M3 in 2006, so we did not blend that in historically.
Source : GFD, Deutsche Bank

Regardless of which outcome materialises, it feels that the ability of policymakers to perfectly calibrate inflation towards target in a post-Covid world will be incredibly difficult given the size of the opposing forces. So we expect a higher probability of more extreme outcomes going forward.

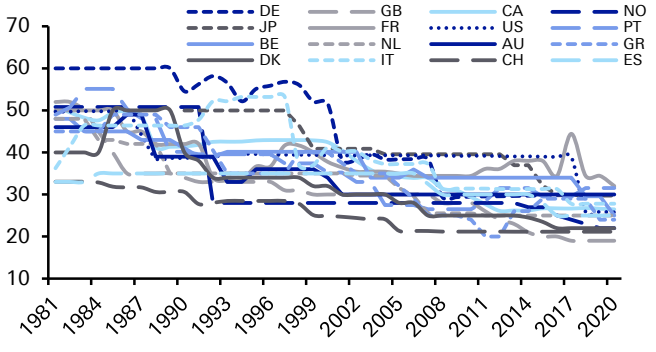
As the outcomes become more extreme, they will heavily influence how progress is made on inequality – our fifth key theme. It may initially worsen, but the need to pay for the Covid shock, and perhaps the reduction of globalisation, may encourage governments to increase taxation on those with deeper pockets. This is likely to be biased towards the highest-paid individuals, but also companies as they have benefited from a race to the bottom in corporate tax in the globalisation era. Technology firms are already attracting greater attention on this front, especially as they have largely benefited from the pandemic.

Figure 9: US household wealth shares (individual unit with equal split)



Source : World Inequality Database., Deutsche Bank

Figure 10: Statutory corporate income tax rates (%)

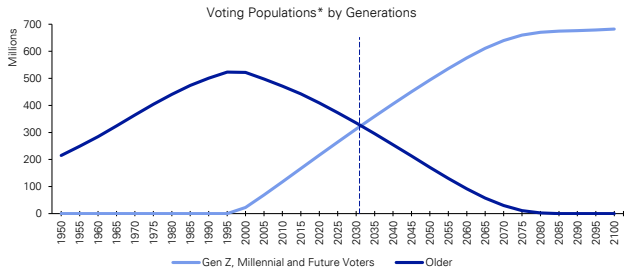


Source : OECD, Deutsche Bank

The discussion of inequality within and between countries will not be limited to wealth and income. In fact, an issue that is quickly emerging as a political force is the intergenerational gap. This is our sixth theme in the Age of Disorder. This segment of inequality has been allowed to build and build in the globalisation era. The general assumption is that the divide between the young and old will worsen as the population ages, and the self-interest of the older generation will ensure that the status quo continues. However, this misses the key point: the age at which the intergenerational divide begins is not constant. It is likely that this age will increase over time as those left behind are unable to catch up and thus the average age of discontentment with the status quo continues to increase over time.

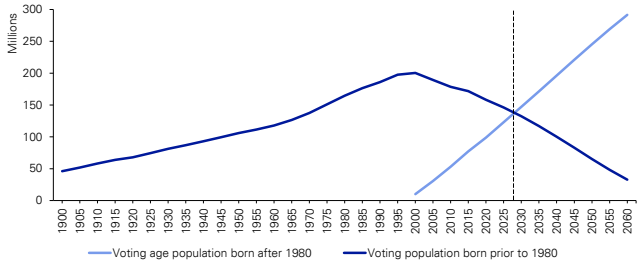
The Millennial generation (born in the early 1980s), along with Generation Z and younger voting cohorts, are firmly established as generational 'have nots'. Yet in G7 countries, the combined size of these groups is fast catching up to that of the generations born prior to the Millennials. The two groups on either side of the divide will be close to neck-and-neck by the end of this decade in aggregate and slightly earlier in the US.

Figure 11: Millennials, Generation Z and younger cohorts will have nearly as many voters as those in older generations in the G7 by the end of this decade



Source : United Nations, Haver, Deutsche Bank
**Voting population estimated from 17.5 years and older*

Figure 12: Millennials and younger generations will make up the majority of the US voting populations by the latter part of this decade



Source : US Census Bureau, Deutsche Bank

Assuming life does not become more economically favourable for Millennials as they age (many find house prices increasingly out of reach), this could be a potential turning point for society and start to change election results and thus change policy. This is particularly the case when we recognise that the votes for Brexit and Trump in 2016 left many younger people feeling angry and alienated by political decisions that a sizable majority of them were against.

Such a shift in the balance of power could include a harsher inheritance tax regime, less income protection for pensioners, more property taxes, along with greater income and corporates taxes already mentioned, and all-round more redistributive policies. The "new" generation might also be more tolerant of inflation insofar as it will erode the debt burden they are inheriting and put the pain on bond holders, which tend to have an ownership bias towards the pensioner generation and the more wealthy. The older generation may also have to be content with lower (or even negative) asset price growth if the younger generation does not have a sudden income boost.

Whether or not individuals see the above as 'good' or 'bad' is not necessarily the point. Rather, it seems clear that this will be a big break from the status quo and lead to far more disorder than in the prior era of globalisation.

Amidst the clash between the young and old, an increasingly fraught issue will be climate change – something that increased during and because of the recent globalisation era. This is our seventh key theme and is one where heavily polarised opinions exist – not just about the extent of the problem, but around the various options available to respond. Although the pandemic has displaced climate change from the front pages for now, as the size of the pro-climate younger generation grows, so too will the pressure on leaders to act.

We are likely to see huge pressures for a greener response to the post-pandemic economic rebuild. To move the world to a consumption-driven model of measuring and judging carbon emissions, we believe a carbon border adjustment tax is needed and this will likely be implemented this decade. Given more Millennials will be elected into positions of power over the coming decade, this tax will probably not suffer from the same watering-down as other environmental legislation. As such, a strong carbon border tax will reinforce the disruption to the status quo and create disorder for both companies and countries in terms of the relationships between them that in the era of globalisation were relatively calm.

Most of the trends identified here would likely have occurred without Covid-19, but many are now likely to be accelerated by its arrival. However, the pandemic brings disorder of its own, which leads us to our final point. As we go to print, we've now marked six months of working from home with no immediate end in sight for many. It's reached a stage where much of this trend will have an element of permanence. This has major implications for cities, residential and commercial property, transport, workers and many ancillary sectors and general activities we've taken for granted over the last several decades. Big/mega cities have been major winners in the globalisation era. Will this trend reverse post-Covid? If so, this will have a major disorderly impact on society as we currently know it.

On a related theme, this is all occurring alongside record tech valuations in equity markets, with some astonishing valuations. It feels this could go one of two ways, both of which would bring large disruption. Either these valuations are proved to be justified and we're close to major technological advancements impacting all facets of life, or we run the risk of a repeat of 2000 where a bubble burst even if much of the technology survived and progressively became integrated into our lives in a more normal evolutionary manner. The latter would have major financial market consequences for a period of time, but would be less revolutionary. The answer is perhaps a combination of both: rapid technological change that is both positive and disruptive but with stark winners and losers in both the tech sector and the wider global economy.

So, the Age of Disorder is likely upon us. In the years ahead, simply extrapolating past trends could be the biggest mistake you make.

LT Returns on a page

Here are bullets summarising the data-heavy back section of this report, where we look at returns of equities and bonds from around the world, and commodities, extending back up to 200 years where we have the data.

- In the US, over the last 100 years (since end-1920) – where we have data for the widest selection of assets – equities have outperformed 10yr and 30yr governments by more than +4.5% p.a., corporates by +3.7% p.a. and T-bills (cash proxy) by +6.8% p.a. They have also outperformed gold by 5.6% p.a., oil by 8.4%, and US housing (prices only) by 6.6% p.a.
- In real terms, over the past 100 years, commodities have generally seen negative returns. Only gold (+2.0% p.a.) and copper (+0.5% p.a.) have seen positive real returns, with the overall commodity index providing -1.1% p.a. While housing ex-rents (+1.1% p.a.) real returns have been positive, they look underwhelming compared to equities (+7.7% p.a.), 10yr Treasuries (+2.7% p.a.) and corporate bonds (+3.8% p.a.). Over recent years, assets like residential housing (to live in) and commodities have been used as portfolio alternatives to equities/bonds. In fact, with the surge in gold prices this year, gold is actually the best-performing asset in our sample over the last 5 years. That said, history suggests that this strategy is unlikely to produce superior long-run results vs. equities.
- Since 1800, US equities have had only two negative decades in nominal terms: the 1930s (-0.5% p.a.) and the 2000s (-0.9%). There have been three in real terms (1910s: -2.8%, 1970s: -1.5%, 2000s: -3.4%). In nominal terms, three of the five best decades for equities since 1800 have occurred in the last four decades (including the most recently completed decade). However, this period also included the worst decade (the 2000s).
- 10yr Treasuries and corporate bonds have never seen a negative-return decade in nominal terms, but six of the 12 decades since 1900 have seen a negative real return from Treasuries, including four successive decades from the 1940s. The last four decades have seen remarkable positive real returns for bonds – although with each decade, we have seen these annualized returns decline, and we can't help thinking that we're setting ourselves up for a return to a few negative-real-return decades ahead in bonds as we move into our Age of Disorder.
- Internationally, there is a survivor bias in fixed income. The majority of the analysed countries with data back to 1900 have provided positive real returns, but there are some notable exceptions; France (-1.2% p.a.), Italy (-1.8% p.a.) and Japan (-0.6% p.a.) all saw negative real returns. Germany would be the worst if we had reliable data for the hyperinflation era. This shows that negative real returns in bonds are easily possible over even very long periods – and once they occur, they can be irreversible. With debt levels so high and yields so low, such an outcome looks likely in the future for a number of countries.
- Since the Euro was introduced (1999), there is little doubt that real equity returns in Europe have been relatively disappointing. Compared to the US and UK (+4.4% and +2.3% p.a. real adjusted, respectively) only Austria, France and Germany have outperformed the UK, but none of the Eurozone equity markets have outperformed the US in real terms. Spain (-1.2% p.a.), Portugal (-0.5% p.a.) and Italy (-0.4% p.a.) have actually failed to provide positive real returns since the introduction of the single currency more than 20 years ago – some worrying stats for supporters of the Euro.

The Age of Disorder

Introduction – The eras that have shaped the last 160 years

Economic and investment cycles tend to be both cyclical and structural. The structural waves shape careers and life experiences and can often last for many decades. It feels like we're coming towards the end of one of these eras now – one that started in the early 1980s. This era has been fraying at the edges in the last half decade, but the aftermath of Covid-19 may accelerate its demise and throw disorder into a relatively controlled world order.

Before we examine the current era in more detail and how it's coming to an end, let's first detail some of the eras seen over the last century and a half and preview what we think the new Age of Disorder will be characterised by.

1. The first era of economic globalisation (1860-1913). A strong period for global growth, increasing global trade, high population growth, low inflation and strong asset prices.
2. The Great Wars and the Depression (1914-1945). The most turbulent period in modern economic history, characterised by conflict and economic hardship; we saw a reversal in global trade. We saw countries struggle with re-pegging their currencies to Gold. Inflation went to both extremes in many countries.
3. Bretton Woods and the brief return to gold (1946-1970). This period was characterised by strong economic growth, low stable inflation after an initial spike post WWII, large debt develeraging, financial repression, and the birth of society as we know it today with welfare-state and big-society movements providing a safety net for citizens across the globe. Government spending and tax rates soared. Global population growth rose and peaked with the birth of the baby bombers.
4. The start of fiat money and the high inflation of the 1970s (1971-1979). The gold/USD-based Bretton Woods system saw pressure build until it broke down in 1971, which left the globe's money moving to a fiat system. Substantial economic turbulence ensued with inflation soaring across the world. The final wave of deleveraging from the 1914-1945 era was completed.
5. The second era of globalisation (1980-2020?). China reintegrated into the global economy, global trade surged. Developed-market baby boomers coming of age and a surge in EM workers (especially China) led to the global workforce exploding in size. Volcker led the global central bank assault on inflation, but globalisation/cheap labour did most of the heavy lifting on keeping inflation low. Asset prices went from the cheapest in history to the most expensive, and lower and lower interest rates and deregulated financial systems led to a huge increase in debt. DM/EM inequality narrowed, but DM inequality increased.
6. The Age of Disorder (2020-). This era is likely to be marked by China overtaking the US as the largest economy in the world, with economic tensions high as this moment approaches. This would help reverse some of the trends of the globalisation era, which reversing demographics would further support. Elsewhere, Europe will likely be on a more binary path towards integration or disintegration now that Covid has further intensified the economic divergences between strong and weak. Debt will continue to

explode higher with MMT/helicopter-money type policies likely proving irresistible. Inequality could initially increase with the after-effects of the pandemic, but soon the need to pay for it and political pressure should start to reverse multi-decade trends. Indeed, as the decade progresses Millennials and younger cohorts will start to rival elder voters in elections in terms of numbers. This could lead to major political changes coming. In addition to the huge economic implications, remember that this group is far more pro climate-protection measures, which again should be a major source of disorder over the coming decade.

How have asset prices performed in these eras?

Although these periods don't necessarily fit neatly into well-defined periods of contrasting asset price returns, you can see some clear trends in the table below.

1. The first globalisation era was generally good for both bonds and equities across the globe.
2. The second globalisation era (1980-2020) saw remarkable returns across both equities and bonds. No country in our sample saw negative nominal or real returns in either bonds or equities in this period.
3. The 1914-45 period saw a fair amount of dispersions of returns. For the winners there was some good performance, but there were big losers. Some of the losses were so bad that our data stops when investors were wiped out. So we can't show the full extent of the permanent destruction of capital in this period.
4. The 1946-1971 period was terrible for bondholders on a real adjusted basis as post-war inflation and a longer period of financial repression dominated the era.
5. The 1970s continued this terrible period for fixed income investors but also saw equities suffer across the globe on a real adjusted basis as inflation climbed aggressively.
6. Interestingly, the only period where commodities all outperformed on a real adjusted basis was during the inflationary 1970s period. Outside of that, commodities tend to have negative real adjusted returns. A big exception has been gold, which continued to outperform in the period since 1980. We believe gold took a structural break upwards from 1971 as in a world of fiat money it became a fiat money hedge. So while returns aren't as strong as equities since 1971, gold has been used increasingly as a hedge to monetary stability.

Figure 13: Global Equity, Bond and Commodity Performance History. Negative numbers shaded.

	Nominal					Real				
	1860-1913	1914-1945	1946-1971	1972-1979	1980-2020	1860-1914	1915-1945	1946-1971	1972-1979	1980-2020
EQUITY										
Australia		11.4%	12.4%	12.7%	10.7%		9.6%	6.9%	1.5%	6.7%
Austria				6.9%	6.3%				0.5%	3.8%
Belgium		6.4%	6.1%	6.9%	9.1%				-0.9%	6.3%
Canada	5.9%	7.5%	10.1%	12.6%	8.5%	6.4%	6.1%	6.6%	3.6%	5.4%
Denmark		3.4%	7.6%	10.3%	13.8%		-0.3%	3.1%	-0.1%	10.7%
France	6.3%	11.0%	12.4%	9.9%	10.1%	5.6%	-0.4%	2.5%	-0.1%	7.0%
Germany	7.6%	1.2%	6.4%	4.8%	8.5%	5.0%	-55.0%	3.3%	-0.3%	6.3%
India	7.5%	5.1%	6.2%	20.2%	17.9%		2.1%	2.1%	10.9%	9.6%
Ireland	4.6%	6.0%	9.9%	16.2%	10.4%			5.6%	1.9%	6.8%
Italy			13.5%	0.8%	9.5%			7.4%	-12.3%	5.0%
Japan		8.6%	23.9%	13.1%	4.3%		2.0%	6.3%	3.2%	3.3%
Netherlands		4.6%	8.3%	8.7%	10.8%		2.8%	3.7%	1.3%	8.4%
New Zealand		8.0%	10.9%	8.1%	12.5%		6.9%	6.0%	-4.0%	7.9%
Norway				12.1%	9.5%				3.5%	5.7%
South Africa	6.6%	11.6%	7.1%	23.6%	15.4%		10.5%	3.4%	11.1%	6.3%
Spain			13.8%	-3.2%	10.5%			7.1%	-16.8%	5.9%
Sweden		2.9%	10.1%	8.1%	15.1%			5.7%	-1.0%	11.4%
Switzerland		5.1%	8.0%	2.5%	8.6%		2.7%	5.5%	-2.1%	7.0%
UK	3.5%	6.1%	11.7%	8.0%	10.9%	3.4%	4.1%	7.3%	-5.5%	7.1%
US	8.5%	8.1%	11.6%	5.0%	11.6%	7.2%	6.4%	8.2%	-2.9%	8.3%
BOND										
Australia	4.1%	5.4%	3.8%	7.1%	9.6%		3.7%	-1.3%	-3.6%	5.6%
Austria			6.4%	8.4%	6.7%			-3.8%	1.9%	4.2%
Belgium	3.8%	4.8%	4.7%	5.4%	8.2%				-2.3%	5.4%
Canada	4.4%	4.6%	3.5%	5.0%	8.7%	4.8%	3.2%	0.2%	-3.4%	5.6%
Denmark	4.2%	5.4%	5.8%	10.0%	9.8%	3.8%	1.5%	1.4%	-0.3%	6.8%
France	4.2%	4.3%	4.2%	6.1%	8.6%	3.5%	-6.5%	-5.0%	-3.5%	5.6%
Germany			-3.4%	8.4%	6.6%			-6.3%	3.2%	4.5%
India	3.5%	5.5%	3.4%	5.4%	8.5%		2.7%	-0.6%	-2.8%	0.9%
Ireland		4.8%	3.6%	7.6%	10.0%			-0.4%	-5.6%	6.4%
Italy	5.8%	4.8%	3.3%	6.6%	10.6%	5.1%	-11.3%	-2.3%	-7.2%	6.0%
Japan		5.1%	8.6%	6.8%	4.8%		-1.3%	-6.9%	-2.6%	3.9%
Netherlands	3.7%	4.6%	1.7%	7.2%	7.1%	3.7%	2.0%	-2.6%	0.0%	4.7%
New Zealand		4.9%	2.5%	1.9%	10.3%		3.7%	-1.9%	-9.5%	5.8%
Norway	3.9%	6.6%	1.8%	4.1%	8.5%	3.5%	3.4%	-2.1%	-3.9%	4.8%
Portugal	5.1%	6.7%	3.0%	1.4%	12.6%			0.0%	-15.6%	6.0%
South Africa		4.1%	4.3%	9.2%	12.2%		2.3%	0.7%	-1.8%	3.4%
Spain	5.9%	5.6%	3.2%	7.0%	10.6%	5.6%	0.6%	-2.9%	-8.1%	6.0%
Sweden	4.2%	4.8%	3.5%	5.6%	7.9%			-0.6%	-3.3%	4.4%
Switzerland		4.3%	3.3%	5.7%	4.2%		2.2%	0.8%	0.9%	2.6%
UK	2.5%	4.4%	1.5%	7.3%	9.0%	2.2%	2.5%	-2.5%	-6.1%	5.3%
US	4.6%	4.0%	2.4%	4.0%	7.9%	3.5%	2.1%	-0.8%	-3.9%	4.8%
COMMODITIES										
Gold	0.0%	1.9%	0.6%	36.0%	3.3%	-0.9%	0.0%	-2.5%	25.8%	0.3%
Copper	-1.0%	-0.8%	5.7%	9.4%	2.6%	-1.9%	-2.6%	2.4%	1.1%	-0.4%
Oil	-3.8%	0.0%	1.2%	35.2%	0.1%	-4.7%	-1.9%	-1.9%	25.0%	-2.8%
Wheat	0.1%	1.9%	-0.2%	12.8%	0.5%	-0.9%	0.0%	-3.3%	4.3%	-2.4%
Commodities (CRB Index)			1.3%	13.3%	0.0%			-1.8%	4.8%	-2.9%

Source :Deutsche Bank, GFD

To understand the upcoming decade of disorder, it is worth walking through the themes of the globalisation era and how they are slowly giving way to a new regime.

Why we are coming to the end of an era

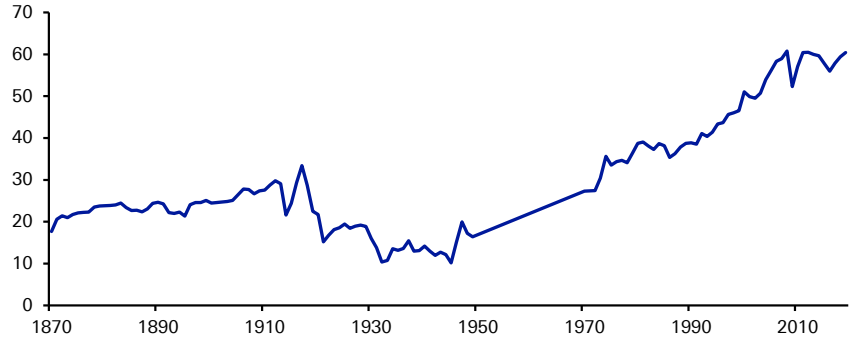
It's easy to argue that the most recent era of globalisation has been the optimal system for global growth. After all, it dramatically improved poverty levels, reduced inequality between rich and poor nations, and produced strong asset price gains. Yet, the side effects have become increasingly evident. Many of the benefits the world consumed during this era relied on runaway levels of debt, the hollowing-out of traditional manufacturing jobs, and low wage growth for the masses. As a result, many countries have experienced a loss of domestic political autonomy, rising concerns over immigration, and an increasingly-polarised political narrative. So while the globalisation era was still shiny on the outside, for many years it has been corroding from within.

While it is easy to point the finger at runaway globalisation as being the catalyst for the death of one era and the birth of another, it is not that simple. In fact, we cannot begin to forecast how the future era may look without understanding how some of the nuances in the decisions and events of the last economic era have led to its demise.

The current economic era perhaps started at the very end of the 1970s with China's reemergence into the global economy after a couple of centuries of being largely dormant. As Figure 23 shows in the next section, China was very much a sleeping giant – one that was accustomed to being one of the dominant forces on the planet. So perhaps the old order was being restored, and – as we'll see in the next section on deteriorating US/China relations – China largely believes it is returning to its natural place at the centre of the global economy. However, before it could properly reclaim this place, it needed to catch up first. It did this rapidly for the four decades after 1980, and for most of this period the rest of the world saw this as a big positive. It wasn't until recent years that concerns arose over this rapid reshaping of the world order.

Although China has been the main driver, it has been the era of global liberalisation. China's global economic reentry was enhanced a decade later by the collapse of the Iron Curtain (1988-91) and the economic liberalisation of India in 1991 following the IMF bailout. Combined, this has basically added over a billion cheap workers to the global economy over this period, opened up global trade, reduced global inequality and led to dramatic changes in the balance of economic power across the world.

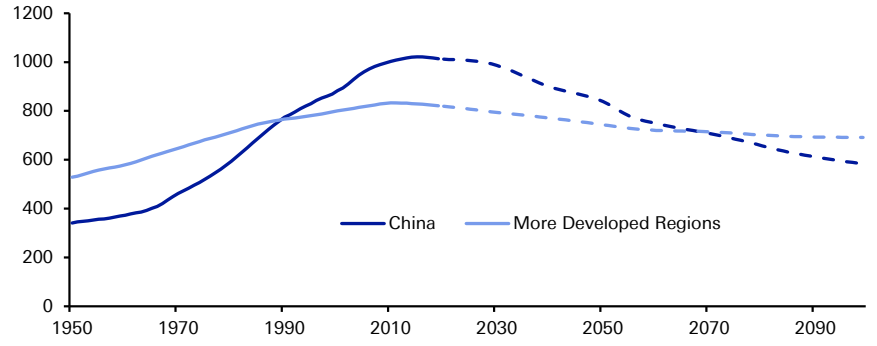
Figure 14: Global Trade (% of GDP)



Source :Deutsche Bank, Klasing and Milionis, World Bank

This liberation of workers from previously closed economies coincided with a global demographic surge in those of working age to create an abundance of workers. This, we argue, has shaped the entire last four decades in the global economy, inflation, politics and asset prices, amongst other things. As the graph shows, this natural demographic dividend has been peaking over the last decade and will now gently reverse after decades of rapid growth. This could now herald the global direction of economic and political travel in many areas.

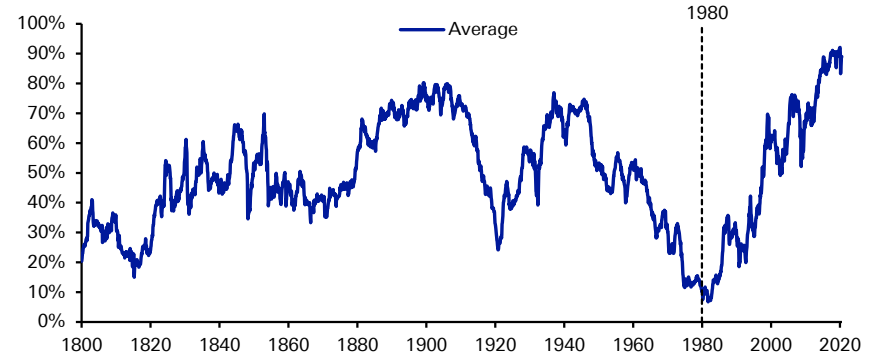
Figure 15: Working Age Population (millions)



Source : United Nations, Haver Analytics, Deutsche Bank

Just as the current era of globalisation began 40 years ago, inflation was high, global economic growth was patchy, global trade had only just recovered to pre-WWI levels (as a percentage of GDP), real and nominal government bonds were high, and equity valuations and profits were severely depressed. Indeed, on our measure, combined equity and bond valuations were the cheapest in history across 15 developed market countries for which we track long-term data.

Figure 16: Aggregated 15 DM country average bond (nominal yields) and equity percentile valuations (100% = most expensive; 0% = cheapest)



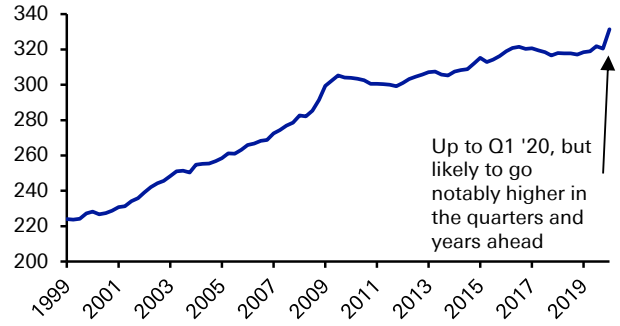
Source : GFD, Deutsche Bank

Everything fell into place over the next three to four decades. A surge in workers helped suppress inflation due to downward pressure on wages as the world integrated the Chinese and EM labour markets. There was also the impact of direct central bank policy biases and the increased independence of monetary policy around the world. Lower inflation meant lower bond yields (real and nominal) and lower interest rates – and that, in turn, allowed for higher and higher company profits and equity valuations. So despite the slowing of growth in developed

markets, stock markets generally performed well, increasing wealth for shareholders and revenue for governments.

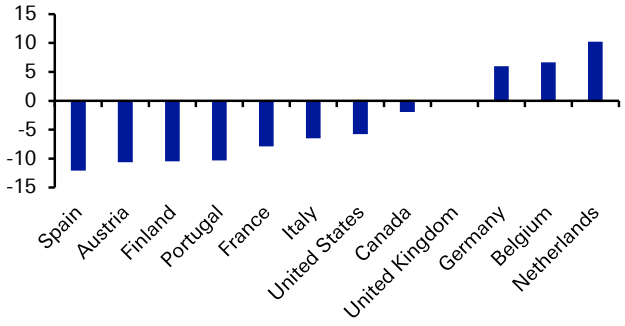
The problem was that this slowing of developed market growth was masked by ever-growing levels of debt, especially in the years leading up to the financial crisis in 2008-09.

Figure 17: Total global debt (% of GDP)



Source : IIF, Haver Analytics, Deutsche Bank

Figure 18: Cumulative change in labour share of GDP, 1980-2020 (%-pt)…



Source : European Commission, Haver Analytics, Deutsche Bank

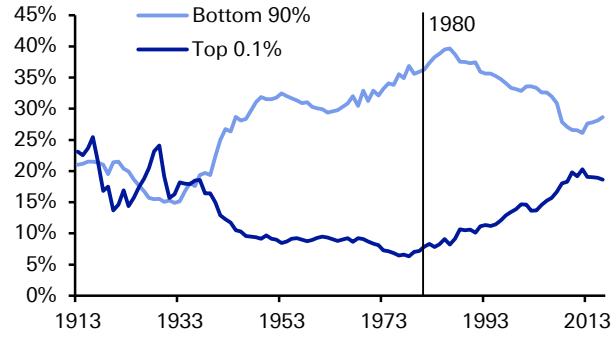
Indeed, the GFC probably signaled the first cracks in the globalisation era as it cast severe doubts in the pyramid-type scheme of ever-increasing debt levels to aid general prosperity and offset and mask the fact that real wages had been pretty stagnant for large parts of the developed market population since the early 1980s.

The regime certainly had a stay of execution during the GFC as central banks prevented a mass default cycle by propping up debt while a huge program of quantitative easing ensured that the debt pyramid scheme could continue.

Whilst this prevented an economic collapse, it perhaps only papered over the cracks in some areas and exacerbated issues elsewhere.

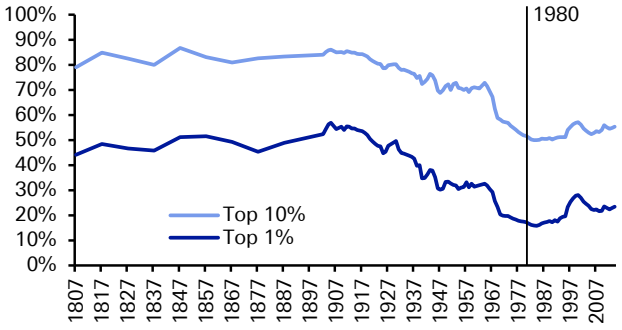
On the former, it didn't change the fact that real wages had been essentially stagnant for three decades, with lower-income earners now seeing less availability of credit to mask their lack of income growth. On the latter, it further encouraged inequality across many parts of the world. Figure 19 shows that in the US, the now 40-year widening inequality trend wasn't interrupted for long, and there is some evidence it has actually worsened since QE propped up the existing financial system. Even in countries like France, where society is generally deemed to be more equal, decades of wealth redistribution started to reverse around the start of the globalisation era.

Figure 19: US net personal wealth shares



Source : World Inequality Database, Deutsche Bank

Figure 20: French wealth shares



Source : World Inequality Database, Deutsche Bank

So the period 1980-2008 was the sweet spot for the globalisation era. The optimists saw it as a win/win for rich and poor countries, and borrowers and lenders. Yet in retrospect, the signs of decay were obvious. It took QE to maintain the status quo during and after the GFC. Meanwhile, Europe was dealing with the spectre of sovereign default, which created an existential risk to the EU and fuelled populism. Just as people began to admit the globalisation era was fraying at the edges, the landmark moments of Brexit and the election of Donald Trump rammed home the reality that the side effects of the era had been unpicking the world's economic fabric for some time.

We think a key moment that marked the beginning of the coming decade of disorder occurred towards the end of the 2010s when US and China ramped up their trade war. Such a schism was probably on the cards for some time and will likely now be accelerated and amplified by the Covid shock.

Covid-19 has been a caffeine shot for regime change, hastening the inflection points in demographics, globalisation, liberalism, domestic politics, geopolitics, and asset prices. It is true that rapid change has occurred many times in the past. The difference this time, though, is that many, somewhat independent, changes are poised to occur at the same time. The collision of multiple, rapid changes will have unexpected secondary and tertiary effects on the global economy that may last for decades and define future eras.

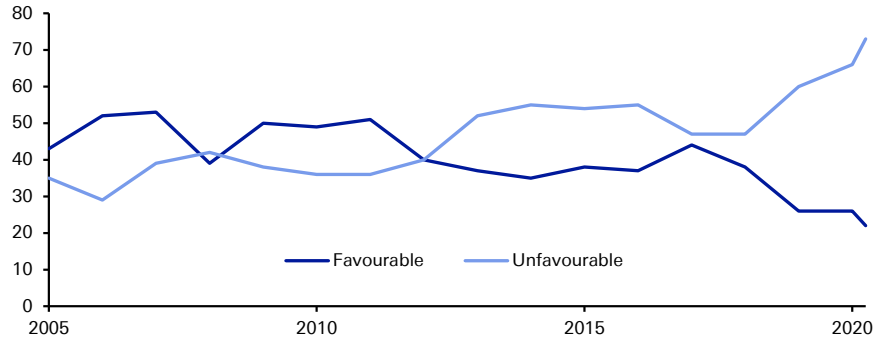
Of course, it is difficult to forecast the exact minutiae of the themes that will define the coming era of disorder. So, in the following sections, we use long-run evidence and data to develop the likely path of the key themes as they variously mean-revert, rebel against their current position, or use recent developments as a foundation to grow and become era-defining mega-themes.

A Cold War between the US and China

In 2000, twenty years into our current era, the global geopolitical structure was relatively simple. The three key political blocs were the US, China, and the EU. China and the US were joined in a dollar zone, wherein China would be permitted to emerge and integrate its labour force as a benign player in the global economic and security system. Meanwhile, the EU would politically integrate further and emerge as a heavyweight geopolitical power.

It has not turned out that way. Over the course of this coming decade, these tri-partite relations will likely deteriorate into a bipolar standoff as both the US and China seek to prevent encirclement by the other. The Covid-19 pandemic will likely accelerate this trend. It is being used as a heavy political wedge by both countries and will be a central theme in the upcoming US election given that public opinion against China is strongly bipartisan.

Figure 21: Percentage of US adults who say they have a(n) ____ opinion of China



Source : Pew Research Center, Americans Fault China for Its Role in the Spread of COVID-19, July 30 2020, https://www.pewresearch.org/global/2020/07/30/americans-fault-china-for-its-role-in-the-spread-of-Covid-19/

Yet, no matter who wins this year's US presidential election, we believe the US and China are headed for a decade of high tensions, and disorder will likely be the end result. It seems probable that this will somewhat mirror those of the US/Soviet Cold War. The trade war will likely escalate and include more tariffs, sanctions, capital controls, blocked technology transfers and border crossings. In this scenario we would expect fights over technological standards, an arms race, asset seizures, and attempts to accumulate and influence allies. Although the Thucydides Trap suggests the prospect of war, a full-blown military conflict seems unlikely.

Out of this new Cold War, two semi-frozen blocs are likely to emerge. On one side will be China with its allies, and on the other the US and its allies. We would expect this to develop into a stand-off with no side 'winning'. Taiwan could well be a political sticking point. ASEAN will be drawn into China's orbit by the sheer weight of economic dependence. Japan, South Korea, and Australia will likely be in the US camp. Meanwhile, as US energy self-sufficiency makes it increasingly indifferent about the Middle East, China, the EU, Russia, and Turkey will contend for influence in the region, as well as in Africa.

Europe and the rest of the world cannot remain neutral. Indeed, the EU will probably be increasingly encouraged to side with the US in its Chinese containment strategy and the battle over technology. Already, some European countries have raised concerns about the 17+1 meeting of Central and Eastern European countries, along

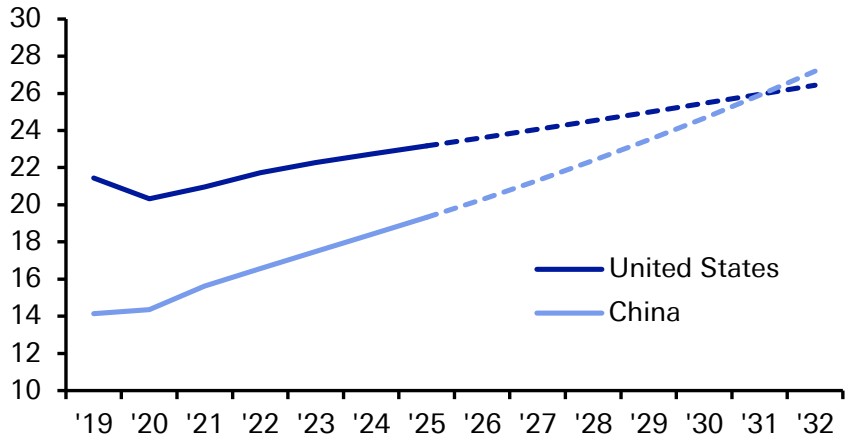
with China's Belt and Road Initiative projects.

Under a Cold War scenario, corporates aligned to countries on both sides may be encouraged to decouple themselves from the other country, while strategic corporate acquisitions could be blocked. To facilitate this, the US can continue its strategy of weaponising the dollar to force corporates onside via control of payment systems. At the same time, China will compete after rolling out its own payment system. Countries that wish to avoid US oversight will thus use it and align themselves with China.

Why relations between the US and China will likely deteriorate

Four decades after its reform and opening began, China's economy has grown to become as imposing as its geography. It is the world's second-largest in dollar terms at $14.3tn in 2019 and the largest in terms of purchasing power parity. It is the world's largest trading economy, exporting as much last year ($2.5tn) as France, Germany and Italy combined. It also has the largest trade surplus, which – at $430bn last year – is 1.5 times that of the whole Euro Area. On the demand side, household consumption in China is as large as that of Germany, France, Italy, and the Netherlands combined, and it is growing many times faster.

Figure 22: Real GDP (2019 USD, trillions)



Note: Based on DB's forecasts to 2025 and then extrapolating those growth rates beyond that point
Source : IMF, Deutsche Bank

As China grows to almost certainly become the world's biggest economy, it will likely continue with its current suite of policies. Yet some of those policies conflict with the US desire for China to fit into a global architecture of American design. As the US becomes more assertive in its desire to contain China, we would expect US leaders to increasingly move away from prior policies of accommodation. They will likely look to impose economic and financial sanctions to encourage China into the international architecture. We think China will retaliate in turn.

There is a big difference between a US/China Cold War and the one between the US and the Soviet Union several decades earlier. Most importantly, China is far more integrated into the world economy than was the USSR. Since China's accession to the WTO in December 2001, foreign capital has poured in to take advantage of the vast, cheap labour force. Cumulative inflows of foreign direct investment over the decade following WTO accession reached $1.4tn, four times the flows over the

previous decade. At the same time, China's share of world exports has quadrupled to 13 per cent since WTO accession. This has transformed not just China itself, but also the world as the large population was integrated into the global economy.

The US position

While the economic tension between the US and China has existed for some time, it came sharply into focus when the US declared China a "strategic competitor" in 2017. Indeed, President Trump had opposed 'engagement policy' long before entering politics, so it was no surprise that he adopted a more assertive posture against China than had prior US presidents.

Among others, the US administration launched its trade war with China for three reasons: China's subsidies and excess state-owned enterprise capacity in steel and aluminium that damaged key US industries, the alleged theft or forced transfer of intellectual property from US businesses and universities in contravention to China's WTO commitments, and trade practices that led to a large trade surplus with the US.

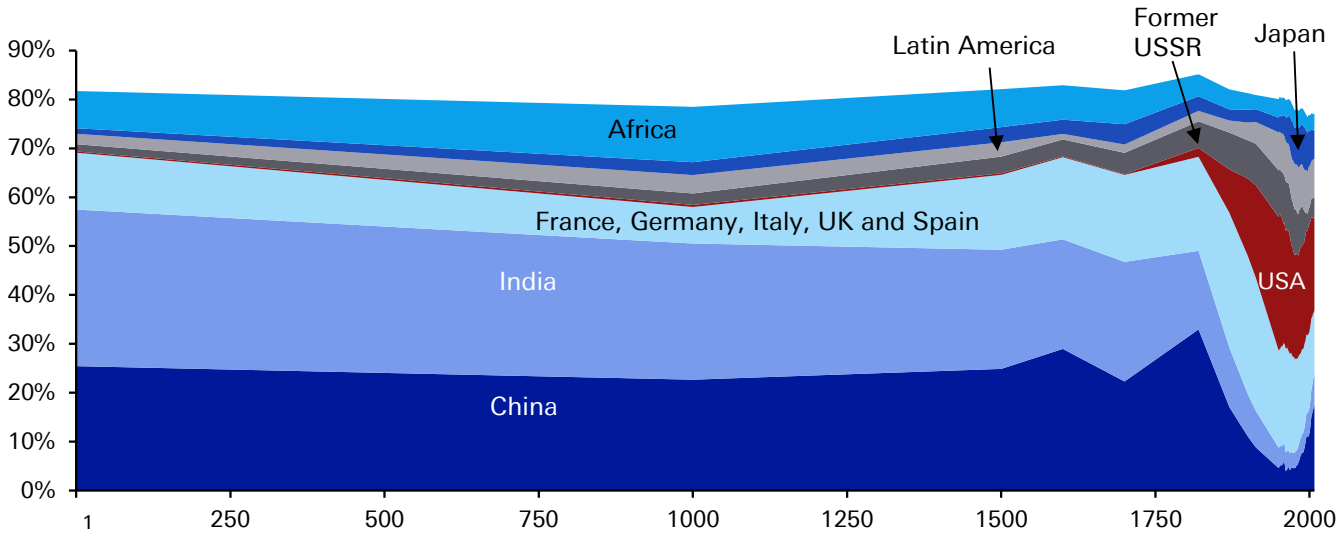
In addition to these grievances, the US has argued that China has reneged on promises for many liberalising reforms in various respects except for financial market policies. For example, restrictions on foreign investment in the financial services sector, which has really only been freed up since 2018. The US has also long had qualms about the value of the renminbi, which has appreciated very gradually, allowing China to capture an increasing share of world markets. Meanwhile, foreign firms are not allowed to provide telecommunications services in China and were, until recently, excluded from logistics services. While the comparative advantage of the West is broadly in services as compared with China's comparative advantage in manufacturing, most services activities in China have been restricted to domestic firms.

In addition to economic arguments, the US has vocally opposed some of China's activity in the South China Sea and along its borders with other countries.

The Chinese position

China sees its economic rise as part of the "Chinese dream of national rejuvenation". The history of intervention by Western countries hurt China both culturally and economically, and Chinese leaders are keen to recoup the losses experienced in the century before Mao established the modern Chinese state in 1949.

Figure 23: Global GDP Shares through history



Source : Maddison Database, Deutsche Bank

China's medium-term planning includes the 'Two Centenary goals'. The first is for China to become a "moderately prosperous" society by the time of the Communist Party's centenary in 2021. This goal has been summarised as doubling GDP between 2010 and 2020, a target likely to be narrowly missed due to the pandemic.

The second centenary observation is the 100th anniversary of the founding of the People's Republic in 2049, by which time China should be established as a "modern socialist country that is prosperous, strong, democratic, culturally advanced, and harmonious".

'National rejuvenation' also means restoration of China to its prior position as the largest economy in the world and one of the great powers. China is likely to overtake the US as having the world's largest economy in around a decade and, at the same time, China will likely seek to establish strong influence over the Asian region, though not over the US or Europe in their hemispheres.

Technology: a critical sticking point

While the US and China may eventually bridge some of their disagreements over trade and politics, a far more difficult issue is technology. As artificial intelligence becomes more important, neither side seems likely to budge from its position. Instead, we expect that each will resort to an arms race for the best AI platforms and applications. A key battleground will be semiconductors and, specifically, the software used to design them and the machinery used to make them.

From the US point of view, it has long made allegations that Chinese companies have improperly taken US intellectual property. In addition, the US has been frustrated at China's procurement policies, which excluded some foreign firms and technologies, particularly from banking, telecommunications, and other sectors. The US has excluded Huawei from its 5G rollout, arguing that Huawei has been used to support spying by China's security agencies. The US has also demanded its allies and partner countries do the same with various levels of success.

From China's point of view, it has introduced various controls to protect foreign intellectual property, even if they have not had the effect the US has demanded. The

two sides have jostled about points of patent law, and the scale of this disagreement is only likely to worsen.

A technology arms race seems inevitable. While the US is the global leader in technology, China is now close to parity in terms of research and development in terms of purchasing power parity. The Chinese priority for technology stems from the "Made in China 2025" strategy. This focusses on the technologies of the future in which the government has sought to achieve global dominance. Of course, China is not alone in this regard. Many countries have ambitious industrial policies, and the MIC2025 plan consciously follows Germany's "Industrie 4.1" program. As China has increased its technology expertise, other OECD countries have been slow to appreciate just how dependent they already are on China for existing technologies.

If disagreements over technology worsen during this decade, the effects will reverberate throughout the globe. The US and China will likely continue to build rival global technology standards – resulting in a 'Tech Wall' that leads to very little interoperability or interaction between rival internet platforms, satellite communication networks, telecom infrastructure, CPU architecture, payment systems and others. Companies and countries will either have to choose a side, or deploy two different communication and networking standards to ensure interoperability. In all, it could cost technology groups up to $3.5tn. (See DB's Apjit Walia's note here for more on the upcoming Tech Wall and the associated costs to the global economy.)

A second issue is supply chain disruption. Although Covid-19 has accelerated some corporate plans to diversify international operations, particularly if they are concentrated in a single country such as China, this is a slow process. Indeed, it could take up to ten years to transition operations to countries such as Vietnam, India, Malaysia, Indonesia, and the Philippines as many chief executives worry that these countries lack the infrastructure, skilled labour, and clustered networks of China.

The US strategy and China's likely response

No matter who wins this year's US election, they will likely pursue a policy of Chinese 'containment'. If President Trump is reelected, we expect that he will continue with tariffs and export controls. He may also enact his threatened capital controls. Although Trump's first term has seen him seek to act unilaterally, it is likely that he would eventually recognise the need to engage with allied nations if he wants them to join US policies.

If Joe Biden wins the election, he will almost certainly seek to confront China over many of the issues that President Trump has identified. However, Biden will likely seek to build an international coalition in this effort. That coalition may include, at a minimum, the 'Five Eyes' countries (US, UK, Australia, New Zealand, and Canada), Japan, and the EU.

No matter which president is in power, his playbook for engagement with China will likely follow that used during the Cold War between the US and the Soviet Union. The trade war will escalate and include more tariffs, sanctions, capital controls, blocked technology transfers and border crossings, fights over technological standards, an arms race, asset seizures, and the poaching of allies. Some suggest US export controls could hurt China more than the retaliatory measures, but export controls will not be effective for long if China begins to source competing products

from other providers.

Both sides will likely take measures to ensure their own, and block each other's, access to vital commodities and raw materials (China has a particular grasp on rare earths). That said, both sides will likely find access to the resources they need. In an extreme scenario, China could lose access to the US and EU markets. Minimal interbank cooperation would be needed to facilitate the low level of trade and investment flows that remain, and the world would be far less globalised.

Both sides will probably also scramble for position and look to create bases over strategic maritime routes. This could lead to a naval and aviation arms race in many countries in the region. As in the US/Soviet Cold War, we expect to see a continually posted bid as both sides seek to rope regional and other allies into their now closed systems. This 'cold' conflict could extend from the Western Pacific, through the Indian Ocean, to as far as Africa.

The desire to decouple will not be one-way. Indeed, China has already raised its own concerns about its dependence on the US. In particular, China wishes to diversify its export markets and reduce its reliance on exports as a growth driver. Many countries may be happy to side with China and its systems, while decoupling themselves from the requirements of the current global systems enforced by the US.

Countries and companies may be forced to choose a side

In the early days of the US-China trade conflict, European countries tried to remain neutral, as did other countries. We expect that maintaining that neutrality over the course of this decade will be difficult if not impossible.

Already, the EU is grappling with whether it should take sides on certain issues. Some inside the EU view China as interfering in 'internal' affairs. Just one example is its participation in the 17+1 meeting of Central and Eastern European countries, along with the Belt and Road Initiative projects in some EU countries. Other member states, however, are far more comfortable with Chinese engagement.

The debate runs particularly deep in Germany. For decades, the German strategy on China was dominated by the motto "Wandel durch Handel" (change through trade). Recently, however, various leaders have led a rethink on this policy. The takeover of the German technology company Kuka by Midea in 2016 was one milestone event. German politicians perceived Kuka as a key player in its Industrie 4.0 strategy. Months after Kuka, the US administration forced Germany to withdraw its approval for a Chinese takeover of the German chip-maker Aixtron, which provided chips for the Patriot system. The real pushback actually came from German industry itself. In January 2019, the Federation of German industries (BDI) published an extremely critical Strategic Position Paper.

Corporates may be stuck in the middle. Indeed, corporates in the US and Europe across several key sectors are particularly reliant on China for a material amount of revenue. With much of the developed world in a slow growth phase over the last decade, China has been a key source of corporate growth. China's place in the corporate supply chain (particularly for technology) is critical.

If Europe is drawn into the fray, the effects on its corporates will be profound. There is the risk of a shortage of electronic parts, which are partially single-sourced in China. European firms have significant on-the-ground investment in China, which

leaves them exposed.

In addition to writing off investments made in China, US and European firms will need to replenish their supply chains by investing in new capacity to replace that lost to China. This will be an expensive and time-consuming process.

While US and European firms will endure significant pain if they decouple from China, the effects of a decoupling will also ripple throughout Chinese firms. The lack of interaction with Western firms could mean Chinese firms miss out on access to Western intellectual property. Just one example is that for electric and autonomous vehicles. Furthermore, access to metals and mining products, particularly steel, iron ore, and copper could be at risk.

Finally, US, European, and Chinese firms should all anticipate that investors' ESG policies could soon be used to penalise them. For example, if a specific investor group in one country decides upon ethical policies that run contrary with those of the company in another country, they may force the company to de-couple its operations. No matter if that company is American, Chinese, or European, its management may simply have no choice but to bow to investor demands.

So after 40 years of a benign attitude towards China's return to being one of the world's great economic powerhouses, the next decade will likely see a much tenser world order as the country gets closer and closer to becoming the largest economy in the world.

A make-or-break decade for Europe?

Europe has frequently shown its skill in muddling its way through crises, and we should never underestimate the ability of EU countries to compromise on key issues. Yet, the Covid-19 pandemic has exacerbated a number of Europe's preexisting weaknesses and set up the continent up for a make-or-break decade.

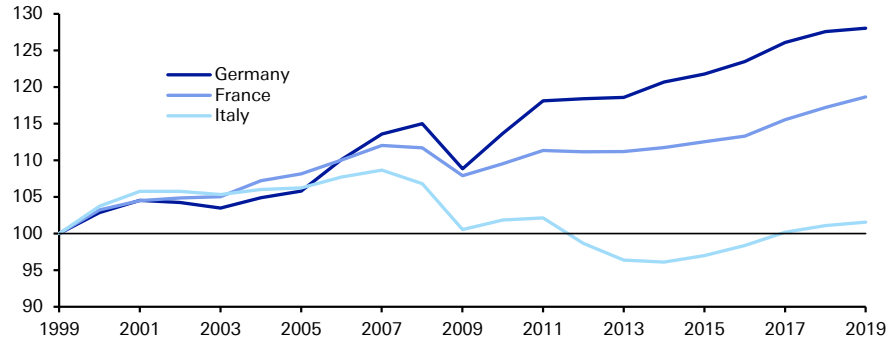
Disorder seems inevitable, yet it will not necessarily be 'bad'. Indeed, the pandemic has created fresh impetus for further integration. The question is whether Europe can build on this progress, reboot its economy and move towards a sustainable growth path, or remain mired in economic stagnation and political turmoil. The worry is that the latter scenario will lead to further fragmentation.

To examine the numerous pressure points on the continent, it's worth looking back at the last decade to highlight the turmoil that Europe has faced and how it has led to its current precarious position.

The 2010s proved to be the most tumultuous decade for the EU project since the formation of the then-EEC back in the 1950s. It started in the aftermath of the Global Financial Crash, which had already sent unemployment spiralling and living standards tumbling across the continent. As the recovery from that was underway, the sovereign debt crisis hit, further undermining the EU's cohesion between north and south, and even raising existential questions about the future of the single currency.

The economic outcomes over this period were dire, particularly for southern Europe. Just look at the divergence in real GDP per capita between Germany and Italy. Up to 2019 before the pandemic, Germany had seen growth of 28% since the formation of the Euro two decades earlier, whereas Italy had seen just 2%, with this performance gap widening noticeably after the financial crisis.

Figure 24: Real GDP per capita (1999 = 100)



Source : Eurostat, Haver Analytics, Deutsche Bank

Against this sluggish economic backdrop, populist and Eurosceptic parties proved increasingly successful across the continent, undermining the institutions of the European Union further. In Germany, the AfD entered the Bundestag for the first time in the 2017 federal elections. In France, Marine Le Pen reached the second round of the presidential election, winning more than a third of the vote. In Italy, the right-wing Lega joined with the antiestablishment Five Star Movement to form a governing coalition in 2018, though that coalition split the following year. And in Spain, the right-wing Vox party won over 15% of the vote in last year's general

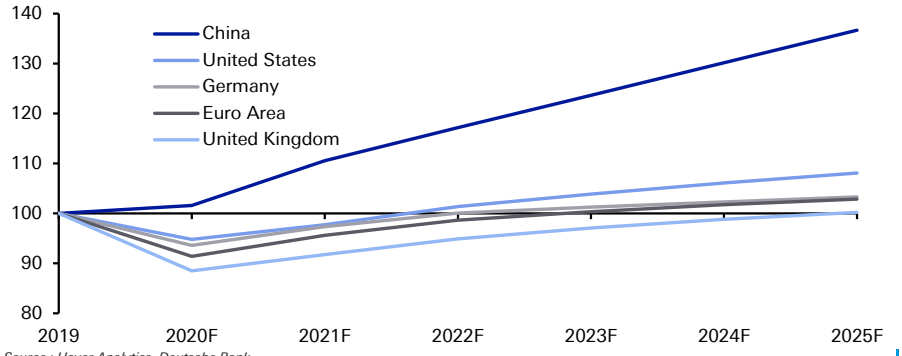
election.

As the domestic economic situation deteriorated, the external environment for Europe was becoming increasingly troublesome: the election of President Trump saw a rise in trade tensions with the US, a previously reliable ally; instability in the Middle East saw over a million refugees flee to Europe for a better life, which put a number of governments under intense pressure; and in 2016 the United Kingdom saw a small majority of voters choose to leave the EU altogether.

So even before the pandemic hit, Europe faced a number of substantial challenges. With Covid-19 exacerbating these further, the stage has been set for yet another tumultuous decade ahead.

Starting with the economy, the pandemic has worsened an already-weak situation. This year the Euro Area is set for its biggest economic contraction since its formation over two decades ago, with DB forecasting a -8.6% fall in GDP in 2020. Furthermore, the recovery is expected to be a slow one, with economic activity not expected to recover to its pre-Covid levels until early 2023. And even that forecast is based on the assumption that there won't be a notable second wave of the virus, which would hamper the recovery further. By the end of 2025, real activity should be only 2.9% above end-2019 levels, lagging behind both the US and China.

Figure 25: Real GDP (2019 = 100) Forecasts (DB)



Source : Haver Analytics, Deutsche Bank

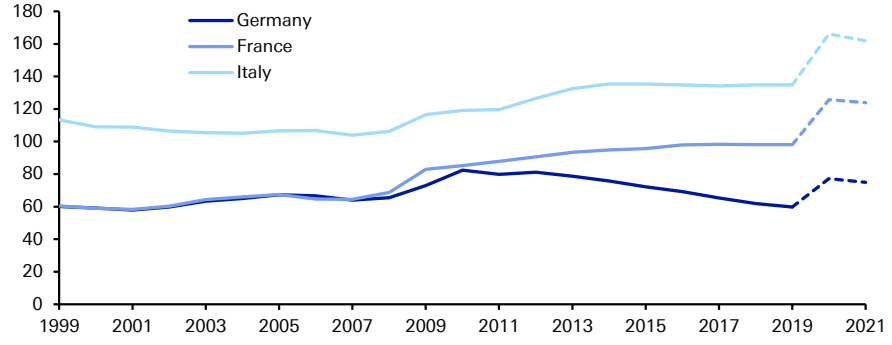
The shock is also likely to widen existing divergences between EU member states. This is partly because Italy and Spain were hit harder by the pandemic in the first place, but also because their economies are more dependent on industries such as tourism that have been hit disproportionately. Hence DB sees Italy and Spain undergoing contractions of -11.0% and -13.7%, respectively, in 2020, while Germany (which was in a better situation in the first place) experiences a smaller -6.4% decline.

To be fair, European policymakers have recognized this issue – hence the agreement for a €750bn recovery fund, which will have a joint borrowing capacity and allocate €390bn in grants and €360bn in loans to European member states, to assist them with the recovery. This is the EU's first countercyclical fiscal capacity, and fixed a major design flaw in the single currency, in that there was no EU-wide fiscal firepower to help member states cushion the effects of economic shocks. Furthermore, the proposed fiscal transfers to be allocated are partly in proportion to the fall in GDP in 2020 and 2021, and the €750bn sum is around 5.5% of EU GDP in 2019, so a significant total.

Nevertheless, this agreement has already strained the politics between member states, with the so-called "frugal four" forcing a change in the balance between grants and loans away from an original allocation of €500bn in grants and €250bn in loans to the current 390/360 split. And this recovery fund is also a temporary instrument, so it doesn't represent a US-style "Hamiltonian" moment, when the federal government assumed responsibility for state debts. In the event of a future shock, there will therefore be renewed questions as to whether a similar fund is needed once again, or whether something more permanent is necessary – a step in the right direction and one that could mark the start of a drive towards full economic integration. Make no mistake, though: without the recovery fund, and further schemes as necessary, the European project could have been and can remain in grave danger.

Meanwhile, the problem of high government debt levels in Europe has not gone away. Before the pandemic hit, the Italian debt-to-GDP ratio was more than double that of Germany's, at 135% of GDP, and is now set to soar higher still. And while Italy has still been able to finance itself and spreads have come down a long way from their highs during the sovereign debt crisis, they are still elevated when compared with pre-financial-crisis levels.

Figure 26: General Government Debt (% of GDP) including IMF forecasts



Source : Eurostat, Haver Analytics, IMF, Deutsche Bank

The legacy of Europe's accumulated debts will not only help define the direction of the continent, but is also hampering current economic performance. For example, though Italy has run consistent primary surpluses in recent years (i.e. a surplus before interest payments), its heavy debt burden means that the country is forced to spend large quantities on debt interest payments rather than other productivity-enhancing investments. In turn, this low potential growth further undermines its debt dynamics, creating a vicious circle.

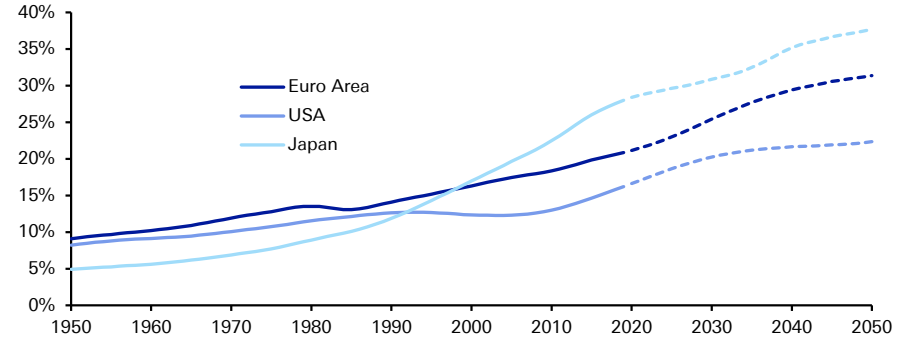
While the size of the recovery fund is significant and will have a meaningful impact on the recipient countries, it's not obvious that, in the long run, it will be consequential enough to permanently change the dynamics that led to divergence in the first place. Furthermore, with fiscal policy reluctant or unable to act effectively, monetary policy is approaching the limits of its firepower. If the equilibrium rate of interest r* continues to decline, then it is even plausible to envisage a Japanification scenario, whereby monetary policy becomes trapped in negative rates, the central bank is unable to generate sustained inflation, and the banking system slowly atrophies.

Adding to the concern about the long-run efficacy of the recovery fund is the potential for an austerity agenda to recapture the mood of the political core in Europe once the pandemic has receded. If it does, disinflation trends will be hard to fight. This could lead to adverse consequences that are similar to, but more amplified, than those we saw over the last decade. Should the EU decide to tighten its fiscal purse strings, economic and political divergence could widen despite the recovery fund. This disinflation, combined with greater political strife, would set the scene for an era of European disorder.

Over the coming decade, the continent's economic woes will be aggravated by its demographics. Specifically, Europe will experience a noticeable ageing of its population, which is likely to become an increasingly obvious issue as we move through the 2020s. Currently, the share of over-65s in the Euro Area stands at 21%, up from 16% in 1999 when the single currency was launched. But by 2030, the UN's forecasts see that share rising to 25%, before reaching 29% by 2040. For a sense of perspective, the figure of 29% by 2040 is higher than that for Japan today in 2020.

This trend towards an older population will raise the pressure on government finances, since a shrinking share of working-age citizens will need to pay the taxes that fund the pensions and healthcare of an expanding elderly population. In addition, as the elderly will comprise an increasingly large proportion of the electorate, this imbalance sets the stage for intergenerational clashes as the electoral incentives of politicians mean they increasingly focus on the interests of older citizens over the young. We have devoted a separate chapter to this theme and note that changes may be afoot here as Millennials (and younger groups) start to approach parity in electoral numbers. This will happen later in Europe than it will in the US and the UK, but the trend is still slowly moving in their direction in most of the continent. As we'll see, Italy will be very late to hit the inflection point due to greater demographic imbalance, and this could create more embedded self-interest in the status quo here than elsewhere.

Figure 27: Share of population aged 65+ with UN forecasts



Source : UN, Haver Analytics, Deutsche Bank

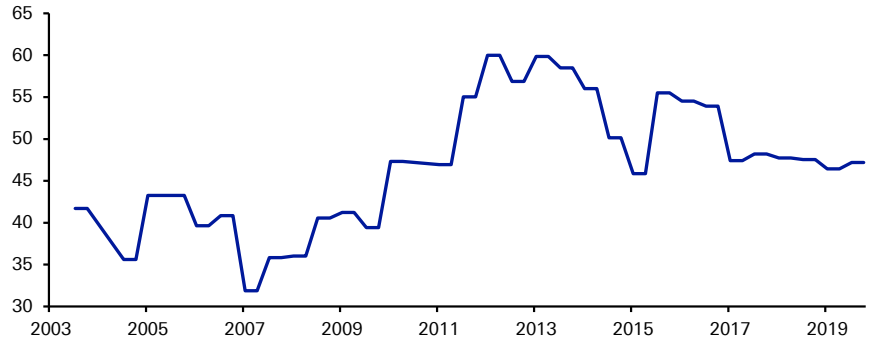
It is not simply the ageing of the population that is the problem in Europe. Just as worrisome is the shrinking size of the population. Indeed, over the coming decade overall population growth will likely turn negative, making Europe something more like Japan.

So with the coming European decade likely to see a slow recovery from Covid, unemployment remaining high, and demographic issues causing further problems

for government balance sheets, it will be no surprise to see economic turmoil once again go hand-in-hand with political turmoil. This turmoil may be exacerbated by the EU's sometimes cumbersome institutional processes. Decisions on many issues take place via qualified majority voting, whereby 55% of the EU member states representing at least 65% of the EU's population are needed to support measures. On some other topics, such as the recovery fund, complete unanimity is required.

A strained economy and cumbersome decision-making process are key ingredients for further populist successes. Youth unemployment is incredibly high in much of Europe, particularly in the south, and that is likely to be driven higher still thanks to the pandemic. Meanwhile, disenchantment at the European Union remains elevated in many countries. For instance, the EU's own Eurobarometer surveys show that almost half of Europeans say they "tend not to trust" the EU. Although that proportion has fallen from the high levels during the sovereign debt crisis, it is still well above the levels seen before the financial crisis.

Figure 28: Eurobarometer Survey: Percentage who say they tend not to trust the EU



Source : European Commisssion, Haver Analytics, Deutsche Bank

The siren call of populism is likely to be further aided by the growth of new methods of communication that bypass traditional media. Indeed, the ubiquity of social media has been critical in enabling new movements that have shaken traditional parties. In Italy, the Five Star Movement, which is the largest party in parliament, exploded in popularity despite only being founded in 2009. Meanwhile in Germany, the AfD is now the third-largest party in the Bundestag, despite only being founded in 2013.

It has not just been right-wing groups that have seized on the communication revolution and captured the hearts of disenfranchised voters. Perhaps the best example of political upheaval on the other side of politics occurred when Emmanuel Macron won the Elysee at the head of an entirely new party founded just a year earlier. Perhaps European politics in the 2020s will be defined by parties that currently don't exist or are at a fledgling stage of development.

A rapid upheaval in politics set against a precarious debt-laden economy means the coming years will not only be crucial for the future of the EU, but also filled with disorder that could see Europe go down entirely different paths. Key near-term events will be the German election in 2021, the French presidential election in 2022, and the Spanish and Italian votes that must be held by 2023. And that is before

considering the issues taking place in Eastern Europe, where the Polish and Hungarian governments have already clashed with EU institutions over the rule of law.

With an array of domestic issues, Europe risks falling behind on the world stage. Over recent decades, Europe's global influence has been continuously diminishing as its share of both the global population and the global economy have shrunk, a process that is likely to continue over the 2020s. To some extent this is an unavoidable process, as the emerging markets see living standards increasingly converge with those in the advanced economies. But the EU's diminished heft has left the US and China as the only two remaining global powers with the ability to project their influence, not least since the EU lags substantially in military terms.

With tensions escalating between the US and China, and Europe proving unable to resolve its many domestic issues, the risk is that the continent finds itself squeezed between the two great powers and merely playing a supporting role.

With Europe facing domestic political instability set against the backdrop of a highly uncertain economic future and potentially hostile external environment, there is a serious question to be asked about whether the European Union can sustain itself over the decade ahead. That question becomes more pressing given the demographic overhang that will increasingly burden the continent. Although the EU has a tradition of stumbling from crisis to crisis and doing just enough each time, the continued use of sticking plasters rather than forging durable solutions risks ending in failure. Furthermore, we haven't considered the possibility that another shock could occur in the coming decade that creates further havoc, just as the GFC did in 2008 or the Coronavirus did in 2020.

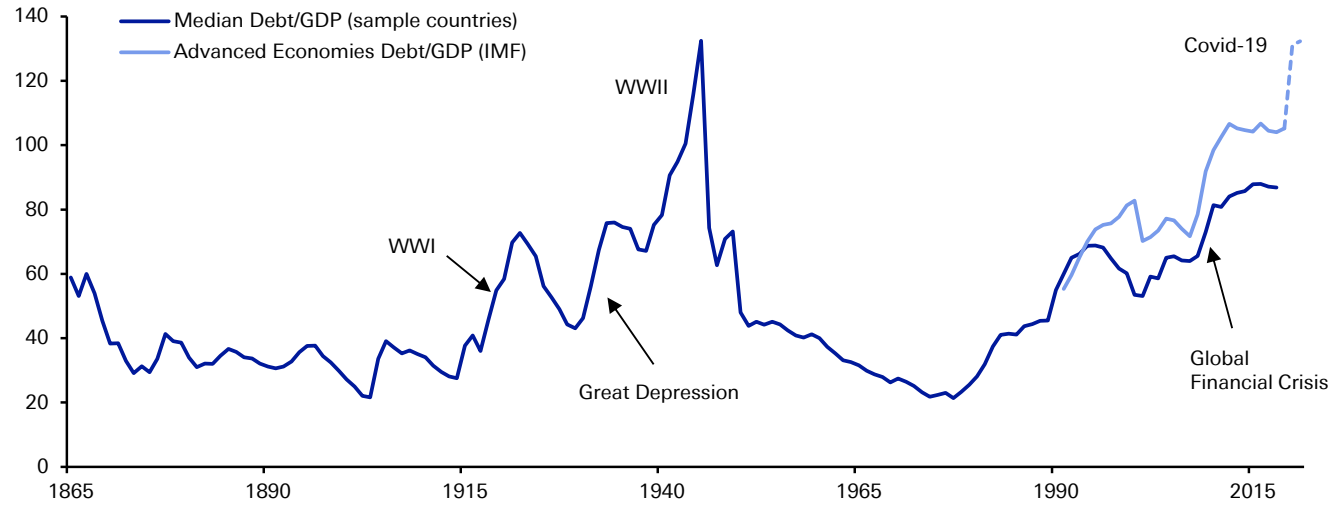
Europe will need to build on the success of the Recovery Fund and use this momentous agreement as a stepping stone towards a much more fiscally and politically integrated union to ensure its long-term survival. The muddle-through scenario seems less and less likely to be tenable in a post-Covid world where economic divergences will likely become starker and not less. It's clear we're in for a bumpy ride even if the end result is ultimately positive. Failure, though, would be an economic and social catastrophe.

Will even higher debt levels herald in an MMT world?

Last year's Long-Term Study, "The History and Future of Debt", dedicated a whole report to this subject and whilst the themes are the same, the intensity of the rise in current and future debt and scale of the likely financial repression have increased due to the Covid-19 shock. Figure 29 shows that we'll be adding around 15-20% to the debt/GDP ratios of advanced countries in 2020, with the likelihood that this climbs another 5-10% in 2021 as recovery from the virus remains relatively muted.

There is every evidence that a combination of ever-higher levels of debt and the fiat currency system is a cocktail that encourages financial shocks and crises. In such an environment of higher debt and even more money printing, it's pretty clear to us that more disorder and financial market chaos will be a regular feature of the macro/economic landscape. Yes we can run with more debt, but a high-leverage society is always likely to be more shock-prone.

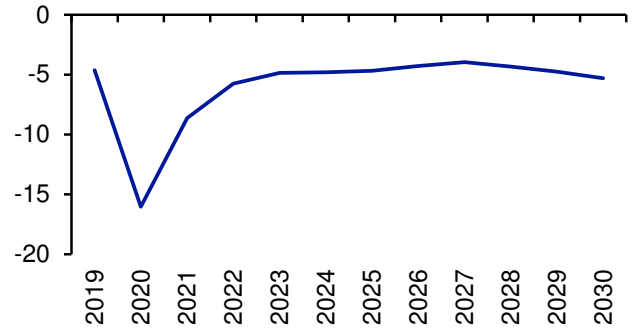
Figure 29: Historical median Debt/GDP for a sample of advanced economies, along with the IMF's forecasts for the advanced economies



Source : GFD, IMF, Deutsche Bank
Note: US, Netherlands, France, Great Britain, Italy, Australia and Sweden included from 1865, Germany from 1869, Canada from 1870, Japan from 1875, Switzerland from 1880. Germany without data 1915-24 and 1939-49, France from 1915-19, Netherlands from 1942-47

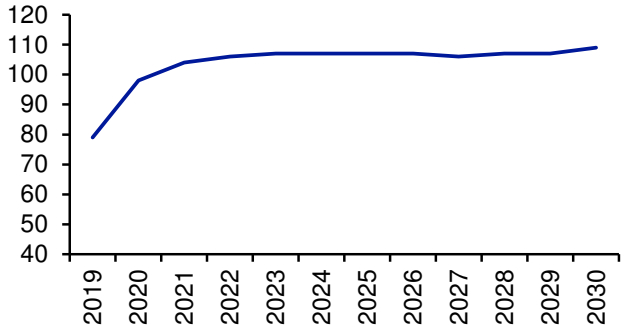
So, how much debt will countries take on? Long-term forecasts for government debt/GDP are relatively difficult to come by and highly uncertain, but both DB and the CBO in the US do make forecasts. Relative to a 2019 figure of c.80%, DB expects US government debt/GDP to be 105% in 2020, 111% in 2021 and 124% by 2030.

Figure 30: US CBO deficit forecast (% of GDP)



Source : CBO, Deutsche Bank

Figure 31: US CBO debt-to-GDP forecast (%)

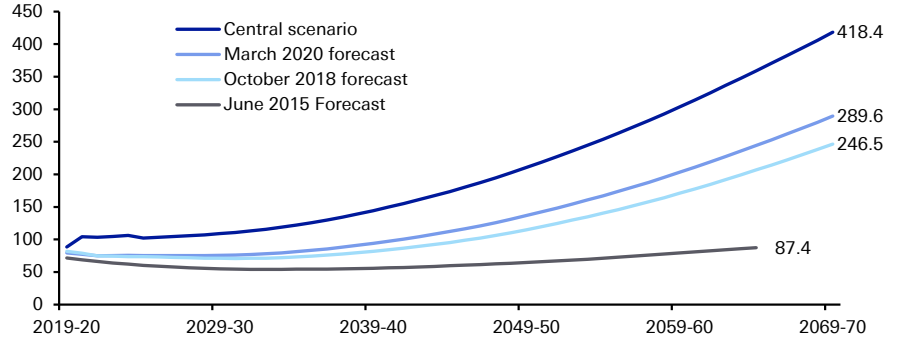


Source : CBO, Deutsche Bank

For the UK, the Office for Budget Responsibility forecasts out 50 years and although the next decade isn't where the steepest increase occurs, it's clear that the current path of public finances is completely unsustainable, and this will come increasingly into view in the years ahead even if the largest problems aren't immediate. Covid has accelerated and exaggerated this problem. The fact that the national debt is expected to double in a generation should increasingly focus the minds of politicians and voters in the decade ahead.

The OBR analysis also shows how quickly things have changed in the last five years as growth has been revised down, austerity ended and the pandemic arrived. Clearly the assumptions can change again, but it'll be difficult to impose fresh austerity on a post-pandemic world.

Figure 32: OBR long-term forecasts for UK public sector net debt



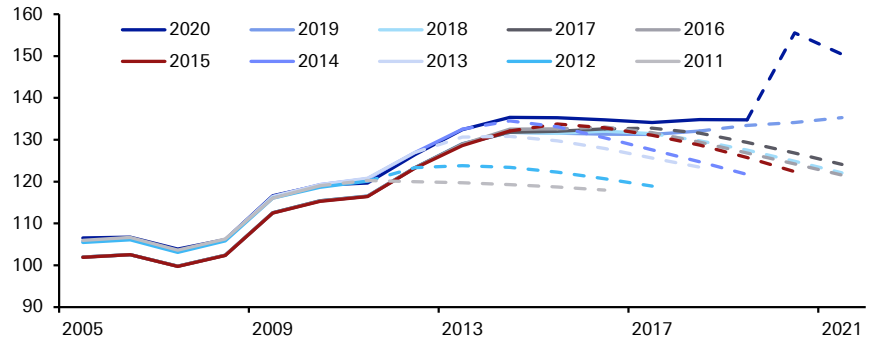
Source : OBR, Deutsche Bank

In the prior section looking at the future of Europe, we showed how the size of debt across the continent had diverged in recent years, something that the pandemic looks set to intensify.

Most forecasts for European debt tend to mean-revert to respect the rules of the Maastricht treaty once the forecasting horizon extends beyond the next couple of years. However, as the graph below shows, the IMF (and economists generally) have generally been too optimistic on Italy's debt/GDP forecasts in recent years. Over successive five-year forecasting horizon periods, they have generally assumed that debt/GDP will fall. However, in the years before Covid-19, it was at best stabilising in what were very supportive funding conditions and a growth

environment that had been improving. Then we had the Italian budget rebellion in the latter half of 2019 and now Covid-19, so the path of the last 10 years has been one of consistent underestimation of the rise. Why should we assume that forecasting will improve now?

Figure 33: Italian Gross Debt (% of GDP), successive IMF April forecasts (dotted)



Source : IMF, Deutsche Bank

A decade of tight fiscal policy is coming to an end

Prior to Covid-19, it felt we were coming to an end of a mini post-GFC era of tight fiscal and loose monetary policy. This era helped stabilise debt at high levels by ensuring that QE and ZIRP kept interest costs low and demand for fixed income high, whilst relatively tight government budgets and austerity ensured that debt didn't climb too much – an artificial holding period for government debt.

However, we thought this era was likely unsustainable as the relatively tight fiscal policy was clearly encouraging a weak and unsatisfactory growth environment – one that was encouraging populist movements around the world and also causing fissures in the European Union construct. It was only as recently as July 2019 that the EU decided not to pursue an excessive deficit procedure against Italy after the country took action to reduce its 2019 deficit.

At the other end of the European spectrum, Germany was under increasing pressure to move away from "Black Zero" type polices. In the UK, a government was elected at the end of 2019 to level up the country, respond to the symptoms behind the Brexit vote, and likely increase fiscal spending. Prior to this, President Trump had instigated large tax cuts for the US economy and created a couple of years of c.3-5% deficits. So we would argue the tight fiscal era was approaching natural limits and was likely on the turn.

Covid-19 has accelerated this and has for now placed Western-world austerity into the history books. The big question is whether governments try to reengage with tighter fiscal policy after the pandemic is behind us.

The narrative soon after the GFC was that governments had to move to repair their balance sheets as soon as possible or risk seeing a sovereign debt crisis. That Peripheral Europe had such a crisis before the ECB intervened was used by many as proof that public finances needed to be urgently put on a more sustainable path.

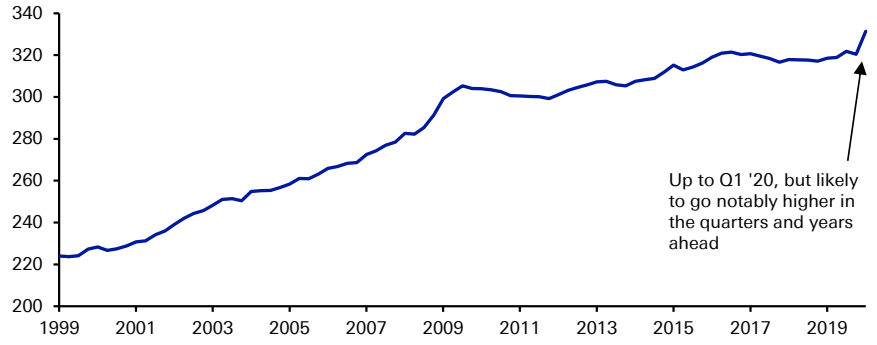
In our opinion, though, Covid-19 has likely opened up a Pandora's Box in terms of government spending. We've seen strong evidence that you can see deficits

explode without seeing sovereign yields rise, and as such we believe governments will continue to spend and central banks will increasingly facilitate this by near-continuous QE over the years ahead.

Indeed, with central banks now much more proactive with QE, we see greater temptation to run with larger deficits going forward alongside aggressive central bank policies (QE and ZIRP or NIRP). With the new public mood, which politicians will be brave enough to place renewed austerity on nurses, doctors and the other key workers that have been so admired through the pandemic? Also, for those workers furloughed and/or laid off during this crisis, are governments really going to allow them to revert to the most basic of benefits packages whilst unemployed? It feels that Covid-19 has changed everything and governments will now be politically incentivised to run much higher levels of deficits as we continue to move out of the pandemic and beyond.

This will leave public sector debt structurally higher for a long period to come, alongside business and consumer debt – both of which have been stressed by the pandemic.

Figure 34: Total global debt (% of GDP)



Source : IIF, Haver Analytics, Deutsche Bank

What we are describing above is a move towards MMT and/or helicopter money. We went through a description in last year's study on their main features, including areas where they are similar and areas where they are different. See pages 45-51 here for more on this. Given the lengthy prose on this in last year's study, we won't explain it but instead discuss how likely it is and the consequences.

At the moment we are certainly in an immediate MMT/helicopter-money world where both monetary and fiscal policy are operating at full throttle to ease the worst impact of the pandemic. Where opinion amongst economists and strategists then divides is over whether this will be a more permanent feature of our landscape.

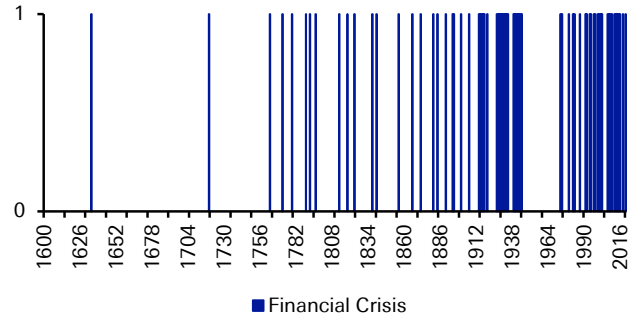
Our thoughts are that it will be and that rebuilding the economy post-Covid will be the perfect 'excuse' to spend. Remedial climate-change investment may also return to the agenda before too long and be another good excuse to print money to spend.

Does debt matter?

Over the last decade, it's been increasingly clear that economies can run with much higher levels of debt than standard debt sustainability analysis may have suggested pre-GFC. However, the fact that they can run with higher debt levels doesn't mean

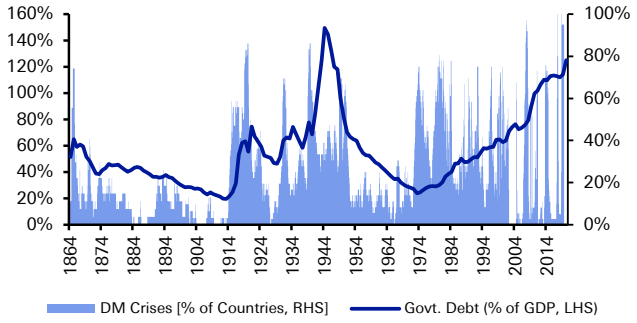
that the path will be smooth. In fact, far from it. With the high levels of debt, we think we will continue to be prone to financial crises – and it's not a coincident that we've seen two once-in-a-lifetime crises in just over a decade. Although Covid-19 is exogenous to the financial system, the severity of the shock and response was necessary given the high-leverage global economy.

Figure 35: Years with a financial crisis since 1600 (internet search)



Source : Deutsche Bank, GFD

Figure 36: Percentage of DM countries in financial stress vs. G7 government debt to GDP



Source : Deutsche Bank, GFD, Haver Analytics

As we highlighted in our 2017 Long-Term Study "The Next Financial Crisis", our modern global economic system has been increasingly prone to regular financial crises. In that report, we showed that since the Bretton Woods system collapsed in the early 1970s and we moved into an era of fiat currencies where we broke all ties to gold, financial crises have been more regular. Figure 35 shows a graph back to the year 1600 using an internet search to highlight as many financial crises as we could find through history. As can be seen, prior to the post-WWII Bretton Woods system, financial crises existed, but the frequency was not as intense as the post-Bretton Woods world. Interestingly, this period between the mid-1940s and early 1970s was the longest stretch without an observable financial crisis for 200-300 years. In addition, we've shown average G7 government debt/GDP versus the percentage of countries that have seen a financial shock** over any 12-month period (Figure 36). A similar picture emerges. [1]

Since the Fed of the late 1990s decided to help bail out the financial system following the LTCM collapse, we've had rolling state-sponsored capitalism and large moral hazard, which has changed corporate and investor behaviour in favour of leverage. This has meant that each subsequent default cycle (or mini-market cycle) has been less severe than the free market parallel universe version would have been and has left increasingly more debt in the system as a result – and has meant that the intervention necessary to protect the system has become ever greater. There is little sign that this super-cycle is anything other than ongoing.

We should stress that this shouldn't be seen as a reason not to buy financial assets, as in this era financial stress brings huge intervention and liquidity – but it should help raise awareness of the structural regime we are living through and how it relates to history.

1 ** DM shocks refer to the percentage of countries around the world that over a 12-month period see equities -15%, bonds -10%, FX -10%, inflation +10% or a sovereign default

Should we 'dis' inflation?

If there is one theme that has the ability to cause all sorts of disorder in the coming decade and beyond, it is inflation. Indeed, opinion is split on whether the developed world will experience high levels of inflation or disinflation in the near future. What seems highly likely is that given the scale of the response to the Covid-19 crisis, the numbers on both sides are so big that a return to low, stable inflation close to central bank target is less likely going forward. And no matter whether we see inflation or deflation, the turbulence caused by either scenario will ripple across the world.

We'll say it upfront – this team is in the inflationary camp. But the reality is that disinflation trends could easily win out without specific policy action. Indeed, the topic divides DB Research, and many believe it will be very difficult to generate inflation going forward.

Disinflation and the consequences

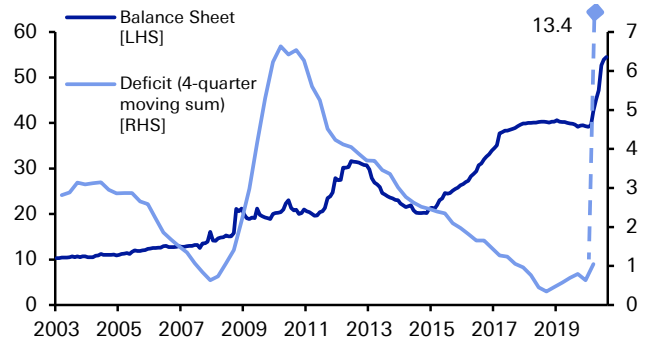
In the more normal post-pandemic times that we hope lie ahead, disinflation or deflation is most likely to occur if governments decide to prioritise a balanced budget, or if central banks step back from their extraordinary policies. Of the two, the former seems far more likely than the latter as the ideology from the 2010s may return in some or many countries. In this scenario, the Western world may resemble Japan and most of the following will likely happen: Rates and yields are floored, nominal and real GDP are likely very low, debt burdens remain very high, banking systems are under pressure, the EU project sees further stresses, QE is very high, asset holders do better than workers, inequality remains and populism is likely to continue due to frustration with low growth and perceived inequalities.

As such, disinflation would cause similar issues to the ones we've had over the last decade but probably more intense given the fragile political situation prior to the pandemic. Could Europe really prosper in an era where Germany again tightened fiscal purses? Would such a scenario not cause the German/Italian economic and political divergence to widen again, notwithstanding the progress made on the Recovery Fund? As a minimum this fund would need to be the basis for a more substantial and permanent move towards fiscal union to ensure that performance divergence doesn't again create fresh financial and political crises. In short, disinflation would likely bring disorder in economics and politics given our starting point.

Inflation

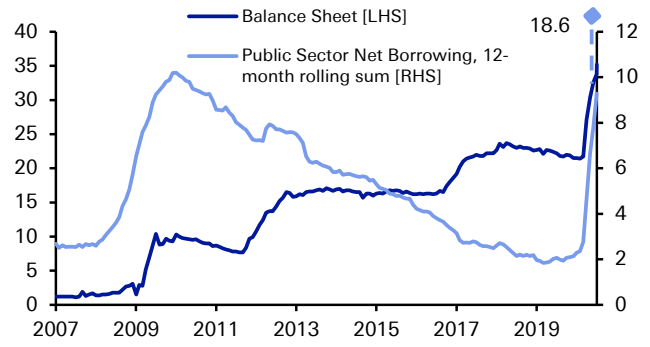
The main reason we didn't witness much inflation after the GFC is that fiscal policy started to retrench soon after the recovery was under way as economic orthodoxy and fears of sovereign defaults focused the minds of policymakers. As such, even though monetary policy remained extremely loose, in what was a quasi-liquidity trap, the economy struggled to create enough activity to generate inflation (other than in many asset prices), especially in an era when globalisation and demographics were still around their peak disinflationary influence on the global economy.

Figure 37: ECB Balance Sheet and Euro Area Budget Deficit (% of GDP) with '20 forecast



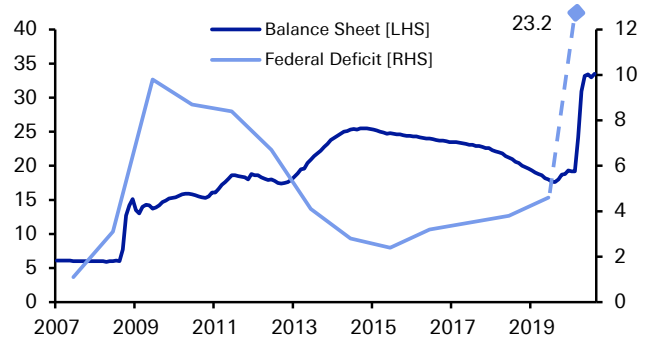
Source : Deutsche Bank, ECB, Haver Analytics, Bloomberg Finance LP

Figure 38: Bank of England Balance sheet and UK Budget Deficit (% of GDP) with '20 forecast



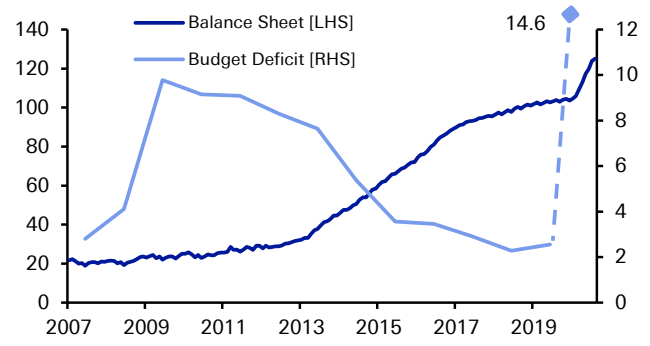
Source : Deutsche Bank, ONS, Haver Analytics, Bloomberg Finance LP

Figure 39: Federal Reserve Balance Sheet and US Budget Deficit (% of GDP) with '20 forecast



Source : Deutsche Bank, OMB, Haver Analytics, Bloomberg Finance LP

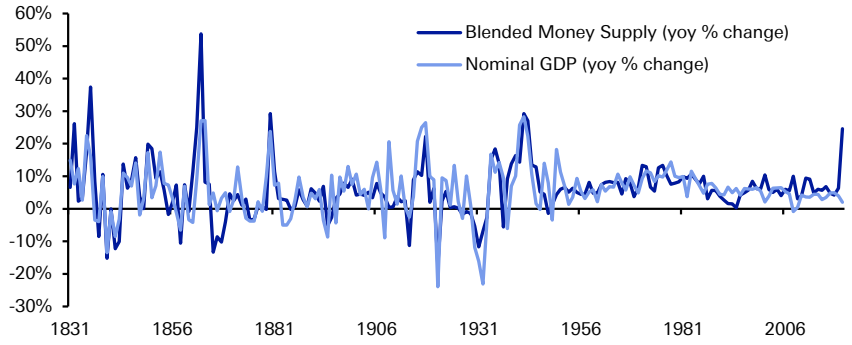
Figure 40: Bank of Japan Balance Sheet and Japan Budget Deficit (% of GDP) with '20 forecast



Source : Deutsche Bank, Bloomberg Finance LP

To ignite inflation, we need to see a permanent shift in the policy stance. Even though Covid is clearly an extreme event, so far there are signs that this policy shift has happened in a much more dramatic manner than that seen after the GFC and will perhaps linger for much longer. Figure 41 shows US money supply growth and nominal GDP over the last two centuries, and at around 25% YoY growth is at the highest levels post war. There's a decent correlation through history between the annual change in the money supply and nominal GDP growth, as would be implied by the PQ = MV equation/identity. As the chart shows, this is only the 10th time that YoY money supply growth has gone above 20% in the US. On all previous occasions nominal GDP soon moved comfortably into double digits – mostly through inflation.

Figure 41: US money supply and nominal GDP growth



Note: We've tried to use the broad definition of the money supply available. This means it's a blend of currency in circulation (1831), M1 (1930-1948) and M2 (1949-current). The Fed discontinued M3 in 2006 so we did not blend that in historically.
Source : GFD, Deutsche Bank

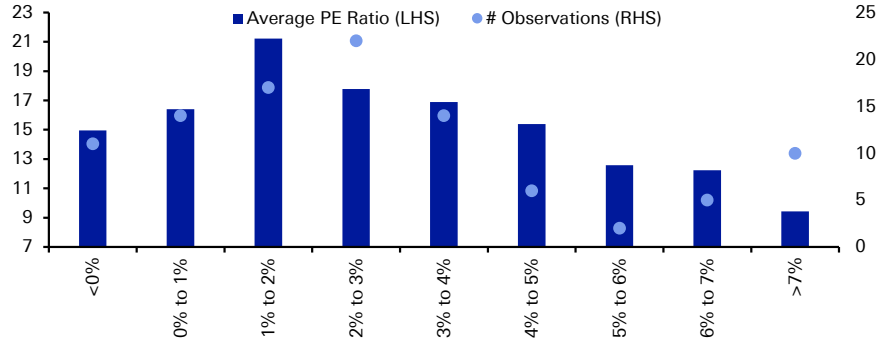
The relationship between money supply and GDP growth has weakened over the last few decades, as the graph shows, but the broad correlation has remained, and money supply growth averaged 6% from 1831 to 2019, a period where nominal GDP growth averaged 6% as well. So the two have been in the same ballpark. The current 25% YoY increase is off the charts relative to post-WWII history and beyond anything seen in even the 1970s.

In the short term the authorities will struggle to continue with policies that keep money supply growth as elevated as it is currently around the globe, but we expect them to more consistently promote such policies, moving us into a new regime of combined fiscal and monetary stimulus. This will certainly have a more profound impact on money supply than the policies of the immediate recent decades.

Generally the above can be summed up as moving from a world of financial asset QE to economy-wide QE – money printing that goes more directly to the wider economy rather than sitting in financial assets.

In terms of asset prices, its fairly intuitive as to what happens to bonds in either the inflation or deflation scenario. For equities, they generally like low but positive, stable inflation as Figure 42 shows. That said, the developed world has not experienced periods of high inflation in the era of large technology companies that dominate many equity indices. As prolonged periods of inflation have significantly different impacts on companies with high and low capital requirements, any move to higher or lower inflation will likely bring disruption and bifurcation to financial markets.

Figure 42: US PE ratio since 1920 by different inflation buckets... valuations generally higher in periods of low, stable and close to central bank targeted levels of inflation



Source : GFD, Deutsche Bank

Other potential inflationary shifts

As globalisation trends reverse and the shocks of the pandemic focus minds, it's likely we will move more towards a "just-in-case" more local supply chain environment from the "just-in-time" global experience of recent years. This will likely increase costs relative to the past. Political encouragement will likely enhance this trend (e.g. Huawei) and emphasise a more domestic focus after years of an internationalist one (e.g. Trump and Brexit).

Also, as we discussed in the previous section, the political imperative to rebalance economies and level up the inequality divide now seems to cross the political spectrum. Both left- and right-leaning parties are embracing the idea of more spending on the economy and on leveling up.

Finally, in the background, we have now seen working-age populations peak across all the important economic areas of the world; combine this with deglobalisation, and the prospects for the lower-paid parts of populations will be relatively improved going forward in more normal economic times. The reduced supply of labour, in particular cheap overseas labour, should slowly start to work in favour of the lower half of workers on the income scale. However, normal times may take a while to return after the pandemic, and labour may initially continue to be cyclically depressed without aggressive government action. Given the precedent set in this crisis and how much it's been relied upon, we expect government support in the economy to continue to be relatively substantial while the impact of Covid stays with us.

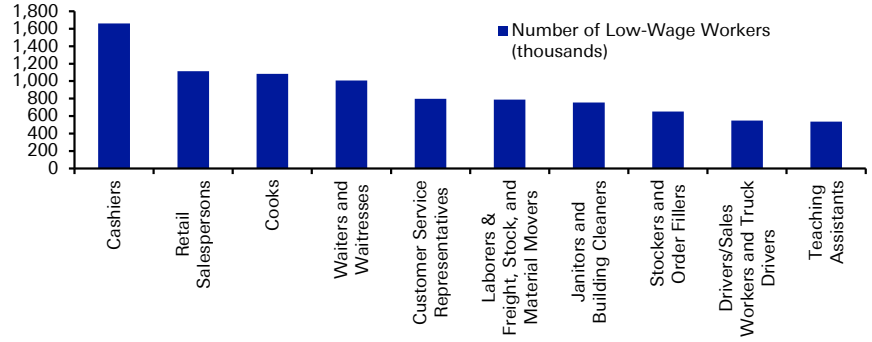
Overall, the Covid shock will make it much more difficult for authorities to control inflation at their target levels. The numbers are simply too big in both directions. The disinflation impact is obvious, especially in the short term, but in theory the policy response can continue to be a game changer for higher inflation going forward. Either way, we expect a period ahead where inflation spends more time away from target for longer. We think inflation will dominate as the decade progresses, but both outcomes will bring disorder relative to the stability of the globalisation era.

Inequality – getting worse before it gets better

Prior to the pandemic, it felt like the political direction of travel was towards a leveling up of society over the next several years. Ultimately, policy post-Covid should encourage this, but it is possible that things will deteriorate in the short term. If so, that will exacerbate the world's current problems with inequality and set the stage for further political, economic, and social disorder.

The situation is complicated as so far government furlough schemes have been very supportive for those on low incomes. However, this bottom income group is likely to include those whose jobs are most at risk while social distancing remains in place. Figure 43 showing the top 10 occupations among low-wage US workers highlights the problem. Many of these jobs will be difficult in a socially distancing world and thus continue to be vulnerable in the immediate future.

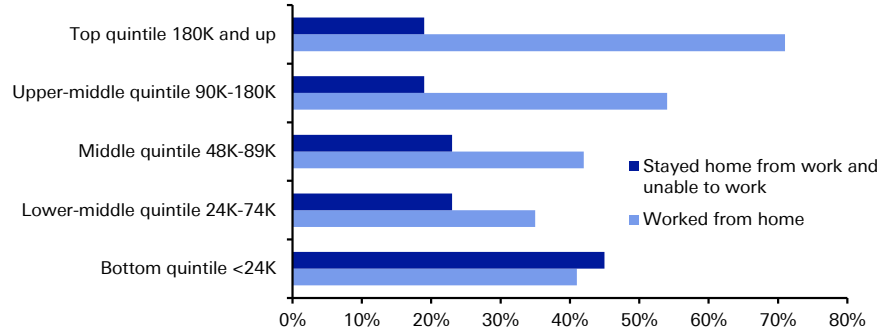
Figure 43: Top 10 Occupations Among Low-Wage Workers, 2018



Note: Low-Wage Workers defined as those in bottom quintile of people who earned at least $1000 in past year and worked at least 20 hours in a typical week when working.
Source : KFF analysis of 2018 American Community Survey, 1-Year Estimates, Deutsche Bank

At the other end of the spectrum Figure 44 shows how much easier it has been for those on the highest incomes to work from home and therefore arguably be less at risk in terms of immediate job security.

Figure 44: Working from home by income group in the United States



Note: Sample of 8572 randomly selected adults from the Gallup Panel, interviewed over the phone from March 16 to March 22
Source : Reeves, Richard V. and Jonathan Rothwell, "Class and COVID: How the less affluent face double risks," Brookings Institution March 2020 , Deutsche Bank Research

So while governments around the world may plug the income gap for the lower paid in the short term, this group may be most at risk for any structural changes to the

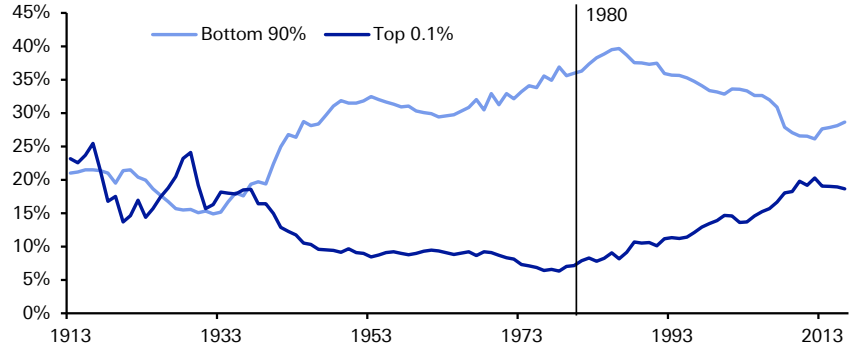
economy in the immediate and medium-term post-Covid landscape. Thus, inequality could easily initially increase.

In the short term, the higher-paid office-based workers are benefitting from work-from-home (WFH) abilities. After six months of such activity, it feels that there is a permanence to some element of the WFH movement. Such a huge shift might actually reduce inequality longer term. The more office work moves towards a WFH environment, the more such employment becomes competitive with a wider geographical pool of talent available. Big city workers commanding higher salaries will have to increasingly prove that they have skills that are superior to those in a global WFH landscape. Some outsourcing within and outside countries is likely over time. By contrast, a large number of blue collar workers have already been through such themes within the globalisation era and may find that a reduction of globalsation, and the fact that their jobs require a physical presence at a particular location, means their employment prospects are less open to disruption once post-Covid normality returns.

This thought process is still evolving in our minds, and it's very difficult to analyse without firm evidence, but it could be a major theme in the years ahead. It will also have major implications for cities, transport, residential and commercial property, workers and many ancillary sectors and general activities we've taken for granted over the last several decades. Big/mega cities have been major winners in the globalisation era. Will this trend reverse post Covid? If it does, this will have a major disorderly impact on society as we currently know it.

Back to inequality: in the US, Figure 45 shows it is already at extreme levels. Interestingly, inequality began to widen at the start of what we think is the current era, around 1980.

Figure 45: US net personal wealth shares



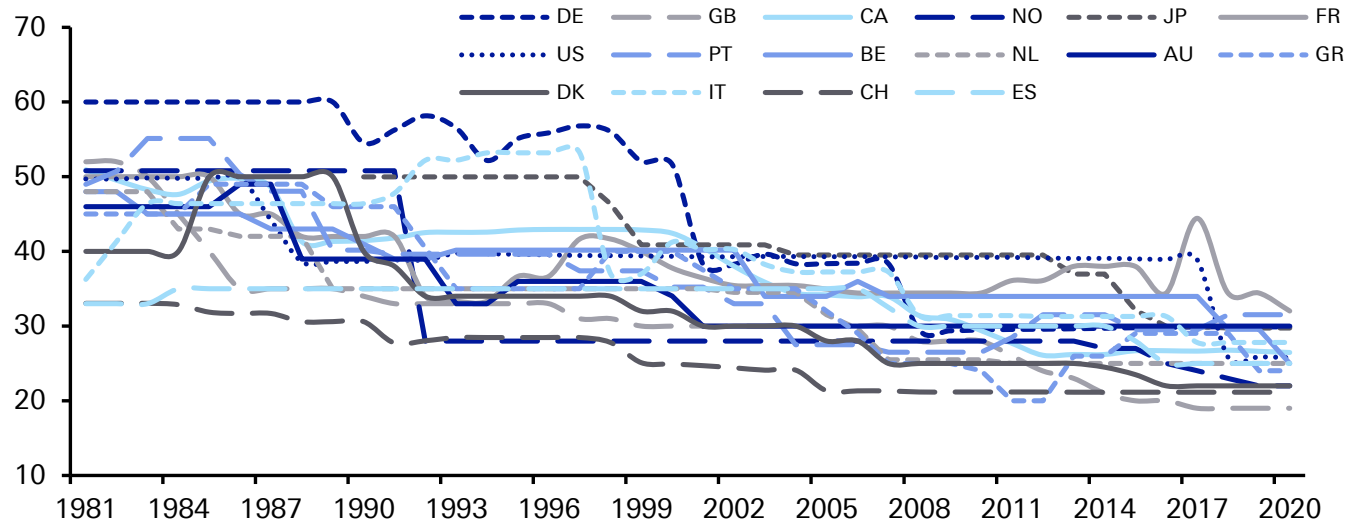
Source : World Inequality Database, Deutsche Bank

So this could get worse before it improves, but it's already reached a point where politicians are more united than ever in trying to tackle the issue. The low-paid suffering more in the immediate post-Covid landscape and the wealthier being better protected will only create more inequality tensions and the need for politicians to react. We expect pressure for taxes to go up after the pandemic, especially for the highest-paid and the most powerful companies.

Corporates in the cross hairs?

There is little doubt that the era since the early 1980s has been very favourable for corporates. Globalisation has helped them in many ways – cheap labour, access to a wider pool of consumers and a competitive tax environment where countries have conducted a tax arms race to encourage domestic investment and jobs. Figure 46 shows statutory tax rates from around the world to highlight the continuous downward trend since 1980.

Figure 46: Statutory Corporate Income Tax Rates (%)

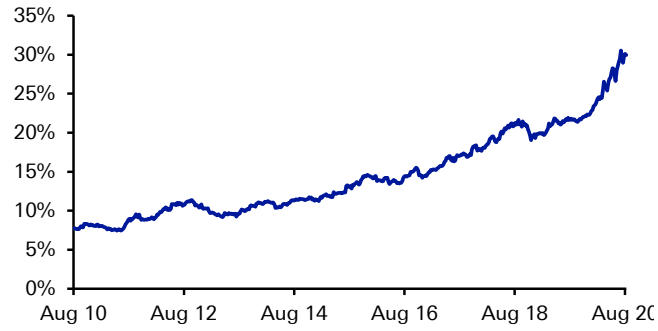


Source : OECD, Deutsche Bank. Legend ordered high to low for initial 1980 level.

In many ways, the falling corporate tax rate is the ultimate expression of inequality, as it's been a huge boost for capital over labour. As we try to pay for the cost of the pandemic and de-globalisation reduces the risk of companies moving jurisdiction, the likelihood is that low corporate tax rates will come under increasing scrutiny.

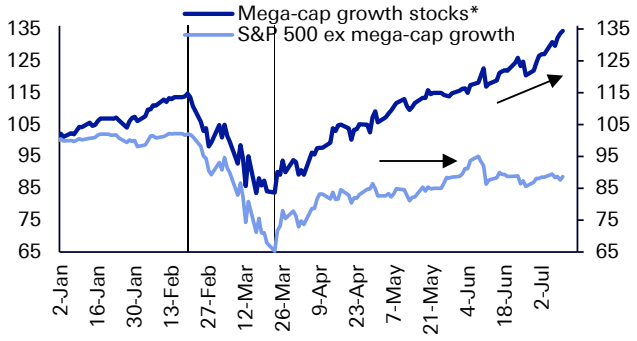
On a related theme, one of the largest inequalities in financial markets and the wider economy is that of the large US mega-cap growth stocks. These 10 growth stocks, which are largely tech based, have seen their collective market value increase from under $1tn in 2010 to over $8.5tn today. That compares with the value of the S&P 500 excluding these stocks, which has roughly doubled over the same time period. As a result, the 10 large growth stocks have seen their prominence in the S&P 500 more than triple to over 30 per cent today.

Figure 47: Proportion of S&P 500 contributed by the top-ten mega-cap growth stocks *



** Note, Facebook listed its stock in 2012*
Source : Factset, Deutsche Bank

Figure 48: Mega-cap growth stocks have outperformed the rest of the S&P 500 lately



**MSFT, AAPL, AMZN, GOOGL, FB, V, MA, NVDA, NFLX, ADBE*
Source : Bloomberg Finance LP, DB Asset Allocation

These astonishing technology valuations could go one of two ways, both of which will bring large disruption. On one hand, these valuations could be proved correct. That will mean we are close to major technological advancements and a very different way of life. This will impact all facets of life, business, and finance. Alternatively, we run the risk of a repeat of 2000, where a bubble burst even though much of the technology survived and progressively became integrated into our lives in a more normal evolutionary manner. A bubble bursting would have major financial market consequences for a period of time but be less revolutionary. The answer is perhaps a combination of both – rapid technological change that is both positive and disruptive but with stark winners and losers in both the technology sector and the wider global economy.

In the near term the pandemic has increased inequalities further. For example, it is fairly clear that consumers across the income spectrum will likely have collectively increased purchases from the likes of Amazon since Covid-19 arrived, thus depriving other retailers (mostly physical) of revenue that they may never get back, especially if online sales structurally shift up post pandemic. Indeed, our own flash poll as part of our Chart of the Day series found that respondents increased their average Amazon purchases from 5.3 per month pre-pandemic to 9.6 during the outbreak. In the future as well, it's still expected to be at 7.7, so around 55% of the increase is expected to be permanent.

Due to their size and power, the large growth stocks are attracting the glare of politicians and regulators across the globe. Pressure is building for a digital tax and/or a break up to dilute their market share. In particular, a globally coordinated effort is under way, led by the OECD. It plans to reset the global corporate tax system such that companies will have to pay based on where they have activities, and minimum tax rates will apply. In effect, this will cut the incentive for companies to base their headquarters in low-tax jurisdictions. The US, however, is opposed to such a digital tax, which would have a big effect on US companies. With global tax forces pushing in one direction and the US opposing them, yet acting on competition concerns, the stage looks set for a reckoning for mega-cap growth stocks. Given their ubiquity throughout the fabric of life around the world, it seems likely that a sudden bout of disorder could shake not only companies and stock markets but also how we live our lives.

The intergenerational divide to end this decade?

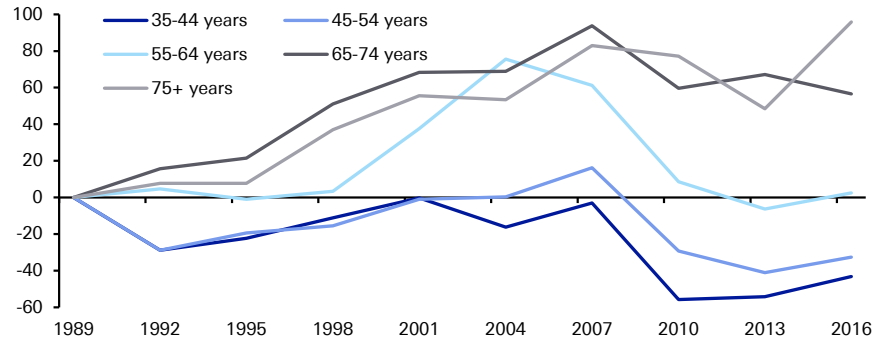
Inequality is a multifaceted area, and one sub-area of disorder to emerge out of it could well be the intergenerational divide. This has been widening in recent years and looks set to be even more of an issue in the immediate future.

For now the generational divide is at relatively extreme levels. Those who've graduated into the labour market over the last decade have already experienced the twin shocks of the Global Financial Crisis and now the Coronavirus pandemic – the two worst economic shocks since the Great Depression in the 1930s. Young people have therefore lost out economically relative to their predecessors and are behind previous generations on issues from home ownership to student debt levels. Meanwhile, there is an increasing divide on other issues, for example in how young people have been among the most forceful in calling for action on climate change. And this is before we consider how young people will inherit the large national debt burdens that have been accumulated, as we discussed earlier.

These age divides have manifested themselves increasingly in political preferences, with more and more elections around the world taking place along generational lines.

We think this intergenerational conflict will likely come to a head over the next decade. Ageing populations across the West are exacerbating many of these existing trends. High house prices and lagging income growth for Millennials and Generation Z in a number of countries continue to create anger and resentment. And the young have every right to be aggrieved. Figure 49 shows that in the US, real median net worth by age of head (of household) has diverged markedly since the 1980s.

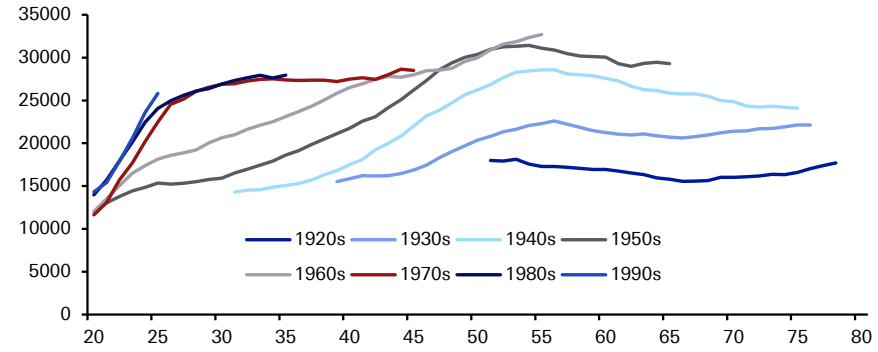
Figure 49: Percent change in US real median family net worth by age of head



Source : FRB Survey of Consumer Finances, Haver Analytics , Deutsche Bank

In the UK, the median household incomes of those born in the 1980s and 1990s aren't doing much better than those born in the 1970s at a similar age. That's a big difference from previous cohorts, where each tended to be noticeably better off at a given age than its predecessor.

Figure 50: UK median-equivalised disposable income for each decade of birth by age of household reference person (pounds)

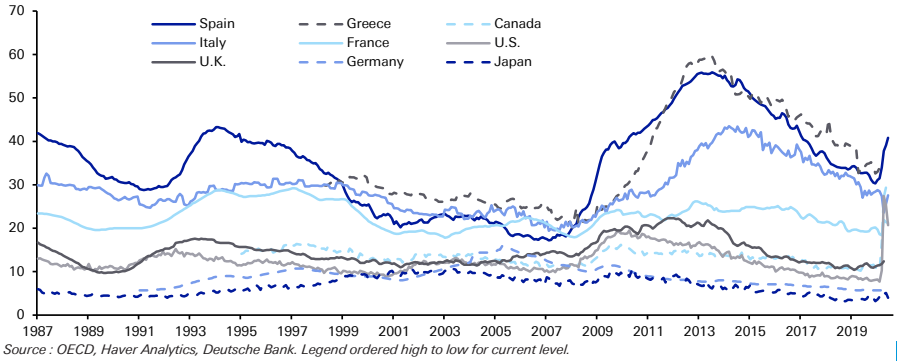


Source : ONS, Deutsche Bank

Meanwhile, thanks to the GFC and the Covid shock, youth unemployment has already spiked up once over the last decade and looks likely to do so again, especially relative to the rest of the population.

After the GFC and the subsequent sovereign debt crisis, youth unemployment peaked above 25% in France and above 50% in Spain and Greece. In the US and UK, it hit just below and just above 20%, respectively. Though these rates fell back in the following years, the impact of the Coronavirus pandemic has thrown away this progress, and young people have once again found their career prospects harmed by circumstances out of their control. Indeed, in America, the ranks of the jobless youths are greater now than they were at their peak after the financial crisis.

Figure 51: Youth unemployment rate (Number of unemployed 15-24 year-olds expressed as a percentage of the youth labour force)



Source : OECD, Haver Analytics, Deutsche Bank. Legend ordered high to low for current level.

This legacy is likely to be a long-lasting one, even as the economy returns to growth. The evidence shows that for those who graduate in a recession, as many college and university graduates will be doing right now, not only is it harder to get a job initially, but wages suffer for years afterwards as well. Intuitively, this is because young people will be far less picky when it comes to accepting job offers and be more likely to accept a lower-paying role than they might have done in a stronger labour market.

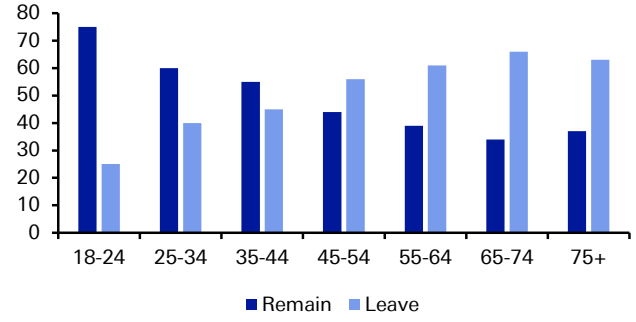
So young people today have had the unfortunate luck to have experienced the two largest economic crises since the Great Depression. It is clear that young people today stand some distance from where previous generations were at the same age.

In general terms, today's young are finding themselves priced out of the housing market, living with their parents for longer, and having to defer important life stages such as marriage and children. It is little wonder that many feel as though they've lost out relative to previous generations at the same point.

More recently, the generational divide has manifested itself in political preferences, with the young generally on the losing side, especially in binary referendums or two-party controlled systems. Although it has long been the case that young people have tended to lean leftward, this divide along age lines has become increasingly prevalent in recent years.

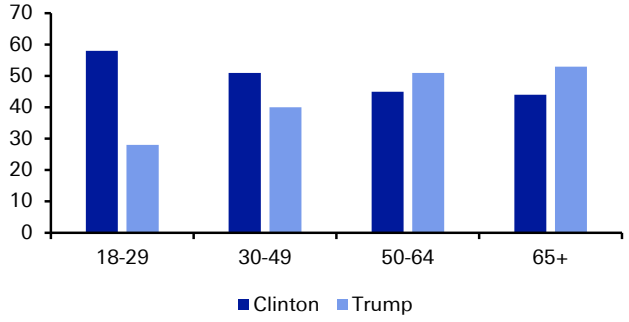
Just look at two of the biggest political decisions on either side of the Atlantic, the Brexit referendum and the election of Donald Trump. Both saw such a divide along age lines, to the point that a large majority of young people faced an outcome they hadn't voted for. The graphs show that the millennial generation (around 40 today) were the pivot to whether you were more or less likely to vote for Brexit or Trump.

Figure 52: Brexit Referendum Vote by Age



Source : Ipsos Mori, Deutsche Bank

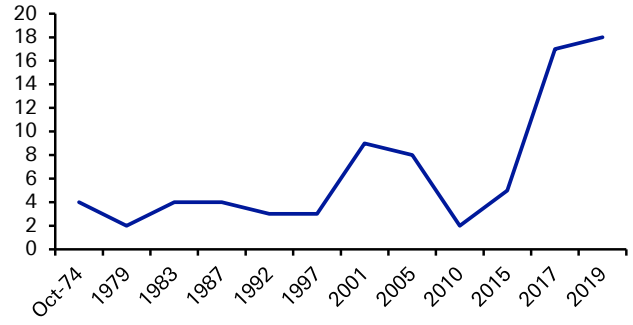
Figure 53: US 2016 Presidential Election Vote by Age



Source :"For Most Trump Voters, 'Very Warm' Feelings for Him Endured. Also: A detailed look at the 2016 electorate, based on voter records." Pew Research Center, Washington, D.C., August 9 2018, https://www.people-press.org/2018/08/09/an-examination-of-the-2016-electorate-based-on-validated-voters/

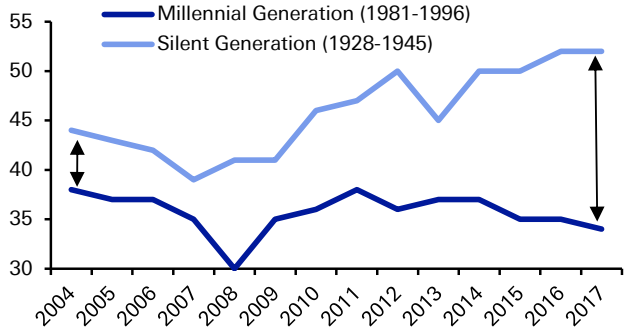
Of course, democracy always has a losing side. Yet it is a newer phenomenon that entire generations would conceive of themselves as the losers, and there is decisive evidence that this has widened over time. For example, look at the 25-34 year-old group in the UK and compare its support for the Conservative Party with the nationwide level. We've seen this in the US as well. The proportion of voters who identify as Republican or Republican-leaning has notably widened by generation over the last decade.

Figure 54: Percentage Point Gap between Conservative support among 25-34 year olds and among all voters, Great Britain



Source : Ipsos Mori, Deutsche Bank

Figure 55: Percentage of registered voters who are/lean Republican



Source : Pew Research Center Party Identification Trends, 1992-2017, Deutsche Bank

There is evidence that the backlash has started even if the Millennials haven't quite had the weight of numbers. In the last couple of UK elections, the strongest support for the opposition Labour Party has been from younger voters, supporting a manifesto that included measures directly targeted at them, such as the abolition of tuition fees, or preventing rents from rising by more than inflation. Indeed, despite their defeat in the December 2019 general election – where the elder generations' support of Brexit held sway – they did unexpectedly well back in the 2017 contest, winning 40% of the vote. Similarly in the US, Bernie Sanders, a self-described democratic socialist, was propelled in part by enthusiasm among younger voters towards his left-wing policies, and in both 2016 and 2020 he was the runner-up for the Democratic presidential nomination and was a favourite for a period late in the race in the latter bid.

This isn't just a US or UK phenomenon. In continental Europe, the most popular candidate in France's 2017 presidential election among 18-24 year olds was neither President Macron nor Marine Le Pen, but the left-wing Jean-Luc Mélenchon. In Ireland's election earlier this year, Sinn Fein received the most first-preference votes, partly because of discontent at the lack of affordable housing, thanks to strong support from younger voters. Again, getting over the line has been tough in most places as their demographic doesn't have a majority – but returning to the French election of 2017, a small % swing in the first round easily could have led to the second-round run-off being between two extreme candidates: Le Pen and Mélenchon.

Looking forward, if this younger generation is unable to achieve its economic aspirations – particularly now, given the effects of the pandemic – why should its views on these economic issues change as the members age, as many assume? Indeed, this young demographic could soon mobilise itself into an electoral majority.

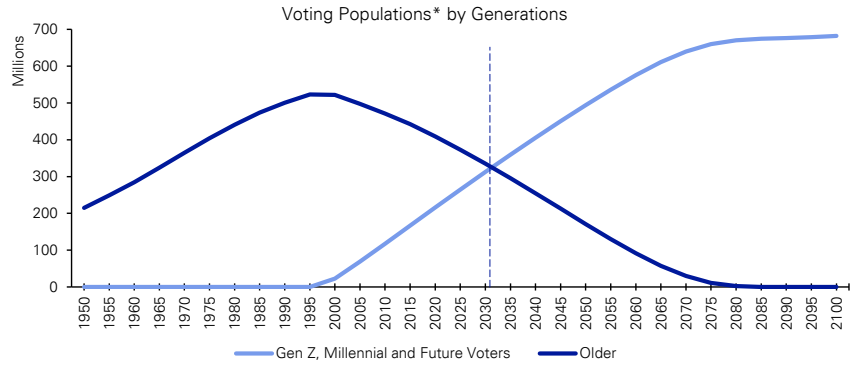
A potential disruptive reversal in power

The general assumption is that the intergenerational divide will worsen as the population ages and that this group will ensure that the self-interest of the status quo continues. However, this misses the key point that the age where the intergenerational divide begins is not static. It is likely that this age will increase over time as the average age of those left behind will continue to increase as a gap has opened up in income and wealth that is very hard to bridge naturally. As such, at

some point the younger left-behind generation will exceed those that have benefited from the favourable financial conditions that have been cemented in successive recent elections. When this happens, the possibility of seismic change in policy at elections becomes more likely. We think that over the next decade, the left-behind younger population will become an increasingly powerful electoral force, especially if it continues to be left behind due to the impact of the pandemic.

Figure 56 looks at the Millennial, Generation Z and younger cohorts relative to those born prior to the Millennials in G7 countries on an unweighted aggregated population basis. We have only included those of a voting age in each year past and future. Given the UN data base works in five-year buckets, we've assumed those aged in the middle of the 15-20 year-old bucket as being eligible to vote.

Figure 56: Millennials, Generation Z and younger cohorts will have nearly as many voters as those in older generations in the G7 by the end of this decade

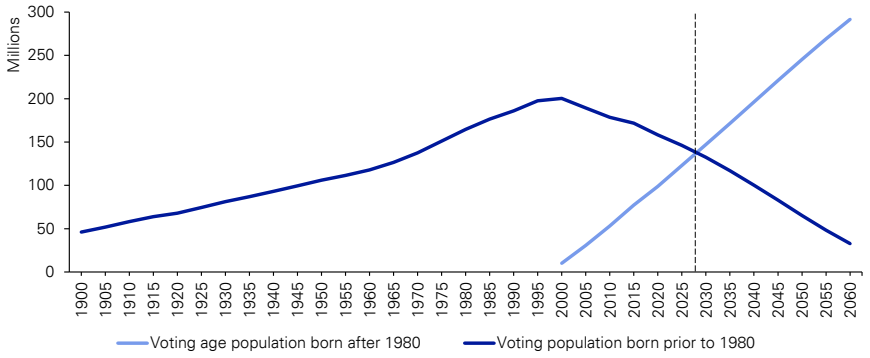


Source : United Nations, Haver, Deutsche Bank
**Using midpoint of 15-20 age range to proxy voting age*

The generations prior to the Millennials have held the upper hand, and by a sizeable majority, in recent decades. As recently as 2005 the elder group held a 497,000 vs 69,000 electoral advantage in G7 countries. By 2015 (around the time of Brexit and Trump votes) this was a still strong 442,000 vs. 167,000 advantage. However, as we approach 2030, this gap will narrow towards zero, and after that all those born after 1980 will start to dominate elections.

Assuming there won't be a large number of Millennials that find economic life much more economically favourable as they age, this could be a turning point for society and start to change election results and thus move policy. In the US, where we can use the census to get even more granularity, 2020 looks set to be the last election where the Millennials and younger have a distinct disadvantage. The Census compilers have slightly more aggressive estimates than the UN and believe that by around 2028 they will reach voting parity in terms of numbers. It will be relatively close in 2024. For context in 2016, the advantage was 156,000 voters to 92,000 voters in favour of the elder group.

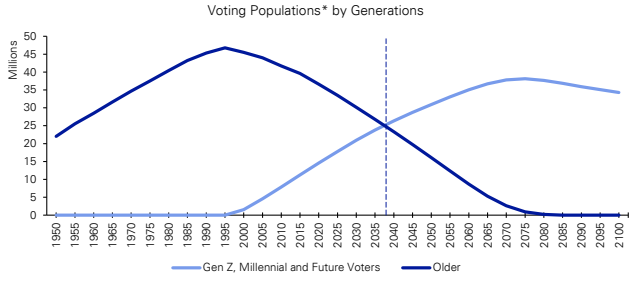
Figure 57:Millennials and younger cohorts will outnumber their older counterparts in the latter half of this decade



Source :US Census Bureau, Deutsche Bank

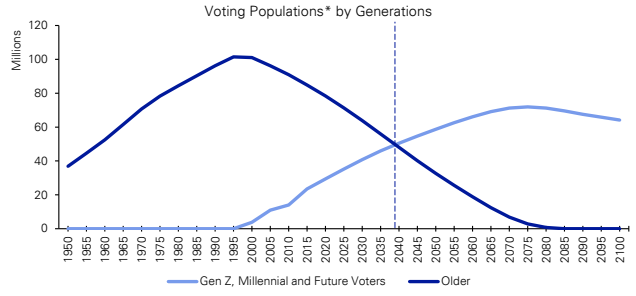
Interestingly of the G7, Italy and Japan see the crossover between the two groups occurring as late as 2035-2040, which reflects their poorer relative and absolute demographics going forward. This may help explain why Japan continues to be dominated by the elderly interest groups as population growth from the Millennial generation onwards has simply not been enough to threaten the pre-1980s cohort's dominance. It also suggests that countries like the US and the UK, where the young vs old voter dominance happens much sooner (between 2025 and 2030), won't necessarily see the same economic trends as what Japan has seen in recent years and is likely to see going forward. The crossover in Germany and France likely occurs in the early 2030s, so even here the themes of younger voters will increasingly be felt as we move through the upcoming decade.

Figure 58:Italian voting population



Source :United Nations, Haver, Deutsche Bank
**Using midpoint of 15-20 age range to proxy voting age*

Figure 59:Japanese voting population



Source :United Nations, Haver, Deutsche Bank
**Using midpoint of 15-20 age range to proxy voting age*

So the 2020s looks set to be the decade where the Millennials and those that follow them make large numerical inroads into the electoral base of the older generation. Although the intergenerational divide is likely to get worse first as they continue to be outnumbered and are left with the Covid-19 shock, it is increasingly feasible that they could usher in a seismic change in a major election within the next decade. As such, we suspect that the electoral dominance of the pre-Millennial coalition is drawing to a close, and when it turns it could have a dramatic impact on the intergenerational divide and the self-reinforcing policies and economic outcomes of the "Globalisation era".

As a caveat, we should say that this analysis assumes equal voter turnout, which history suggests is notably lower for the young. However, this isn't set in stone and if a movement develops that the young feel strongly about and think they can win, then voter turnout could change. Also, this analysis assumes that Millennials don't simply inherit the attitudes and wealth of the older generation as they age and become part of the vested interest group of the older generation. Given the generational gap in home ownership, income and debt, it will be difficult for different age groups to naturally bridge the financial divide that has opened up. We should stress that many in the elder generation support alternative politics vs the majority of their own age group – so as we get closer to a 50/50 split, a change in the political direction of travel can occur anytime, with a coalition of voters.

An electoral victory for the post-Millennial generation would likely usher in a reversal of policies that have favoured those born before, say, 1980. These could include a harsher inheritance tax regime, less income protection for pensioners, more property taxes, higher top-end income taxes, higher corporate taxes and more all-round redistributive policies. The "new" generation might also be more tolerant of inflation insofar as it will erode the debt burden it is inheriting and put the pain on bond holders, which tend to have a bias towards the pensioner generation.

Even without an extreme electoral shift, as the left-behind post-Millennial generation becomes more electorally powerful, it is likely to increasingly shape the policies of more mainstream parties. So even without a seismic shift, we still may be in the process of shifting from an era where boomer-type policies were in the ascendancy to one where Millennial preferences start to have a serious impact on politics. In terms of asset prices, most assets are simply transferred from one generation to another at a market-clearing price. Unless the post-Millennial generation has a sudden income boost, the price it will be prepared or able to pay for the assets of the pre-Millennial population – as the latter wants or needs to sell – will likely be under some pressure relative to past growth, especially the stunning growth of the "Globalisation Era".

Climate change: The conflict between the economy and environment

Another clash between the young and old will increasingly manifest itself in the climate-change debate where polarised opinions exist, especially by age. As the pro-climate younger generation's numbers naturally increase as per the last chapter, the pressure to act will rise and the implications for the global economy could be significant.

If 2020 has shown anything, it is that the world can change, and adapt to that change, far quicker than anyone expected. At the beginning of 2020, climate change was the biggest show in town. Countries and companies were lining up to spend money and make sacrifices as they aligned themselves with the goals of the Paris Accord. The quote "climate change is the most pressing issue we face" can be attributed to any number of political, business, and societal leaders.

As Covid-19 spread around the world just a few months later, many expected environmentalists to shrink into the shadows. After all, it seemed the urgency of the health and economic crises should trump longer-term environmental goals.

This has not been the case. In fact, many environmentalists see the virus not as something that will delay their goals, but rather as their biggest opportunity. That sets the stage for years of aggressive conflict between those who prioritise the economy and those who fight for the environment. That conflict will permeate political and policymaking circles and extend beyond national boundaries.

The pandemic has emboldened environmentalists in many ways. For example, Greenpeace argues "the pandemic has revealed what things must change" and has exposed how our systems are broken. In particular, it said "our energy systems served only the wealthy" and the response to the pandemic has proved that "we can live with less flying and less driving".

If a large and influential organisation such as Greenpeace sees the pandemic as a catalyst for – rather than an obstacle to – climate change, then it is certain that many other people, politicians, and organisations share the view. Indeed, some environmentalists have argued that polluting companies are using Covid-19 as an excuse to prop up their business models with government aid while hiding behind the fig leaf of "restoring jobs".

Furthermore, many environmentalists acknowledge that lockdowns have been difficult, but they point out that less than a year into the pandemic, we are already learning how to live a more environmentally-friendly life. In some regards, this is true. The lockdowns enacted in most countries this year have led to a marked decrease in the level of energy demand. Indeed, this fell over 5 per cent during lockdowns, a rate of contraction not seen since the World War II, according to the International Energy Agency.

Lower energy demand, along with other factors, has contributed to a significant drop in greenhouse gas emissions. A publication in Nature estimated that at the peak of lockdowns earlier this year, emissions in individual countries decreased by an average of 26 per cent compared with 2019 levels.

Coincidentally, a one-quarter drop in emissions (from 2017 levels) is exactly the amount required by 2030 to limit global warming to two degrees, per the Paris

Accord. Many environmentalists therefore see the pandemic as the trigger for lasting change. They view the economic consequences in two ways. First, they are a difficult but necessary part of the adjustment to a lower-carbon world. Second, they are proof that when the world is committed to a course of action, it can adapt to rapid change. That will only embolden environmentalist to push for the more difficult goal in the Paris Accord – limiting global warming to 1.5 degrees, which is the threshold for avoiding the worst of the effects of climate change.

While the voices of environmentalists have grown louder, many who prioritise the economy are pushing just as hard. They argue that the economic carnage that has led to the 26 per cent drop in emissions this year is unrepeatable without resulting in a breakdown in society. Furthermore, they note that now the world has experienced the devastation of a 26 per cent emission reduction, there is no way society can push for more. Indeed, to achieve global warming of just 1.5 degrees, the IPCC says emissions need to fall 55 per cent relative to 2017 levels. That is twice the drop seen during the lockdowns.

Achieving a level of emission reduction equal to double that seen during this year's lockdown will require a heroic effort that is hard to see happening in democratic countries. For example, if a 26 per cent reduction in emissions coincided with a US unemployment rate of over 14 per cent, will efforts to double the drop in emissions require unemployment to double to almost 30 per cent? The societal effects of that level of joblessness are almost too severe to be imagined.

Environmentalists will push back on this argument. They say that another round of mass unemployment may not eventuate as we are already learning to live with restrictions on our lives. They will point out that some businesses that have struggled during the pandemic were already in trouble and Covid-19 just accelerated an inevitable decline. Therefore, the extent of the business disruption seen this year could merely be a short-term adjustment. Furthermore, they argue that the trend towards localised supply chains that has been accelerated by the pandemic began several years ago. This is just another inevitable trend that has been amplified by the crisis.

Many economists will balk at accepting these points. They will argue that none of that matters when governments and central banks have embarked on enormous borrowing programmes with little indication of how the debt will be repaid. In fact, it is hard to see how the debt can even be sustained unless the economy remains the highest priority. And without keeping the economy going as we know it, further action on climate change may be difficult. Indeed, while the current market economy, and its pricing mechanisms, are far from perfect, they have been a key driver behind many of the developments in renewable energy.

The political aspect of the debate will demand greater recognition over the coming decade as those on lower incomes are drawn in. These people have been among those worst affected by the pandemic in terms of both health and economics. Those in lower-income bands, and other vulnerable people in society, could find themselves opposed to restrictions that reduce emissions. For example, aggressive emission reduction will certainly involve curbs on transport. Yet, these policies will disproportionately affect those living in rural areas (which tend to have lower incomes) and those who depend on their car for work. These policies will also place increased strain on public transport, something that takes many years to upgrade, and affects those who live farthest from city centres.

If aggressive environmental measures lead to greater inequality, or heap further economic hardship on people who have already been hurt by the pandemic, there are significant ramifications. For starters, governments have a poor record of being reelected during an economic downturn, so they will be reluctant to implement pro-environment policies knowing they may increase the risk of losing an election. In that vein, economic malaise fuels populism. So if governments that implement environmental measures are subsequently voted out, there is a high chance that pro-environment policies will be reversed by the incoming government. Populist governments also have a bad track record of being involved in the type of multilateral action that is needed to tackle climate change.

The confrontation between supporters of the environment and supporters of the economy will extend to the international stage over the coming decade. As leaders in rich countries push for international agreement on lowering emissions, they will increasingly focus on 'consumption-based' emissions – that is, counting the emissions that go into making a product consumed in a particular country, rather than just estimating the emissions produced by the country. To reduce consumption-based emissions, a carbon border adjustment tax will almost certainly be needed. This will tax imports based on the emissions that go into their production. The idea is to discourage countries from 'exporting' emissions by merely buying products manufactured elsewhere.

This tax could be a popular policy for rich countries as it could encourage domestic manufacturing and "bring jobs home". It also falls into the anti-globalisation narrative, which is increasingly popular. The flip side, though, is that it hurts poor countries. These are the countries whose economies depend on manufacturing goods for rich countries. If manufacturing suddenly leaves their shores, their development will surely be curtailed. This could increase inequality between countries and it certainly increases the risk of international bilateral and multilateral trade wars.

While both sides in the debate appear primed for years of battle, there are some signs that progress might be made within the market process. From a corporate standpoint, climate-change issues are beginning to be driven by customers just as much as investors. Indeed, before the pandemic, the number of people in the UK that actively purchased more products from companies they see as climate-friendly outstripped those who did not by two to one. There was a similar effect in the US. Furthermore, boycott culture is becoming more pronounced. About a third of people have stopped buying a product from a company they "really liked" after seeing bad environmental press on the company.

Hand in hand with boycott culture is the societal phenomenon of publicly pressuring individuals (particularly those in the public eye) to adapt their behaviour to conform with ideals of climate change. This appears certain to drive behavioural and policy change.

The main takeaway from this discussion should be obvious by now. Both sides are becoming more adamant on their position and both sides have copious evidence and logic on their side. In the end, the issue is one of ideology – and that is a divide that may be impossible to bridge. So we should brace ourselves. The coming decade is set to witness a heavily polarised debate over the prioritisation of the environment and the economy. Against the backdrop of the economic carnage wrought by Covid-19, whatever decisions end up being made, they will almost certainly impact the world for decades to come.

Historical Asset Returns

The following pages are our data section, where we examine long-term US returns going back to the start of the nineteenth century (where possible). In addition, we look at various international returns for equities and bonds for as far back as we have data. For many countries, this stretches back deep into the early 1900s, and for some countries the data goes back over 200 years. We show returns in nominal and real terms, and for the international section we convert all returns into dollars for the sake of comparison. We also show returns annualised within each decade and by 50-year buckets. Additionally, we detail returns from certain starting points. With these different starting points, we can hopefully see cyclical, secular and very long-term trends.

US returns across asset classes

First the US. Figure 60 and Figure 61 show why we invest in assets over the medium to long term. Data going back over 200 years shows that storing cash under the mattress has been a recipe for wealth erosion throughout history in all but the most exceptional international circumstances.

Over the entire sample period, US equities have outperformed corporate bonds, which have outperformed government bonds, which have outperformed cash, which interestingly has generally outperformed the commodity index analysed in this section. Over the last 100 years (since end-1920, where we have data for the widest selection of assets), equities have outperformed 10yr and 30yr governments by more than +4.5% p.a., corporates by +3.7% p.a. and T-bills (cash proxy) by +6.8% p.a. They have also outperformed gold by 5.6% p.a., oil by 8.4% p.a., and US housing (prices only) by 6.6% p.a. Indeed, in real terms, over the past 100 years, commodities have generally seen negative returns. Within our small sample, only gold (+2.0% p.a.) and copper (+0.5% p.a.) have seen positive real returns, while the overall commodity index has seen an annualised real return of -1.1% p.a. Housing (+1.0% p.a.) has also seen a positive real return, but this is still underwhelming compared to equities (+7.7% p.a.), 10yr treasuries (+2.7% p.a.) and corporate bonds (+3.8% p.a.). Over recent years, assets like housing (to live in, not rent out) and commodities have been used as a portfolio alternative to equities and bonds. In fact, with the surge in gold prices this year, gold is actually the best-performing asset in our sample over the last five years. That said, history suggests that over the long run, such a strategy is unlikely to produce superior results, especially relative to equities. Their lack of income make it difficult for them to compete with traditional assets. Buy-to-let housing would be more competitive, but there is no long-term data series available to analyse this.

Since 1800, US equities have had only two negative decades in nominal terms: the 1930s (-0.5% p.a.) and the 2000s (-0.9% p.a.); there have been only three in real terms (1910s: -2.8%, 1970s: -1.5%, 2000s: -3.4%).

In nominal terms three of the best five decades for equities since 1900 have occurred in the last four decades (including the most recently completed decade). However, this period also included the worst decade (the 2000s).

Interestingly, 10-year Treasuries and corporate bonds have never seen a negative return decade in nominal terms. But in real terms, six of the 12 decades since 1900 have seen a negative return from 10-year Treasuries, including four successive

decades from the 1940s. After this, the last four decades have seen positive real returns for bonds. That said, with each decade, we have seen these annualized returns decline, and we can't help thinking that we're setting ourselves up for a return to a few negative real return decades ahead in bonds as we venture towards 2050, even if the current decade has started with a bumper year for fixed income returns.

International equity and government bond returns

Fixed income is the asset class for which we have the longest dated data series globally. There is definitely a survivor bias in bonds, though. Although the majority of countries (data back to 1900) in our study have provided positive real returns over this period, there have been some notable exceptions, with France (-1.2% p.a.), Italy (-1.8% p.a.) and Japan (-0.6% p.a.) all seeing negative real returns. Germany would be the worst if we had reliable data through the hyperinflation period in the 1920s. This shows that negative real returns in bonds are a real possibility over even very long periods of time. Negative real returns are also usually difficult to reverse once they've occurred.

For equities we have comprehensive returns data for a number of countries post-WWII. Over the last 50 years, around half of the developed markets saw real annualised returns of +5-6% p.a. Only two countries (Italy, +1.4% p.a.; and Spain, +1.96% p.a.) have seen annualised real returns below +2%, although Austria and Japan have provided annualised real returns of less than +4%.

Since the Euro was introduced in 1999, there is little doubt that equity returns in Europe have been disappointing. However, this period did coincide with the global equity market bubble, so returns are best compared using the US and UK (+4.4% and +2.3% p.a. real adjusted, respectively) for context. None of the Eurozone equity markets has outperformed the US in real terms and only Austria, France and Germany have outperformed the UK. Spain (-1.2% p.a.), Portugal (-0.5% p.a.) and Italy (-0.4% p.a.) have actually failed to provide positive real returns since the introduction of the single currency more than 20 years ago. Although it is not included in this analysis, the same would also be true for Greece. Ireland has only mustered +1.5% annualised real returns. Such poor returns for the peripheral Eurozone economies' equity markets, especially those still in negative territory after more than 20 years, is a worrying statistic for supporters of the single currency.

Government bond returns since the Euro commenced are strong across the board due to the themes explored in previous reports, with investors having central banks to thank for this in the weakest Euro area countries. Without their intervention it's possible we would have seen sovereign defaults over and above the haircuts that investors took in Greece. This would have wiped out returns in fixed income that, as history shows, are hard to get back even over the very long term.

We also include tables using similar time frames to show long-term nominal and real GDP for a host of DM and EM countries. We've also converted into dollars to allow some comparison through time.

The full data is shown in the following pages, covering nominal and real returns and including a shorter history for various EM countries. For all returns we also show nominal returns through time in dollar terms. For visual ease, we have shaded the periods of negative returns.

Figure 60: Nominal returns for US assets over different time horizons

	Equity	Corp Bond	AAA Bond	BBB Bond	Treasury (10yr)	Treasury (30yr)	HY Bond	Treasury (HY Matched)	Treasury Bill	House Prices (Price Only)	Gold	Copper	Oil	Wheat	Commodities (CRB Index)
last 5yrs (2016-2020)	11.92%	11.41%	11.24%	12.05%	5.18%	10.60%	7.10%	3.53%	1.13%	4.56%	13.23%	6.19%	1.55%	6.84%	-3.99%
last 10yrs (2011-2020)	12.24%	9.01%	8.90%	9.07%	4.72%	9.09%	5.96%	2.74%	0.59%	4.52%	3.36%	-3.97%	-7.91%	-3.47%	-8.06%
last 15yrs (2006-2020)	8.82%	8.10%	8.03%	8.22%	5.03%	7.39%	6.90%	3.82%	1.12%	1.31%	9.34%	1.87%	-2.76%	3.49%	-5.43%
last 25yrs (1996-2020)	8.92%	8.27%	8.21%	8.35%	5.44%	7.45%	6.77%	4.47%	2.12%	4.03%	6.74%	3.36%	2.92%	0.27%	-0.18%
last 50yrs (1971-2020)	10.53%	9.34%	8.98%	9.73%	7.34%	8.06%			4.61%	4.95%	8.26%	3.49%	5.05%	2.32%	2.08%
last 75yrs (1946-2020)	10.86%	6.45%	6.19%	6.82%	5.55%	5.63%			4.00%	4.63%	5.44%	4.36%	3.77%	1.50%	1.83%
last 100yrs (1921-2020)	10.48%	6.51%	6.29%	6.97%	5.38%	5.55%			3.40%	3.67%	4.67%	3.17%	1.90%	0.99%	1.53%
last 150yrs (1871-2020)	8.92%				4.78%				3.29%		3.02%	1.43%	1.66%	1.09%	
last 200yrs (1821-2020)	8.66%				5.00%				3.63%		2.34%	1.16%			
since 1800	8.61%				5.19%				3.77%		2.11%	0.78%			
since 1900	9.62%	5.90%			4.72%	4.93%			3.33%	3.53%	3.84%	2.27%	2.67%	1.73%	
since 1920	10.13%	6.38%	6.18%	6.83%	5.28%	5.46%			3.42%	3.72%	4.62%	2.76%	2.08%	0.79%	1.16%
since 1930	9.63%	6.35%	6.14%	6.78%	5.24%	5.39%			3.37%	4.07%	5.14%	3.13%	2.89%	1.59%	1.78%
1900-2020	9.62%	5.90%			4.72%	4.93%			3.33%	3.53%	3.84%	2.27%	2.67%	1.73%	
since 1971	10.53%	9.34%	8.98%	9.73%	7.34%	8.06%			4.61%	4.95%	8.26%	3.49%	5.05%	2.32%	2.08%
since 1980	11.55%	10.24%	9.96%	10.53%	7.92%	9.28%			4.20%	4.29%	3.35%	2.59%	0.13%	0.52%	0.05%
since 1985	11.13%	10.14%	9.94%	10.34%	7.44%	9.30%	8.62%	6.48%	3.25%	4.15%	5.29%	4.38%	1.17%	1.14%	0.45%
since 1999	6.53%	8.27%	8.11%	8.39%	5.01%	7.08%	6.46%	4.05%	1.73%	3.99%	9.15%	6.56%	5.58%	3.62%	0.62%
RETURNS BY DECADE															
1800-1809	11.09%				8.74%				5.16%		0.00%	-1.62%			
1810-1819	4.91%				6.22%				5.07%		0.00%	-4.63%			
1820-1829	6.94%				5.67%				3.80%		0.00%	-1.63%			
1830-1839	5.34%				2.14%				4.29%		0.67%	1.38%			
1840-1849	7.83%				7.76%				5.02%		-0.03%	-2.57%			
1850-1859	1.62%				5.25%				5.08%		0.00%	2.35%		5.70%	
1860-1869	18.34%				6.96%				5.04%		1.81%	1.90%	-12.73%	-1.80%	
1870-1879	7.73%				6.14%				4.11%		-1.78%	-2.05%	-14.26%	5.23%	
1880-1889	5.68%				5.50%				3.04%		0.00%	-1.66%	-0.70%	-5.09%	
1890-1899	5.37%				3.44%				2.33%		0.00%	-1.26%	4.88%	-1.21%	
1900-1909	9.92%	4.39%			1.64%	2.17%			3.04%	1.97%	0.00%	-3.55%	-1.43%	6.06%	
1910-1919	4.35%	2.62%			2.27%	2.52%			2.73%	3.15%	0.00%	3.34%	13.33%	7.19%	
1920-1929	14.78%	6.72%	6.52%	7.30%	5.65%	6.05%			3.88%	0.65%	0.00%	-0.48%	-4.98%	-6.18%	-4.33%
1930-1939	-0.47%	6.45%	7.48%	6.41%	4.11%	5.49%			0.58%	-1.21%	5.41%	-3.51%	-1.81%	-2.22%	-0.70%
1940-1949	8.99%	3.92%	2.92%	5.44%	2.59%	2.42%			0.48%	8.12%	1.47%	4.00%	0.28%	7.64%	5.90%
1950-1959	19.26%	0.16%	-0.08%	0.59%	0.39%	-0.50%			2.02%	2.97%	-1.38%	5.96%	1.46%	-0.69%	0.62%
1960-1969	7.76%	0.57%	0.42%	0.89%	2.36%	0.51%			4.06%	1.85%	-0.01%	5.43%	0.78%	-2.96%	0.24%
1970-1979	5.77%	5.34%	5.02%	5.85%	6.08%	3.71%			6.48%	7.99%	30.70%	6.28%	28.04%	11.43%	10.48%
1980-1989	17.47%	13.72%	13.03%	14.44%	12.78%	12.64%			9.13%	6.94%	-2.37%	0.57%	-5.40%	-0.74%	-2.00%
1990-1999	18.21%	9.30%	8.84%	9.96%	7.98%	8.40%	11.21%	7.34%	4.95%	2.67%	-3.32%	-2.12%	1.67%	-6.31%	3.19%
2000-2009	-0.95%	8.87%	8.91%	8.62%	6.40%	7.03%	6.52%	6.18%	2.74%	3.95%	14.32%	13.96%	11.91%	6.67%	6.04%
2010-2019	13.56%	8.18%	7.82%	8.64%	4.10%	7.17%	7.50%	2.35%	0.58%	3.77%	3.31%	-1.52%	-2.58%	4.27%	-4.13%
2020-2020	2.38%	20.28%	23.97%	16.35%	13.94%	30.94%	-0.23%	9.34%	0.28%	3.04%	30.17%	5.55%	-34.41%	-11.96%	-22.66%
RETURNS BY HALF CENTURY															
1800-1849	7.20%				6.08%				4.67%		0.13%	-1.83%			
1850-1899	7.61%				5.46%				3.91%		0.00%	-0.16%		0.48%	
1900-1949	7.39%	4.81%			3.24%	3.72%			2.13%	2.49%	1.35%	-0.09%	0.89%	2.34%	2.42%
1950-1999	13.55%	5.69%	5.33%	6.21%	5.83%	4.84%			5.30%	4.46%	4.00%	3.17%	4.72%	-0.03%	-0.44%
2000-2020	5.88%	9.06%	9.06%	8.99%	5.64%	8.13%	6.65%	4.48%	1.59%	3.82%	9.61%	5.92%	2.13%	4.56%	

Note: 2020 data to 31 Jul 2020
Source : Deutsche Bank, GFD, ICE Indices

Figure 61: Real returns for US assets over different time horizons

	Equity	Corp Bond	AAA Bond	BBB Bond	Treasury (10yr)	Treasury (30yr)	HY Bond	Treasury (HY Matched)	Treasury Bill	House Prices (Price Only)	Gold	Copper	Oil	Wheat	Commodities (CRB Index)
last 5yrs (2016-2020)	10.04%	9.55%	9.38%	10.18%	3.41%	8.75%	5.30%	1.80%	-0.57%	2.80%	11.33%	4.41%	-0.15%	5.05%	-5.60%
last 10yrs (2011-2020)	10.46%	7.28%	7.17%	7.34%	3.06%	7.36%	4.28%	1.11%	-1.01%	2.86%	1.72%	-5.49%	-9.37%	-5.00%	-9.52%
last 15yrs (2006-2020)	6.90%	6.19%	6.12%	6.31%	3.18%	5.49%	5.02%	1.99%	-0.67%	-0.48%	7.41%	0.07%	-4.48%	1.66%	-7.10%
last 25yrs (1996-2020)	6.68%	6.04%	5.98%	6.12%	3.27%	5.24%	4.57%	2.32%	0.02%	1.89%	4.54%	1.24%	0.80%	-1.79%	-2.23%
last 50yrs (1971-2020)	6.47%	5.32%	4.98%	5.70%	3.39%	4.09%			0.76%	1.09%	4.28%	-0.31%	1.19%	-1.44%	-1.67%
last 75yrs (1946-2020)	7.01%	2.75%	2.50%	3.10%	1.88%	1.96%			0.39%	1.00%	1.77%	0.73%	0.16%	-2.02%	-1.71%
last 100yrs (1921-2020)	7.65%	3.78%	3.57%	4.23%	2.68%	2.85%			0.76%	1.01%	1.99%	0.53%	-0.70%	-1.59%	-1.06%
last 150yrs (1871-2020)	6.49%				2.44%				0.98%		0.71%	-0.84%	-0.61%	-1.17%	
last 200yrs (1821-2020)	6.66%				3.06%				1.72%		0.45%	-0.71%			
since 1800	6.82%				3.46%				2.05%		0.43%	-0.88%			
since 1900	6.44%	2.83%			1.68%	1.89%			0.34%	0.53%	0.83%	-0.69%	-0.31%	-1.22%	
since 1920	7.31%	3.66%	3.47%	4.10%	2.58%	2.76%			0.78%	1.07%	1.94%	0.14%	-0.53%	-1.78%	-1.43%
since 1930	6.41%	3.22%	3.03%	3.65%	2.15%	2.30%			0.34%	1.01%	2.05%	0.10%	-0.13%	-1.39%	-1.21%
1900-2020	6.44%	2.83%			1.68%	1.89%			0.34%	0.53%	0.83%	-0.69%	-0.31%	-1.22%	
since 1971	6.47%	5.32%	4.98%	5.70%	3.39%	4.09%			0.76%	1.09%	4.28%	-0.31%	1.19%	-1.44%	-1.67%
since 1980	8.30%	7.02%	6.75%	7.31%	4.77%	6.09%			1.16%	1.25%	0.33%	-0.40%	-2.79%	-2.42%	-2.87%
since 1985	8.39%	7.43%	7.23%	7.62%	4.79%	6.61%	5.95%	3.86%	0.71%	1.59%	2.70%	1.81%	-1.32%	-1.35%	-2.02%
since 1999	4.35%	6.07%	5.90%	6.18%	2.87%	4.90%	4.29%	1.92%	-0.34%	1.87%	6.92%	4.38%	3.43%	1.50%	-1.43%
RETURNS BY DECADE															
1800-1809	11.09%				8.74%				5.16%		0.00%	-1.62%			
1810-1819	4.56%				5.87%				4.72%		-0.34%	-4.96%			
1820-1829	9.05%				7.76%				5.86%		1.98%	0.31%			
1830-1839	3.23%				0.10%				2.20%		-1.35%	-0.65%			
1840-1849	10.82%				10.75%				7.94%		2.75%	0.13%			
1850-1859	0.07%				3.64%				3.47%		-1.53%	0.79%		4.08%	
1860-1869	13.58%				2.66%				0.81%		-2.29%	-2.20%	-16.24%	-5.75%	
1870-1879	10.20%				8.57%				6.50%		0.47%	0.19%	-12.30%	7.64%	
1880-1889	5.68%				5.50%				3.04%		0.00%	-1.66%	-0.70%	-5.09%	
1890-1899	5.23%				3.30%				2.19%		-0.13%	-1.39%	4.74%	-1.34%	
1900-1909	7.36%	1.95%			-0.73%	-0.22%			0.63%	-0.41%	-2.34%	-5.80%	-3.73%	3.58%	
1910-1919	-2.78%	-4.39%			-4.72%	-4.49%			-4.29%	-3.90%	-6.84%	-3.72%	5.59%	-0.14%	
1920-1929	15.87%	7.73%	7.53%	8.32%	6.65%	7.06%			4.87%	1.61%	0.95%	0.46%	-4.08%	-5.29%	-3.42%
1930-1939	1.60%	8.66%	9.72%	8.63%	6.27%	7.69%			2.67%	0.85%	7.60%	-1.50%	0.24%	-0.19%	1.37%
1940-1949	3.45%	-1.36%	-2.31%	0.07%	-2.63%	-2.79%			-4.63%	2.62%	-3.69%	-1.29%	-4.83%	2.17%	0.52%
1950-1959	16.67%	-2.02%	-2.25%	-1.60%	-1.80%	-2.67%			-0.20%	0.74%	-3.52%	3.66%	-0.75%	-2.84%	-1.57%
1960-1969	5.11%	-1.89%	-2.05%	-1.59%	-0.15%	-1.96%			1.51%	-0.65%	-2.47%	2.84%	-1.69%	-5.34%	-2.22%
1970-1979	-1.51%	-1.91%	-2.20%	-1.44%	-1.21%	-3.43%			-0.85%	0.56%	21.71%	-1.03%	19.23%	3.76%	2.88%
1980-1989	11.78%	8.21%	7.56%	8.90%	7.32%	7.19%			3.84%	1.76%	-7.10%	-4.30%	-9.98%	-5.54%	-6.75%
1990-1999	14.83%	6.18%	5.73%	6.82%	4.90%	5.30%	8.03%	4.27%	1.95%	-0.26%	-6.08%	-4.92%	-1.23%	-8.99%	0.24%
2000-2009	-3.42%	6.15%	6.19%	5.91%	3.75%	4.36%	3.86%	3.53%	0.18%	1.35%	11.46%	11.12%	9.12%	4.01%	3.39%
2010-2019	11.61%	6.32%	5.97%	6.77%	2.31%	5.33%	5.65%	0.59%	-1.15%	1.99%	1.53%	-3.21%	-4.25%	2.48%	-5.78%
2020-2020	2.27%	20.15%	23.84%	16.23%	13.82%	30.80%	-0.34%	9.22%	0.18%	2.93%	30.03%	5.43%	-34.48%	-12.05%	-22.74%
RETURNS BY HALF CENTURY															
1800-1849	7.70%				6.58%				5.16%		0.60%	-1.37%			
1850-1899	6.85%				4.72%				3.19%		-0.70%	-0.86%		-0.23%	
1900-1949	4.91%	2.39%			0.86%	1.33%			-0.22%	0.13%	-0.98%	-2.40%	-1.44%	-0.02%	
1950-1999	9.17%	1.62%	1.27%	2.12%	1.75%	0.79%			1.24%	0.43%	-0.01%	-0.81%	0.68%	-3.88%	-1.53%
2000-2020	3.75%	6.86%	6.86%	6.79%	3.52%	5.96%	4.50%	2.38%	-0.46%	1.73%	7.40%	3.79%	0.07%	2.46%	-2.45%

Note: 2020 data to 31 Jul 2020
Source : Deutsche Bank, GFD, ICE Indices

Figure 62: Developed market nominal equity and bond returns (annualised)

										Returns by Decade																		
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
Australia	6.2%	6.6%	8.4%	10.9%	11.6%	11.6%	12.1%	10.9%	7.9%										7.9%	13.6%	9.7%	15.4%	10.2%	10.1%	15.3%	14.0%	8.6%	17.7%	11.0%	8.9%	7.9%
Austria	0.1%	-0.5%	4.8%	6.2%				6.2%	4.3%																		6.5%	16.3%	1.4%	7.4%	5.4%
Belgium	-3.7%	3.7%	5.9%	8.7%	7.4%	7.2%	6.2%	8.7%	2.5%											6.4%	6.7%	9.2%	-6.9%	11.9%	14.0%	3.4%	7.2%	20.6%	11.4%	1.8%	7.2%
Canada	7.4%	4.8%	7.6%	9.1%	9.3%	8.9%	8.8%	9.1%	6.8%				49.0%	9.8%	4.7%	1.1%	6.0%	6.0%	6.1%	10.0%	6.0%	14.7%	1.0%	8.4%	13.3%	10.0%	10.4%	12.2%	10.6%	5.6%	6.9%
Denmark	8.0%	12.5%	12.8%	13.0%	9.5%	8.1%	4.7%	13.0%	10.9%									4.8%	2.8%	2.0%	2.8%	-0.8%	4.7%	7.1%	11.2%	7.4%	7.9%	23.8%	11.1%	6.7%	14.6%
France	3.6%	6.2%	7.6%	9.7%	11.1%	10.3%	10.6%	9.7%	4.9%		10.0%	7.4%	9.4%	7.2%	16.7%	5.8%	7.8%	6.4%	6.1%	5.6%	8.1%	16.9%	-1.5%	20.7%	24.0%	4.5%	6.8%	21.9%	14.3%	-0.3%	8.7%
Germany	3.3%	6.5%	6.9%	7.9%	7.8%	5.4%	3.7%	7.9%	4.6%					3.6%	4.2%	11.2%	7.7%	10.0%	5.1%	5.6%	-18.7%	18.1%	4.5%	-6.0%	25.8%	6.0%	2.2%	15.9%	12.1%	-0.9%	9.2%
Hong Kong	5.9%	4.2%	7.2%	14.1%				14.1%	7.7%																		24.1%	17.1%	24.3%	6.0%	6.3%
Ireland	-0.7%	9.8%	6.4%	11.4%	10.3%	8.5%	6.5%	11.4%	3.1%			-8.4%	4.5%	1.7%	13.8%	4.9%	8.3%	4.1%	5.5%	2.3%	-0.4%	6.6%	5.8%	9.7%	7.4%	16.0%	13.4%	23.1%	14.4%	-2.8%	11.4%
Italy	1.1%	2.9%	5.2%	7.5%				7.5%	1.3%														6.5%	30.4%	23.5%	3.7%	-3.0%	28.0%	12.6%	-1.1%	3.7%
Japan	1.4%	7.5%	1.3%	6.2%	10.8%	9.8%	12.3%	6.2%	3.1%										2.5%	2.5%	14.2%	-1.2%	14.2%	15.9%	33.9%	13.0%	12.3%	21.3%	-4.2%	-5.1%	8.9%
Netherlands	6.0%	6.7%	6.9%	10.1%	8.4%	8.0%	6.6%	10.1%	3.6%											7.5%	7.5%	-0.8%	0.6%	10.3%	16.9%	6.1%	5.7%	20.3%	20.6%	-2.6%	8.8%
New Zealand	13.3%	14.3%	9.6%	11.5%	10.4%	9.9%	8.8%	11.5%	10.1%								8.9%	1.8%	3.5%	8.7%	8.2%	5.3%	6.4%	8.6%	11.5%	15.0%	5.8%	22.9%	8.3%	6.2%	14.4%
Norway	6.2%	6.2%	8.7%	10.0%				10.0%	8.7%																		14.1%	14.0%	9.9%	7.3%	9.5%
Portugal	4.5%	1.5%	5.2%						1.2%																				11.1%	0.6%	1.5%
Spain	-10.3%	-2.9%	5.4%	8.3%				8.3%	0.8%																13.3%	19.1%	-1.2%	27.4%	18.7%	4.3%	0.7%
Sweden	8.5%	8.8%	10.5%	14.2%	10.8%	9.3%	6.0%	14.2%	8.2%									7.9%	9.1%	5.7%	1.9%	3.5%	-0.2%	10.5%	16.3%	8.1%	6.7%	32.4%	19.0%	1.3%	11.4%
Switzerland	6.4%	7.9%	7.3%	7.8%	7.9%			7.8%	4.7%													9.7%	2.6%	9.4%	12.4%	5.3%	2.0%	10.6%	16.0%	1.1%	8.6%
UK	2.5%	4.2%	5.9%	11.1%	10.1%	8.4%	6.6%	11.1%	4.3%	8.1%	5.4%	4.8%	4.3%	4.8%	3.8%	4.4%	4.9%	5.5%	3.0%	0.6%	1.5%	9.5%	1.9%	8.9%	17.2%	8.3%	10.2%	23.9%	14.9%	1.6%	8.1%
US	11.9%	12.2%	8.9%	10.5%	10.5%	9.6%	9.0%	10.5%	6.5%	11.1%	4.9%	6.9%	5.3%	7.8%	1.6%	18.3%	7.7%	5.7%	5.4%	9.9%	4.3%	14.8%	-0.5%	9.0%	19.3%	7.8%	5.8%	17.5%	18.2%	-0.9%	13.6%
BOND																															
Australia	5.7%	6.9%	7.2%	9.3%	7.1%	6.2%	4.0%	9.3%	6.1%							5.2%	5.1%	5.2%	4.0%	2.1%	1.8%	5.3%	7.2%	5.1%	3.1%	4.2%	6.9%	12.4%	12.9%	6.7%	7.1%
Austria	1.5%	4.1%	5.0%	7.0%				7.0%	4.4%														-0.7%	8.2%	7.9%	6.2%	8.1%	8.7%	8.5%	5.8%	4.5%
Belgium	2.5%	5.1%	5.7%	7.8%	6.6%	5.5%	4.0%	7.8%	4.8%					3.8%	6.1%	5.0%	5.2%	4.9%	3.4%	2.9%	-1.2%	8.4%	3.9%	4.9%	4.3%	4.4%	6.3%	12.0%	10.4%	6.0%	5.0%
Canada	3.2%	4.2%	6.1%	8.1%	6.2%	5.4%	3.6%	8.1%	5.1%							5.0%	6.3%	6.5%	3.3%	2.5%	1.6%	5.8%	5.2%	3.5%	1.5%	3.7%	6.8%	13.4%	10.7%	6.8%	3.7%
Denmark	2.4%	3.9%	5.7%	10.0%	8.0%	7.0%	4.9%	10.0%	4.6%	4.1%	-1.4%	8.9%	4.1%	3.6%	5.1%	4.7%	5.9%	5.0%	3.3%	3.7%	1.1%	6.6%	6.0%	8.3%	4.5%	4.1%	10.1%	18.9%	11.2%	6.1%	4.5%
France	2.3%	4.3%	5.5%	8.2%	6.5%	5.6%	3.7%	8.2%	4.5%	21.8%	6.0%	11.9%	3.9%	0.4%	6.8%	5.1%	6.0%	4.5%	4.3%	3.1%	-1.0%	8.1%	3.8%	2.8%	5.4%	4.3%	6.1%	14.7%	10.1%	5.9%	4.7%
Germany	2.1%	3.8%	5.1%	6.9%				6.9%	4.4%														7.3%	-17.3%	5.9%	5.8%	8.1%	8.2%	8.5%	5.8%	4.3%
Hong Kong	3.6%	3.9%	4.9%						4.4%																					6.0%	2.5%
Ireland	2.8%	10.3%	6.6%	9.9%	7.3%	6.0%	3.3%	9.9%	5.4%								3.8%	2.7%	2.9%	1.4%	-0.5%	6.6%	3.8%	7.2%	4.6%	3.4%	5.5%	18.4%	10.6%	5.1%	7.4%
Italy	3.6%	6.5%	7.3%	10.0%	7.2%	6.4%	4.0%	10.0%	5.2%		12.4%	10.5%	7.4%	18.6%	6.3%	1.0%	12.3%	6.4%	5.9%	5.1%	1.5%	2.9%	5.9%	5.0%	3.3%	5.0%	6.5%	17.3%	14.3%	5.8%	6.0%
Japan	0.5%	1.4%	2.2%	5.2%	6.4%	5.8%	6.2%	5.2%	1.8%									6.8%	5.2%	6.3%	1.1%	8.1%	5.1%	3.8%	8.2%	11.3%	6.8%	9.2%	7.2%	1.8%	1.7%
Netherlands	2.3%	4.1%	5.3%	7.1%	5.5%	4.6%	2.9%	7.1%	4.5%	-1.4%	-3.3%	9.0%	3.2%	5.6%	5.8%	2.5%	6.1%	6.3%	2.6%	2.8%	0.4%	5.9%	4.3%	4.6%	0.2%	1.9%	7.5%	9.6%	8.7%	5.9%	4.4%
New Zealand	7.3%	7.6%	7.3%	8.8%	6.6%	5.7%	3.5%	8.8%	6.7%								5.9%	6.0%	4.1%	2.4%	0.4%	6.8%	5.4%	5.2%	-0.4%	4.7%	2.6%	15.1%	11.9%	7.2%	7.4%
Norway	3.1%	4.7%	5.4%	7.7%	6.5%	5.6%	4.2%	7.7%	5.0%				4.9%	4.1%	3.4%	3.7%	6.8%	4.9%	1.7%	3.8%	0.2%	6.9%	4.2%	13.4%	-3.6%	4.8%	4.4%	13.1%	11.0%	5.5%	4.4%
Portugal	5.7%	9.7%	8.2%	10.5%	8.9%	7.5%	5.4%	10.5%	6.4%				10.8%	8.8%	12.2%	3.9%	12.6%	7.9%	-5.5%	7.8%	1.6%	9.3%	10.1%	2.7%	3.9%	3.0%	1.6%	19.5%	17.8%	5.9%	8.9%
Spain	3.8%	7.2%	7.1%	10.1%	7.2%	6.9%	4.8%	10.1%	5.1%	3.4%	-18.4%	15.7%	11.6%	-2.7%	12.2%	3.7%	0.0%	14.4%	5.4%	8.8%	3.3%	5.4%	6.2%	3.3%	2.8%	4.8%	6.5%	16.8%	15.1%	5.7%	6.2%
Sweden	1.9%	3.2%	5.1%	7.6%	5.9%	5.4%	3.9%	7.6%	4.0%							5.2%	5.8%	5.0%	3.1%	3.1%	3.4%	5.9%	4.1%	3.9%	2.5%	3.8%	6.1%	11.7%	11.9%	5.6%	3.4%
Switzerland	1.8%	2.7%	3.6%	4.5%	4.3%	4.0%	3.6%	4.5%	3.2%											3.6%	1.5%	6.0%	4.2%	4.1%	2.7%	2.9%	5.8%	3.9%	5.9%	4.3%	2.9%
UK	3.2%	4.0%	6.0%	9.1%	6.2%	5.1%	2.3%	9.1%	4.8%	6.1%	4.1%	7.2%	3.3%	3.8%	3.3%	2.8%	3.8%	2.7%	2.9%	1.3%	-1.0%	5.2%	7.1%	2.0%	0.9%	1.6%	8.2%	14.1%	12.1%	6.0%	4.5%
US	5.2%	4.7%	5.4%	7.3%	5.4%	4.7%	2.9%	7.3%	5.0%	8.7%	6.2%	5.7%	2.1%	7.8%	5.3%	7.0%	6.1%	5.5%	3.4%	1.6%	2.3%	5.6%	4.1%	2.6%	0.4%	2.4%	6.1%	12.8%	8.0%	6.4%	4.1%

Note: 2020 data to 31 Jul 2020
Source : Deutsche Bank, GFD

Figure 63: Developed market real equity and bond returns (annualised)

										Returns by Decade																		
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
Australia	5.0%	4.8%	6.1%	5.6%	7.5%	7.6%	9.0%	5.6%	5.4%										9.5%	12.3%	4.2%	14.6%	11.3%	4.5%	8.4%	11.2%	-1.4%	8.6%	8.6%	5.6%	5.6%
Austria	-1.3%	-2.2%	3.0%	3.0%				3.0%	2.5%																		0.5%	12.2%	-1.0%	5.5%	3.4%
Belgium	-5.3%	2.2%	4.0%	5.1%	3.1%	2.2%	0.3%	5.1%	0.6%											3.3%			-6.3%	-0.7%	11.6%	0.6%	0.1%	15.2%	9.1%	-0.3%	5.3%
Canada	5.7%	3.2%	5.7%	5.0%	6.6%	5.7%	6.2%	5.0%	4.9%				48.5%	14.0%	0.5%	5.8%	7.9%	5.7%	7.4%	5.7%	-0.3%	15.6%	2.9%	3.7%	10.6%	7.1%	2.7%	5.6%	8.3%	3.5%	5.1%
Denmark	7.2%	11.6%	11.0%	8.6%	6.0%	4.1%	1.1%	8.6%	9.3%									5.4%	2.9%	1.0%	-5.7%	0.2%	2.8%	2.6%	7.1%	1.7%	-1.6%	16.3%	8.8%	4.7%	13.4%
France	2.4%	5.0%	6.1%	5.4%	4.2%	3.2%	1.7%	5.4%	3.4%		9.2%	7.2%	8.7%	7.1%	16.1%	5.1%	7.3%	6.5%	6.4%	5.3%	-3.3%	8.3%	-4.3%	-8.8%	17.4%	0.6%	-2.2%	14.1%	12.2%	-2.1%	7.4%
Germany	2.0%	5.2%	5.4%	5.2%	-16.3%	-16.4%	-28.9%	5.2%	3.1%					4.8%	0.4%	9.5%	6.1%	9.6%	5.2%	3.6%	-32.6%	-89.3%	6.5%	-9.5%	23.1%	3.5%	-2.6%	12.8%	9.6%	-2.5%	7.7%
Hong Kong	4.8%	1.6%	5.6%	8.6%				8.6%	6.4%																		14.6%	7.7%	17.1%	5.7%	3.0%
Ireland	-1.0%	9.2%	4.8%	5.9%				5.9%	1.5%														5.0%	4.3%	3.6%	11.2%	0.3%	13.2%	11.8%	-5.2%	10.8%
Italy	0.6%	1.9%	3.5%	1.4%				1.4%	-0.4%														6.1%	-12.8%	18.9%	0.0%	-14.1%	15.9%	8.3%	-3.4%	2.5%
Japan	1.0%	6.8%	1.2%	3.8%	4.0%	3.1%	2.6%	3.8%	3.1%										-3.9%	-1.0%	4.6%	2.6%	10.4%	-24.8%	29.5%	7.1%	3.2%	18.6%	-5.3%	-4.8%	8.3%
Netherlands	4.2%	5.0%	4.9%	6.8%	5.5%	4.8%	3.5%	6.8%	1.6%											5.4%	0.4%	1.3%	1.9%	2.3%	12.6%	2.0%	-1.4%	17.1%	17.8%	-4.7%	7.1%
New Zealand	11.8%	12.9%	7.5%	5.6%	6.3%	6.0%	6.2%	5.6%	8.0%								11.2%	3.3%	4.4%	7.0%	3.6%	5.7%	6.3%	5.6%	6.4%	11.3%	-5.5%	10.3%	6.3%	3.4%	12.6%
Norway	3.8%	4.2%	6.6%	5.4%				5.4%	6.6%																		5.2%	5.4%	7.3%	5.2%	7.4%
Portugal	3.8%	0.6%	3.3%						-0.5%																				5.1%	-1.9%	0.3%
Spain	-10.8%	-3.6%	3.4%	2.0%				2.0%	-1.2%																7.1%	12.6%	-13.9%	16.0%	14.1%	1.3%	-0.5%
Sweden	6.9%	7.7%	9.1%	9.4%	7.5%	5.6%	3.1%	9.4%	6.7%									8.5%	8.3%	4.7%	-8.2%	8.4%	-0.9%	6.5%	11.3%	4.1%	-2.0%	23.0%	15.6%	-0.6%	10.1%
Switzerland	6.2%	8.1%	6.9%	5.5%	6.3%			5.5%	4.3%													13.3%	4.0%	4.7%	11.0%	2.0%	-2.8%	7.0%	13.6%	0.2%	8.7%
UK	0.8%	2.4%	3.7%	5.5%	6.6%	4.7%	4.1%	5.5%	2.3%	4.6%	6.3%	7.2%	3.7%	6.9%	3.7%	3.9%	5.4%	5.9%	3.0%	-0.2%	-5.8%	12.9%	1.4%	5.9%	12.5%	4.5%	-2.6%	15.9%	11.0%	-0.3%	5.9%
US	10.0%	10.5%	6.7%	6.5%	7.7%	6.4%	6.4%	6.5%	4.4%	11.1%	4.6%	9.1%	3.2%	10.8%	0.1%	13.6%	10.2%	5.7%	5.2%	7.4%	-2.8%	15.9%	1.6%	3.4%	16.7%	5.1%	-1.5%	11.8%	14.8%	-3.4%	11.6%
BOND																														
Australia	4.6%	5.2%	4.9%	4.1%	3.1%	2.3%	1.1%	4.1%	3.6%								5.0%	4.9%	5.6%	1.0%	-3.3%	4.6%	8.3%	-0.2%	-3.1%	1.7%	-2.9%	3.8%	10.4%	3.5%	4.9%
Austria	0.1%	2.3%	3.2%	3.9%				3.9%	2.6%																3.0%	2.7%	2.0%	4.8%	5.9%	3.9%	2.5%
Belgium	0.9%	3.5%	3.8%	4.2%	2.3%	0.6%	-1.8%	4.2%	2.8%					4.9%	5.9%	3.5%	1.4%	4.0%	0.1%	-0.1%			4.6%	-6.9%	2.2%	1.6%	-0.8%	6.9%	8.2%	3.9%	3.2%
Canada	1.5%	2.6%	4.2%	4.1%	3.5%	2.3%	1.1%	4.1%	3.2%							9.8%	8.1%	6.2%	4.6%	-1.5%	-4.5%	6.7%	7.1%	-1.0%	-0.9%	1.0%	-0.7%	6.8%	8.4%	4.6%	1.9%
Denmark	1.7%	3.0%	4.1%	5.7%	4.5%	3.1%	1.3%	5.7%	3.0%	-1.7%	-20.4%	18.3%	4.4%	3.9%	3.7%	4.2%	6.1%	5.6%	3.4%	2.6%	-7.3%	7.6%	4.0%	3.7%	0.6%	-1.4%	0.5%	11.7%	9.0%	4.1%	3.4%
France	1.1%	3.1%	4.0%	4.0%	-0.1%	-1.2%	-4.7%	4.0%	3.0%	20.1%	5.2%	11.7%	3.3%	0.3%	6.3%	4.3%	5.6%	4.7%	4.6%	2.7%	-11.5%	0.1%	0.8%	-22.4%	-0.2%	0.4%	-2.8%	7.3%	8.2%	4.0%	3.4%
Germany	0.7%	2.6%	3.6%	4.3%				4.3%	2.9%														9.3%	-20.4%	3.6%	3.4%	3.0%	5.3%	6.1%	4.1%	2.8%
Hong Kong	2.5%	1.2%	3.4%						3.1%																					5.8%	-0.7%
Ireland	2.4%	9.7%	4.9%	4.5%				4.5%	3.8%														3.1%	1.9%	0.9%	-0.9%	-6.7%	8.8%	8.0%	2.5%	6.8%
Italy	3.1%	5.6%	5.5%	3.9%	-1.2%	-1.8%	-5.5%	3.9%	3.4%		11.9%	9.2%	7.2%	18.9%	4.0%	0.4%	10.7%	7.1%	6.1%	4.3%	-8.7%	-5.2%	5.5%	-29.8%	-0.6%	1.3%	-5.6%	6.3%	9.9%	3.4%	4.8%
Japan	0.1%	0.8%	2.0%	2.8%	-0.2%	-0.6%	-3.0%	2.8%	1.7%									10.3%	-1.4%	2.7%	-7.3%	12.3%	1.6%	-32.6%	4.7%	5.4%	-1.8%	6.7%	6.1%	2.1%	1.1%
Netherlands	0.6%	2.5%	3.3%	3.8%	2.7%	1.5%	-0.1%	3.8%	2.6%	-2.3%	-2.0%	10.8%	3.0%	7.0%	5.5%	2.6%	5.8%	8.3%	3.4%	0.8%	-6.2%	8.1%	5.8%	-3.0%	-3.4%	-2.0%	0.3%	6.7%	6.2%	3.6%	2.8%
New Zealand	5.8%	6.3%	5.3%	3.0%	2.7%	1.9%	1.0%	3.0%	4.6%								8.1%	7.6%	5.0%	0.8%	-3.9%	7.3%	5.3%	2.3%	-4.9%	1.4%	-8.3%	3.3%	9.9%	4.3%	5.7%
Norway	0.7%	2.7%	3.3%	3.2%	3.4%	1.9%	1.0%	3.2%	2.9%				4.1%	3.1%	2.1%	4.6%	6.9%	5.2%	0.9%	2.9%	-10.2%	11.7%	3.1%	9.0%	-8.2%	1.2%	-3.7%	4.6%	8.3%	3.5%	2.4%
Portugal	5.0%	8.7%	6.2%	1.8%				1.8%	4.6%															-4.6%	3.0%	-1.3%	-13.9%	2.4%	11.4%	3.3%	7.6%
Spain	3.1%	6.4%	5.0%	3.6%	1.4%	1.6%	0.3%	3.6%	3.1%		-20.3%	20.9%	7.4%	0.0%	10.8%	3.5%	-0.7%	14.3%	6.3%	7.6%	-0.7%	4.8%	1.3%	-5.7%	-2.9%	-0.9%	-7.1%	6.4%	10.6%	2.7%	5.0%
Sweden	0.4%	2.1%	3.7%	3.1%	2.8%	1.9%	1.0%	3.1%	2.5%							4.3%	5.8%	5.5%	2.3%	2.1%	-6.8%	11.0%	3.4%	0.2%	-1.9%	0.0%	-2.5%	3.8%	8.6%	3.7%	2.1%
Switzerland	1.6%	2.9%	3.1%	2.3%	2.7%	1.8%	1.5%	2.3%	2.8%											2.4%	-6.9%	9.5%	5.5%	-0.4%	1.5%	-0.3%	0.8%	0.6%	3.7%	3.3%	2.9%
UK	1.5%	2.1%	3.9%	3.6%	2.8%	1.4%	-0.1%	3.6%	2.7%	2.7%	5.0%	9.7%	2.7%	5.9%	3.3%	2.3%	4.3%	3.1%	2.9%	0.5%	-8.1%	8.4%	6.6%	-0.8%	-3.1%	-2.0%	-4.3%	6.7%	8.4%	4.0%	2.4%
US	3.4%	3.1%	3.3%	3.4%	2.7%	1.7%	0.5%	3.4%	2.9%	8.7%	5.9%	7.8%	0.1%	10.8%	3.6%	2.7%	8.6%	5.5%	3.3%	-0.7%	-4.7%	6.6%	6.3%	-2.6%	-1.8%	-0.2%	-1.2%	7.3%	4.9%	3.7%	2.3%

Note: 2020 data to 31 Jul 2020
Source : Deutsche Bank, GFD

Figure 64: Developed market USD equity and bond returns (annualised)

										Returns by Decade																			
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
Australia	5.8%	2.8%	8.3%	9.9%	10.6%	10.5%	10.9%	9.9%	8.7%										8.0%	13.6%	6.9%	18.5%	5.5%	6.4%	15.3%	14.0%	8.5%	13.8%	9.0%	12.4%	5.2%
Austria	1.8%	-1.8%	4.2%	7.9%				7.9%	4.3%																		14.6%	16.8%	0.0%	11.3%	2.9%
Belgium	-2.2%	2.4%	5.3%	9.6%	6.6%	5.6%	2.9%	9.6%	2.5%											6.4%	-1.0%	-3.0%	-5.3%	6.3%	14.0%	3.4%	13.5%	17.8%	10.1%	5.4%	4.6%
Canada	8.1%	1.8%	7.7%	8.5%	9.1%	8.6%	8.7%	8.5%	7.5%				48.8%	9.6%	5.4%	4.1%	3.0%	6.1%	6.0%	9.8%	5.2%	15.4%	0.0%	8.5%	15.1%	8.7%	9.5%	12.3%	8.1%	9.0%	4.7%
Denmark	9.8%	11.1%	12.2%	13.4%	9.5%	7.6%	3.7%	13.4%	11.0%									4.8%	2.8%	2.1%	-0.5%	2.6%	1.3%	4.0%	11.2%	6.5%	11.5%	21.3%	9.8%	10.5%	11.8%
France	5.3%	4.8%	7.1%	9.7%	7.3%	6.1%	3.6%	9.7%	4.9%		7.6%	7.7%	9.5%	7.1%	16.9%	7.7%	5.7%	6.4%	6.2%	5.7%	0.3%	7.5%	-6.9%	-1.7%	19.9%	3.2%	10.3%	17.6%	12.9%	3.3%	6.1%
Germany	5.0%	5.2%	6.3%	9.6%	-17.0%	-17.1%	-31.8%	9.6%	4.6%					3.6%	4.3%	13.2%	5.8%	10.0%	5.1%	5.6%	-36.5%	-90.5%	10.0%	-29.1%	25.9%	7.3%	10.3%	16.1%	10.5%	2.7%	6.5%
Hong Kong	5.9%	4.3%	7.2%	13.6%				13.6%	7.7%																		26.8%	11.8%	24.3%	6.0%	6.2%
Ireland	1.0%	8.4%	6.1%	10.3%	9.4%	7.4%	5.4%	10.3%	3.1%			-7.7%	4.5%	1.7%	13.9%	6.9%	6.3%	4.1%	5.6%	2.2%	-3.0%	9.5%	3.6%	6.0%	7.4%	14.2%	12.2%	19.2%	12.2%	0.7%	8.7%
Italy	2.7%	1.6%	5.1%	5.4%				5.4%	1.3%														6.1%	-7.6%	23.6%	3.6%	-5.4%	22.3%	8.0%	2.4%	1.2%
Japan	4.0%	4.6%	1.2%	8.9%	6.5%	6.2%	4.4%	8.9%	3.4%										-2.1%	2.5%	14.3%	-1.4%	6.1%	-25.6%	33.9%	13.0%	16.9%	27.7%	-0.9%	-4.2%	7.2%
Netherlands	7.7%	5.4%	6.3%	11.6%	8.9%	8.3%	6.0%	11.6%	3.6%											7.5%	6.7%	0.0%	3.4%	2.9%	17.0%	6.5%	12.7%	20.2%	19.0%	0.9%	6.2%
New Zealand	12.6%	12.4%	9.7%	10.4%	9.3%	8.7%	7.6%	10.4%	11.3%								6.8%	1.8%	3.6%	8.6%	5.4%	8.1%	6.5%	2.6%	11.3%	12.5%	4.5%	16.9%	6.9%	9.7%	13.5%
Norway	5.6%	1.6%	7.1%	9.4%				9.4%	7.9%																		18.4%	10.7%	7.8%	10.9%	5.0%
Portugal	6.2%	0.2%	4.7%						1.2%																				7.9%	4.2%	-1.0%
Spain	-8.8%	-4.1%	4.8%	6.8%				6.8%	0.8%																3.8%	17.3%	-0.7%	21.2%	13.9%	8.0%	-1.8%
Sweden	7.7%	6.0%	9.3%	13.0%	10.1%	8.5%	5.5%	13.0%	7.9%									7.9%	9.2%	5.7%	-0.5%	6.0%	-1.5%	8.2%	16.3%	8.1%	9.1%	27.2%	15.4%	3.0%	8.5%
Switzerland	8.4%	8.2%	8.3%	11.2%	10.1%			11.2%	6.7%													10.7%	4.1%	9.8%	12.3%	5.3%	12.7%	11.0%	15.6%	5.6%	9.3%
UK	0.1%	2.4%	5.2%	9.7%	9.0%	7.2%	5.5%	9.7%	3.2%	8.1%	5.6%	5.5%	4.3%	4.8%	3.9%	6.4%	2.9%	5.5%	3.1%	0.6%	-1.1%	12.4%	-0.2%	5.2%	17.2%	6.7%	9.3%	20.0%	14.9%	1.6%	6.0%
US	11.9%	12.2%	8.9%	10.5%	10.5%	9.6%	9.0%	10.5%	6.5%	11.1%	4.9%	6.9%	5.3%	7.8%	1.6%	18.3%	7.7%	5.7%	5.4%	9.9%	4.3%	14.8%	-0.5%	9.0%	19.3%	7.8%	5.8%	17.5%	18.2%	-0.9%	13.6%
BOND																															
Australia	5.3%	3.2%	7.0%	8.3%	6.1%	5.1%	2.9%	8.3%	6.9%							7.2%	3.2%	5.1%	4.1%	2.1%	-0.8%	8.1%	2.6%	1.5%	3.1%	4.2%	6.8%	8.7%	10.9%	10.1%	4.5%
Austria	3.2%	2.8%	4.4%	8.8%				8.8%	4.5%														2.3%	-17.4%	7.9%	6.3%	16.3%	9.2%	7.0%	9.6%	2.0%
Belgium	4.1%	3.8%	5.1%	8.6%	5.8%	3.9%	0.7%	8.6%	4.8%					3.6%	6.3%	6.9%	3.2%	4.9%	3.4%	2.9%	-8.3%	-3.7%	5.8%	-0.3%	4.3%	4.5%	12.6%	9.4%	9.2%	9.8%	2.5%
Canada	3.8%	1.1%	6.1%	7.5%	6.0%	5.2%	3.5%	7.5%	5.7%							8.0%	3.3%	6.6%	3.2%	2.3%	0.9%	6.5%	4.1%	3.6%	3.2%	2.4%	5.9%	13.5%	8.2%	10.2%	1.5%
Denmark	4.1%	2.5%	5.2%	10.4%	8.0%	6.5%	3.8%	10.4%	4.6%			10.5%	6.8%	4.2%	5.7%	6.5%	3.9%	5.0%	3.2%	3.7%	-2.1%	10.2%	2.5%	5.2%	4.5%	3.2%	13.9%	16.5%	10.0%	9.9%	2.0%
France	4.0%	3.0%	5.0%	8.2%	2.9%	1.6%	-2.9%	8.2%	4.5%		3.7%	12.2%	4.0%	0.3%	7.1%	7.0%	4.0%	4.5%	4.4%	3.1%	-8.2%	-0.6%	-1.9%	-16.3%	1.9%	3.0%	9.6%	10.7%	8.8%	9.7%	2.2%
Germany	3.7%	2.5%	4.5%	8.6%				8.6%	4.4%														13.0%	-37.6%	5.9%	7.1%	16.7%	8.4%	7.0%	9.6%	1.7%
Hong Kong	3.6%	3.9%	4.9%						4.4%																					6.1%	2.4%
Ireland	4.4%	8.9%	6.3%	8.9%	6.3%	4.9%	2.3%	8.9%	5.4%								1.9%	2.7%	3.0%	1.3%	-3.1%	9.4%	1.7%	3.5%	4.6%	1.8%	4.3%	14.6%	8.4%	8.8%	4.8%
Italy	5.3%	5.2%	7.2%	7.9%	2.9%	1.6%	-2.7%	7.9%	5.2%			11.8%	7.5%	18.1%	6.9%	2.3%	9.5%	7.6%	5.4%	5.8%	-7.5%	-0.8%	5.5%	-25.7%	3.4%	4.9%	3.9%	12.1%	9.6%	9.6%	3.5%
Japan	3.1%	-1.3%	2.1%	7.8%	2.2%	2.4%	-1.2%	7.8%	2.1%									5.2%	0.4%	6.3%	1.2%	7.9%	-2.4%	-33.4%	8.2%	11.3%	11.2%	14.9%	11.0%	2.8%	0.1%
Netherlands	4.0%	2.8%	4.7%	8.5%	6.0%	4.9%	2.4%	8.5%	4.5%	0.1%	-3.9%	9.3%	3.2%	5.5%	6.2%	4.2%	3.9%	6.3%	2.6%	2.7%	-0.3%	6.8%	7.3%	-2.5%	0.3%	2.3%	14.7%	9.6%	7.3%	9.6%	1.9%
New Zealand	6.6%	5.8%	7.4%	7.7%	5.6%	4.5%	2.4%	7.7%	7.8%								3.9%	6.0%	4.2%	2.4%	-2.2%	9.6%	5.5%	-0.6%	-0.5%	2.5%	1.3%	9.4%	10.5%	10.7%	6.6%
Norway	2.5%	0.2%	3.9%	7.2%	6.1%	4.8%	3.2%	7.2%	4.1%				7.5%	4.7%	3.9%	5.4%	4.7%	4.9%	1.8%	3.7%	-2.6%	9.9%	2.5%	8.0%	-3.6%	4.8%	8.4%	9.8%	8.8%	9.0%	0.2%
Portugal	7.5%	8.3%	7.6%	6.6%	5.9%	3.3%	1.0%	6.6%	6.4%				13.3%	8.5%	12.2%	5.7%	10.6%	7.9%	-8.9%	10.5%	-8.8%	-10.0%	7.7%	2.3%	3.8%	3.1%	-3.9%	7.2%	14.4%	9.7%	6.2%
Spain	5.5%	5.8%	6.4%	8.5%	4.1%	4.3%	1.4%	8.5%	5.1%			16.7%	11.7%	-2.6%	12.3%	5.2%	-2.3%	13.9%	3.5%	10.9%	3.9%	1.6%	3.2%	-5.7%	-5.9%	3.2%	7.1%	11.1%	10.4%	9.5%	3.6%
Sweden	1.1%	0.4%	3.9%	6.4%	5.3%	4.6%	3.4%	6.4%	3.6%							6.8%	3.8%	5.0%	3.2%	3.1%	1.0%	8.5%	2.8%	1.8%	2.5%	3.9%	8.5%	7.3%	8.4%	7.5%	0.6%
Switzerland	3.7%	2.9%	4.6%	7.8%	6.3%	5.5%	3.9%	7.8%	5.2%											3.7%	0.7%	6.9%	5.7%	4.5%	2.7%	2.9%	16.9%	4.3%	5.6%	8.9%	3.6%
UK	0.8%	2.2%	5.3%	7.7%	5.2%	3.9%	1.3%	7.7%	3.6%	6.1%	4.4%	8.0%	3.3%	3.7%	3.4%	4.8%	1.9%	2.7%	3.0%	1.2%	-3.5%	8.0%	4.9%	-1.5%	0.9%	0.0%	7.3%	10.6%	12.2%	6.0%	2.5%
US	5.2%	4.7%	5.4%	7.3%	5.4%	4.7%	2.9%	7.3%	5.0%	8.7%	6.2%	5.7%	2.1%	7.8%	5.3%	7.0%	6.1%	5.5%	3.4%	1.6%	2.3%	5.6%	4.1%	2.6%	0.4%	2.4%	6.1%	12.8%	8.0%	6.4%	4.1%

Note: 2020 data to 31 Jul 2020
Source : Deutsche Bank, GFD

Figure 65: Emerging market nominal equity and bond returns (annualised)

										Returns by Decade																				
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
China	-1.3%	3.8%	9.5%						6.9%																				11.1%	2.5%
India	8.1%	7.3%	11.9%	18.0%	12.1%	10.5%	5.6%	18.0%	13.6%	5.6%	6.3%	5.9%	4.2%	5.4%	3.8%	10.1%	8.9%	8.2%	5.7%	3.7%	3.9%	8.0%	3.0%	2.4%	12.0%	5.7%	18.0%	28.7%	21.1%	15.2%	10.2%
Korea	8.0%	3.6%	7.6%	16.6%				16.6%	10.0%																		40.7%	29.2%	4.6%	9.9%	5.5%
Malaysia	1.9%	3.6%	5.0%						8.0%																			12.8%	5.6%	7.8%	5.4%
Mexico	-0.9%	1.5%	12.7%						12.5%																				35.9%	18.3%	5.1%
Philippines	-2.0%	5.3%	4.7%						6.5%																				9.3%	5.1%	10.8%
Russia	15.1%	1.2%	12.6%						14.9%																					16.6%	5.6%
South Africa	4.8%	8.9%	11.8%	16.6%	13.4%	11.5%	8.0%	16.6%	14.2%					-10.4%	13.8%	7.3%	16.1%	9.0%	1.7%	2.4%	6.5%	9.8%	11.0%	10.7%	5.5%	14.6%	16.0%	24.1%	13.9%	14.7%	11.2%
Taiwan	13.5%	8.3%	7.7%						7.1%																				3.9%	0.9%	9.2%
Thailand	3.7%	5.9%	3.3%						10.5%																			27.3%	-2.4%	8.8%	11.8%
BOND																														
China	2.8%	4.2%							4.8%																					5.9%	4.0%
India	9.5%	8.2%	9.3%	7.9%	6.7%	5.6%	4.0%	7.9%	8.3%	5.7%	6.5%	5.4%	5.6%	4.6%	4.6%	4.5%	4.4%	4.2%	3.4%	2.3%	-0.3%	5.6%	7.7%	6.0%	3.0%	4.2%	4.9%	4.4%	14.1%	8.5%	7.2%
Korea	3.3%	5.3%	8.0%	14.6%				14.6%	6.7%																	28.5%	27.2%	22.1%	15.7%	8.4%	6.2%
Malaysia	6.2%	4.9%	5.5%	7.4%				7.4%	5.4%																		11.3%	9.0%	7.6%	5.5%	4.7%
Mexico	7.3%	7.1%	13.8%						11.6%																					14.5%	7.2%
Philippines	6.9%	7.4%							13.3%																					16.3%	7.9%
Russia	12.9%	9.6%							17.1%																					16.8%	10.0%
South Africa	9.2%	7.6%	11.1%	11.5%	8.0%	7.2%	4.2%	11.5%	10.9%								4.6%	5.6%	3.7%	4.8%	2.0%	4.8%	4.8%	3.5%	5.3%	4.9%	7.4%	11.0%	17.9%	12.1%	8.7%
Taiwan	2.0%	2.0%	4.6%						4.0%																					6.9%	1.6%
Thailand	4.4%	4.6%	8.4%						6.8%																			13.6%	13.7%	7.9%	5.4%

Note: 2020 data to 31 Jul 2020. Source : Deutsche Bank, GFD

Figure 66: Emerging market real equity and bond returns (annualised)

										Returns by Decade																				
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
China	-1.2%	2.6%	7.7%						5.3%																				8.9%	-0.1%
India	3.9%	1.5%	5.2%	9.6%	6.7%	5.4%	2.6%	9.6%	7.3%									7.1%	6.1%	2.8%	-1.3%	7.4%	6.2%	-6.8%	10.5%	-0.1%	9.6%	18.3%	10.6%	8.6%	3.5%
Korea	7.1%	2.2%	4.9%	9.9%				9.9%	7.6%																		22.3%	20.3%	-0.9%	6.5%	3.8%
Malaysia	1.0%	1.8%	2.7%						5.9%																			9.0%	1.7%	5.5%	3.2%
Mexico	-4.5%	-2.1%	5.9%						7.5%																				13.7%	12.7%	1.1%
Philippines	-4.7%	2.2%	0.1%						2.3%																				0.5%	-0.2%	7.4%
Russia	11.1%	-4.7%	-0.7%						3.9%																					3.1%	-1.0%
South Africa	0.5%	3.9%	5.9%	7.0%	7.8%	6.3%	5.7%	7.0%	8.5%											3.6%	1.3%	9.4%	11.6%	5.6%	1.8%	11.7%	5.4%	8.3%	4.2%	8.1%	5.8%
Taiwan	14.3%	8.2%	6.9%						6.5%																				1.0%	0.0%	8.2%
Thailand	3.2%	4.8%	1.0%						8.5%																			21.1%	-6.9%	6.1%	10.2%
BOND																														
China	0.8%	2.0%							2.7%																					3.8%	1.3%
India	5.2%	2.3%	2.7%	0.2%	1.6%	0.7%	1.1%	0.2%	2.3%									3.2%	3.8%	1.3%	-5.3%	5.0%	11.1%	-3.6%	1.6%	-1.6%	-2.6%	-4.0%	4.2%	2.3%	0.7%
Korea	2.4%	4.0%	5.3%	7.9%				7.9%	4.4%																	13.4%	10.5%	13.6%	9.6%	5.1%	4.4%
Malaysia	5.3%	3.2%	3.3%	3.9%				3.9%	3.4%																		5.4%	5.4%	3.6%	3.2%	2.6%
Mexico	3.4%	3.4%	6.9%						6.6%																					9.1%	3.1%
Philippines	3.9%	4.2%							8.9%																					10.5%	4.6%
Russia	9.0%	3.3%							5.9%																					3.2%	3.1%
South Africa	4.8%	2.6%	5.3%	2.4%	2.7%	2.2%	2.0%	2.4%	5.4%											6.0%	-3.0%	4.4%	5.3%	-1.2%	1.6%	2.2%	-2.4%	-3.2%	7.9%	5.7%	3.4%
Taiwan	1.3%	1.1%	3.6%						3.1%																					5.9%	0.6%
Thailand	3.9%	3.5%	6.0%						4.9%																			8.1%	8.5%	5.3%	3.9%

Note: 2020 data to 31 Jul 2020. Source : Deutsche Bank, GFD

Figure 67: Emerging market USD equity and bond returns (annualised)

										Returns by Decade																			
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
EQUITY																														
China	-2.7%	3.2%	10.3%						7.8%																				13.3%	2.3%
India	5.5%	1.9%	8.6%	12.7%	8.8%	7.7%	4.2%	12.7%	10.7%				5.5%	4.5%	4.2%	11.8%	4.7%	6.7%	5.2%	3.8%	7.2%	5.8%	1.0%	-1.2%	11.9%	1.0%	17.4%	19.4%	10.2%	14.5%	5.6%
Korea	7.7%	2.9%	5.8%	13.6%				13.6%	10.0%																		34.3%	24.9%	-0.7%	9.6%	5.6%
Malaysia	2.2%	0.3%	2.9%						7.5%																			10.4%	2.1%	8.9%	3.6%
Mexico	-5.9%	-4.3%	8.0%						8.4%																				19.8%	14.5%	1.3%
Philippines	-2.9%	4.0%	2.1%						5.3%																				2.3%	3.6%	9.8%
Russia	14.7%	-7.4%	0.8%						8.5%																					15.4%	-1.6%
South Africa	2.8%	-0.9%	5.1%	9.4%	9.6%	8.1%	7.1%	9.4%	8.8%					-10.5%	14.0%	9.4%	13.9%	9.0%	1.8%	2.3%	3.8%	12.8%	8.7%	6.9%	5.4%	14.6%	14.3%	11.0%	4.2%	12.6%	4.3%
Taiwan	16.0%	8.3%	7.4%						7.6%																				2.0%	0.7%	10.0%
Thailand	6.7%	5.5%	2.4%						11.2%																			24.3%	-6.0%	10.0%	13.1%
BOND																														
China	1.3%	3.6%							5.7%																				7.9%	3.8%
India	6.9%	2.8%	6.0%	3.0%	3.5%	2.9%	2.7%	3.0%	5.6%				6.9%	3.8%	5.0%	6.0%	0.5%	2.7%	2.9%	2.3%	2.8%	3.5%	5.7%	2.2%	2.9%	-0.5%	4.3%	-3.2%	3.8%	7.8%	2.7%
Korea	2.9%	4.7%	6.2%	11.6%				11.6%	6.7%																	7.3%	21.4%	18.0%	9.9%	8.1%	6.2%
Malaysia	6.5%	1.6%	3.4%	6.7%				6.7%	4.9%																		15.1%	6.7%	3.9%	6.6%	2.9%
Mexico	1.9%	1.0%	9.1%						7.5%																					10.9%	3.3%
Philippines	5.9%	6.1%							12.1%																					14.6%	7.0%
Russia	12.6%	0.3%							10.5%																					15.6%	2.4%
South Africa	7.2%	-2.1%	4.5%	4.7%	4.4%	3.9%	3.4%	4.7%	5.7%								2.6%	5.6%	3.8%	4.8%	-0.6%	7.6%	2.6%	0.0%	5.3%	4.9%	5.9%	-0.7%	7.9%	10.1%	2.0%
Taiwan	4.3%	1.9%	4.3%						4.4%																					6.7%	2.3%
Thailand	7.5%	4.2%	7.5%						7.5%																			10.9%	9.5%	9.1%	6.6%

Note: 2020 data to 31 Jul 2020. Source : Deutsche Bank, GFD

Figure 68: Developed market nominal and real GDP growth for different time horizons

										Growth by Decade																			
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
Nominal GDP																														
Australia	4.3%	4.7%	5.8%	8.4%				8.4%	5.8%																8.0%	13.8%	11.8%	5.1%	7.1%	4.7%
Austria	3.6%	3.3%	3.5%	5.8%		15.4%	22.7%	5.6%	3.6%									0.8%	2.5%	11.5%				13.4%	8.6%	10.9%	6.3%	4.8%	3.5%	3.3%
Belgium	3.3%	3.2%	3.6%	5.8%		7.2%	8.3%	5.7%	3.5%					0.0%	4.5%	4.0%	1.4%	1.0%	1.2%	1.8%			21.7%	4.6%	8.0%	11.0%	6.6%	4.6%	3.6%	3.2%
Canada	3.3%	4.1%	4.4%	6.8%	6.5%	6.9%	6.9%	6.8%	4.5%									4.2%	2.3%	8.5%	8.7%	4.1%	-0.9%	11.9%	8.3%	8.4%	13.0%	8.6%	4.3%	4.4%	4.1%
Denmark	3.2%	3.0%	3.4%	6.6%	6.2%	6.5%	6.6%	6.5%	3.2%			-1.8%	2.2%	2.8%	4.4%	3.2%	1.7%	1.6%	3.2%	4.2%	12.3%	0.4%	3.4%	8.8%	7.1%	10.0%	14.0%	8.2%	4.6%	3.3%	3.0%
France	2.4%	2.3%	3.0%	6.4%		9.4%	11.6%	6.3%	2.9%			2.5%	1.0%	1.2%	2.4%	3.6%	-1.0%	1.8%	1.7%	2.1%			4.3%	32.5%	11.7%	10.1%	13.9%	9.6%	3.6%	3.3%	2.3%
Germany	3.3%	3.5%	2.7%	4.7%	39.6%	34.1%	59.3%	4.5%	2.7%							3.7%	3.6%	3.2%	3.4%	3.4%	16.9%	1337.5%	2.9%	23.7%	10.9%	10.0%	8.8%	4.8%	4.7%	1.7%	3.5%
Greece	1.0%	-2.4%	3.9%	11.6%	50.6%	43.5%	71.0%	11.3%	2.8%					-0.1%	7.4%	1.5%	4.0%	4.5%	2.1%	2.4%	23.7%	18.8%	5.4%	2088.2%	14.5%	10.6%	20.6%	20.3%	13.2%	7.8%	-2.4%
Hong Kong	4.9%	5.6%	4.1%	10.8%				10.7%	3.8%																11.2%	21.0%	16.9%	9.1%	2.6%	5.6%
Ireland	12.8%	7.7%	8.5%	11.1%	7.4%	6.9%	4.1%	11.1%	7.5%								0.6%	0.2%	1.3%	-0.5%	9.9%	2.6%	0.8%	1.4%	5.2%	9.0%	18.4%	12.4%	11.1%	6.2%	7.7%
Italy	1.9%	1.3%	3.0%	8.8%	11.3%	10.9%	12.7%	8.4%	2.4%								1.3%	1.2%	1.0%	3.6%	15.1%	7.2%	1.6%	47.0%	9.9%	8.8%	19.5%	14.6%	6.6%	3.0%	1.3%
Japan	2.6%	1.6%	0.4%	4.3%	11.0%	10.8%	15.7%	4.1%	0.4%										9.3%	5.0%	15.1%	0.5%	6.7%	58.8%	15.1%	17.1%	13.0%	6.1%	2.1%	-0.7%	1.6%
Netherlands	3.8%	2.6%	4.2%	6.0%	6.0%	6.2%	6.5%	5.8%	3.9%		1.1%	0.5%	2.4%	-0.9%	1.7%	3.3%	1.3%	1.8%	1.2%	3.0%	11.4%	1.6%	-2.2%	13.1%	7.9%	10.5%	13.1%	4.3%	6.2%	4.1%	2.6%
New Zealand	5.3%	4.9%	5.1%	8.6%	7.4%	7.3%	6.6%	8.5%	5.3%							13.4%	6.4%	0.8%	1.6%	5.8%	8.6%	0.7%	5.0%	9.6%	8.4%	7.5%	14.4%	14.0%	4.2%	5.6%	4.9%
Norway	2.5%	3.9%	5.7%	8.2%	6.6%	7.0%	6.3%	8.1%	5.5%					1.1%	5.0%	3.6%	2.1%	1.5%	3.3%	2.1%	16.8%	-3.5%	3.7%	8.1%	8.9%	8.4%	14.4%	10.3%	5.9%	6.8%	3.9%
Portugal	4.2%	1.9%	4.4%	11.0%	7.7%	7.1%	4.4%	11.0%	3.3%									3.2%	2.0%	1.4%	7.0%	-0.9%	1.4%	7.6%	5.6%	8.4%	16.0%	23.7%	11.1%	3.9%	1.9%
Spain	3.8%	1.5%	4.6%	9.5%	9.4%	8.7%	8.2%	9.3%	4.1%							-0.2%	4.4%	0.3%	1.1%	2.3%	7.4%	3.6%	1.7%	13.3%	15.4%	13.8%	19.5%	13.5%	7.8%	6.0%	1.5%
Sweden	4.7%	4.2%	4.3%	7.2%	6.4%	6.6%	6.3%	7.1%	4.1%	5.9%	4.9%	0.1%	2.6%	1.2%	3.8%	2.3%	3.4%	1.2%	4.2%	3.0%	13.4%	-1.8%	3.7%	8.1%	8.9%	9.1%	11.7%	11.4%	5.1%	4.0%	4.2%
Switzerland	1.5%	1.7%	2.3%	4.4%	4.7%	4.8%	5.2%	4.3%	2.4%							2.1%	2.5%	0.9%	4.1%	3.5%	7.0%	3.7%	-1.0%	7.5%	6.2%	9.1%	6.9%	7.6%	2.8%	3.1%	1.7%
UK	3.5%	3.7%	4.1%	7.9%	6.1%	6.1%	4.9%	7.8%	3.9%	3.2%	0.2%	0.2%	3.1%	0.0%	2.9%	3.5%	1.7%	2.1%	2.5%	1.3%	10.3%	-2.0%	2.3%	7.6%	7.1%	7.3%	16.0%	10.8%	5.4%	4.1%	3.7%
US	4.0%	4.0%	4.4%	6.3%	5.7%	6.1%	6.0%	6.3%	4.1%	1.8%	4.2%	1.8%	7.9%	1.3%	6.1%	6.4%	1.7%	3.9%	3.4%	6.7%	9.7%	2.2%	-1.1%	11.2%	6.9%	7.0%	10.1%	7.8%	5.6%	4.0%	4.0%
Real GDP																														
Australia	2.4%	2.6%	3.1%	3.2%				3.2%	2.9%				6.8%	10.7%	12.1%											3.3%	3.7%	3.5%	3.1%	2.6%
Austria	1.9%	1.6%	2.1%	2.7%	3.2%	3.4%	3.8%	2.7%	1.7%									1.5%	2.6%	9.8%	-1.5%	5.4%	1.0%	-1.2%	10.7%	3.2%	5.2%	1.8%	3.3%	1.7%	1.6%
Belgium	1.7%	1.6%	2.4%	2.5%	2.4%	2.1%	1.9%	2.4%	1.8%						2.7%	2.6%	1.9%	2.4%	1.8%	2.0%	-1.4%	4.6%	0.6%	0.0%	2.0%	4.8%	3.5%	1.9%	3.5%	1.8%	1.6%
Canada	3.5%	3.1%	2.8%	3.0%	3.6%	3.7%	4.3%	3.0%	2.7%									3.5%	3.2%	5.9%	2.8%	4.6%	0.5%	5.9%	5.3%	5.2%	4.1%	2.9%	2.6%	2.1%	3.1%
Denmark	2.5%	1.8%	1.7%	1.8%	2.6%	2.6%	3.2%	1.8%	1.5%				1.1%	2.9%	1.7%	2.0%	2.2%	2.1%	3.2%	3.3%	1.8%	3.7%	2.5%	1.9%	3.6%	5.5%	2.0%	1.4%	2.7%	1.0%	1.8%
France	1.6%	1.4%	1.6%	2.4%	2.8%	2.3%	2.3%	2.3%	1.5%				1.4%	2.1%	1.5%	1.7%	-0.3%	2.0%	2.4%	1.0%	-1.8%	7.0%	-1.1%	0.1%	5.0%	5.7%	4.5%	2.6%	2.0%	1.5%	1.4%
Germany	1.6%	1.9%	1.4%	2.1%	3.5%	2.9%	3.5%	2.1%	1.4%							2.6%	1.9%	2.5%	3.4%	2.7%	-2.6%	5.3%	3.3%	2.1%	8.7%	4.8%	3.1%	2.8%	2.2%	0.7%	1.9%
Greece	0.9%	-2.1%	0.8%	1.7%	3.2%	3.2%	4.4%	1.6%	0.4%					-0.5%	4.0%	2.1%	1.9%	4.2%	0.5%	2.4%	4.3%	4.8%	3.8%	0.8%	7.4%	6.8%	5.4%	0.9%	1.7%	2.7%	-2.1%
Hong Kong	2.0%	2.9%	3.1%	6.0%				5.9%	3.5%																	8.5%	9.3%	7.4%	6.3%	4.2%	2.9%
Ireland	9.8%	6.0%	6.1%	5.0%				5.1%	5.1%														0.8%	1.3%	1.4%	4.5%	4.6%	3.0%	8.0%	3.6%	6.0%
Italy	0.9%	0.2%	0.7%	1.9%	2.8%	2.5%	3.0%	1.9%	0.4%								1.0%	1.4%	1.3%	2.7%	0.0%	3.7%	1.5%	0.5%	6.4%	6.4%	4.0%	2.9%	2.0%	0.5%	0.2%
Japan	0.4%	0.9%	0.7%	2.7%	3.5%	3.4%	4.0%	2.6%	0.7%									2.9%	3.0%	1.5%	4.5%	1.8%	4.9%	-4.1%	8.8%	10.7%	5.3%	5.4%	1.6%	0.5%	0.9%
Netherlands	2.2%	1.4%	2.0%	2.5%	2.9%	2.7%	3.0%	2.4%	1.7%				1.7%	0.9%	0.9%	2.0%	2.3%	3.0%	2.0%	1.4%	2.4%	4.7%	1.0%	1.4%	3.9%	5.7%	3.9%	2.2%	3.3%	1.7%	1.4%
New Zealand	3.5%	2.9%	3.0%	2.7%	3.1%	3.1%	3.4%	2.7%	3.0%								7.9%	1.9%	3.0%	4.4%	1.9%	2.6%	3.5%	3.3%	3.7%	4.0%	2.6%	2.4%	2.7%	2.9%	2.9%
Norway	1.5%	1.5%	2.1%	2.8%	3.2%	3.1%	3.2%	2.8%	1.7%					2.0%	3.0%	3.2%	1.8%	1.7%	2.2%	1.9%	3.1%	3.4%	3.3%	2.6%	3.7%	4.7%	4.4%	2.5%	3.8%	1.8%	1.5%
Portugal	2.4%	0.8%	1.2%	1.8%	2.6%	2.2%	2.7%	1.6%	1.0%								0.6%	2.2%	2.1%	0.5%	0.0%	4.3%	2.1%	2.9%	3.5%	4.8%	2.7%	2.6%	1.8%	0.9%	0.8%
Spain	2.8%	1.0%	2.4%	2.7%	2.9%	2.7%	2.7%	2.6%	1.9%							0.1%	3.2%	1.2%	1.3%	1.8%	0.9%	4.2%	-2.7%	2.2%	4.7%	7.9%	3.9%	2.8%	3.0%	2.6%	1.0%
Sweden	2.4%	2.5%	2.5%	2.5%	2.7%	2.5%	2.5%	2.4%	2.4%	0.6%	-0.3%	0.4%	0.7%	0.5%	0.6%	0.9%	1.5%	1.2%	2.4%	1.4%	1.1%	3.4%	3.5%	1.4%	2.8%	3.8%	2.4%	3.4%	2.1%	2.1%	2.5%
Switzerland	1.7%	1.9%	1.8%	1.6%	2.5%	2.3%	2.9%	1.5%	1.9%							1.5%	1.1%	3.0%	3.6%	2.8%	0.4%	5.0%	0.3%	2.6%	4.5%	4.7%	1.6%	1.2%	1.2%	1.9%	1.9%
UK	1.8%	1.9%	2.1%	2.2%	2.2%	2.0%	1.9%	2.2%	1.9%	1.5%	0.9%	2.5%	3.0%	1.5%	2.0%	1.8%	1.9%	2.4%	2.2%	1.0%	1.4%	0.7%	2.1%	1.6%	3.1%	3.4%	2.6%	2.6%	2.2%	1.8%	1.9%
US	2.3%	2.3%	2.5%	2.8%	3.2%	3.2%	3.5%	2.8%	2.2%	2.3%	3.7%	5.3%	6.1%	4.2%	4.2%	1.9%	6.6%	4.7%	4.3%	4.6%	2.3%	3.3%	0.9%	5.4%	4.3%	4.4%	3.3%	3.1%	3.4%	1.8%	2.3%

Source : Deutsche Bank, GFD

Figure 69: Developed market nominal and real GDP growth for different time horizons in USD

										Growth by Decade																			
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
Nominal GDP																														
Australia	1.2%	2.1%	5.4%	7.4%				7.4%	6.5%																8.0%	13.7%	8.1%	3.2%	10.5%	2.1%
Austria	2.1%	0.8%	3.1%	7.3%		5.1%	3.7%	7.2%	3.3%									0.9%	2.2%	11.6%				13.5%	8.7%	19.3%	6.8%	3.4%	7.2%	0.8%
Belgium	1.7%	0.7%	3.1%	6.5%		5.5%	4.9%	6.4%	3.3%					-0.1%	4.6%	5.9%	-0.5%	1.0%	1.2%	1.8%			15.6%	4.6%	8.1%	17.5%	4.1%	3.4%	7.4%	0.7%
Canada	1.1%	1.9%	4.7%	6.4%	6.3%	6.6%	6.9%	6.3%	5.3%									4.2%	2.2%	8.3%	7.9%	4.7%	-1.8%	11.9%	10.0%	7.1%	12.0%	8.7%	2.0%	7.8%	1.9%
Denmark	1.5%	0.5%	3.1%	6.8%	6.0%	6.0%	5.5%	6.7%	3.0%			-0.3%	4.7%	3.4%	5.0%	4.9%	-0.2%	1.6%	3.2%	4.2%	8.6%	3.8%	0.1%	5.7%	7.1%	9.1%	17.8%	6.0%	3.5%	7.0%	0.5%
France	0.9%	-0.2%	2.6%	6.3%		5.2%	4.5%	6.2%	2.7%			2.8%	1.1%	1.1%	2.6%	5.5%	-2.8%	1.8%	1.8%	2.1%			-1.4%	7.9%	8.0%	8.7%	17.7%	5.7%	2.4%	7.0%	-0.2%
Germany	1.8%	1.0%	2.2%	6.3%	7.0%	5.3%	4.7%	6.1%	2.5%							5.6%	1.7%	3.1%	3.4%	3.5%	-8.8%	16.2%	8.4%	-6.7%	11.0%	11.3%	17.4%	5.0%	3.2%	5.4%	1.0%
Greece	-0.6%	-4.7%	3.0%	6.5%	5.7%	6.6%	7.0%	6.1%	2.4%					-0.2%	7.7%	3.4%	2.0%	4.5%	2.1%	2.4%	20.8%	-7.2%	-0.8%	16.9%	6.9%	10.6%	18.5%	3.8%	5.2%	11.3%	-4.7%
Hong Kong	4.8%	5.6%	4.1%	10.3%				10.1%	3.8%																10.4%	23.6%	11.6%	9.2%	2.6%	5.6%
Ireland	11.1%	5.1%	8.1%	9.9%	6.3%	5.8%	3.1%	9.9%	7.2%								-1.3%	0.2%	1.4%	-0.6%	7.1%	5.4%	-1.3%	-2.0%	5.2%	7.3%	17.1%	8.8%	9.0%	10.1%	5.1%
Italy	0.3%	-1.2%	2.7%	6.6%	6.0%	5.8%	5.5%	6.1%	2.2%								-1.2%	2.4%	0.4%	4.3%	4.8%	3.3%	1.2%	4.1%	9.9%	8.7%	16.5%	9.5%	2.3%	6.7%	-1.2%
Japan	4.6%	0.1%	0.1%	6.9%	6.6%	7.2%	7.5%	6.7%	0.6%										4.3%	5.0%	15.2%	0.4%	-0.9%	1.9%	15.1%	17.1%	17.7%	11.7%	5.7%	0.3%	0.1%
Netherlands	2.3%	0.2%	3.7%	7.3%	6.4%	6.4%	6.0%	7.1%	3.7%		0.5%	0.8%	2.4%	-0.9%	2.1%	5.0%	-0.8%	1.8%	1.2%	3.0%	10.6%	2.4%	0.6%	5.4%	8.0%	11.0%	20.6%	4.3%	4.8%	7.8%	0.2%
New Zealand	2.2%	4.2%	5.3%	7.5%	6.3%	6.2%	5.4%	7.3%	6.5%							15.6%	4.4%	0.8%	1.7%	5.8%	5.8%	3.4%	5.1%	3.6%	8.3%	5.2%	13.0%	8.5%	2.9%	9.1%	4.2%
Norway	-0.7%	-0.4%	4.6%	7.7%	6.0%	6.3%	5.4%	7.6%	4.7%					1.7%	5.5%	5.3%	0.2%	1.5%	3.4%	2.1%	13.5%	-0.7%	2.0%	3.0%	8.9%	8.4%	18.7%	7.1%	3.9%	10.3%	-0.4%
Portugal	2.6%	-0.5%	3.9%	7.0%	3.4%	2.8%	0.0%	6.9%	3.1%									3.2%	-1.7%	4.0%	-4.1%	-18.5%	-0.8%	7.2%	5.6%	8.5%	9.7%	10.9%	7.9%	7.6%	-0.5%
Spain	2.3%	-0.9%	4.1%	7.9%	5.8%	5.9%	4.7%	7.6%	3.8%							1.3%	2.1%	-0.2%	-0.8%	4.3%	8.1%	-0.2%	-1.2%	3.4%	5.7%	12.1%	20.2%	7.9%	3.5%	9.8%	-0.9%
Sweden	0.9%	1.4%	3.3%	5.9%	5.6%	5.8%	5.8%	5.8%	3.4%			0.4%	2.5%	0.8%	4.2%	3.9%	1.4%	1.2%	4.3%	2.9%	10.8%	0.6%	2.4%	5.9%	8.9%	9.1%	14.1%	7.0%	1.8%	5.8%	1.4%
Switzerland	2.0%	2.4%	3.5%	7.6%	6.6%	6.3%	5.5%	7.5%	4.1%							4.0%	0.5%	0.9%	4.1%	3.6%	6.1%	4.6%	0.4%	7.9%	6.2%	9.1%	18.1%	8.0%	2.4%	7.6%	2.4%
UK	0.3%	1.6%	3.4%	6.6%	5.0%	4.9%	3.8%	6.5%	2.8%	3.2%	0.3%	0.9%	3.0%	-0.1%	3.0%	5.4%	-0.2%	2.1%	2.6%	1.2%	7.5%	0.6%	0.2%	4.0%	7.1%	5.6%	15.1%	7.4%	5.5%	4.0%	1.6%
US	4.0%	4.0%	4.4%	6.3%	5.7%	6.1%	6.0%	6.3%	4.1%	1.8%	4.2%	1.8%	7.9%	1.3%	6.1%	6.4%	1.7%	3.9%	3.4%	6.7%	9.7%	2.2%	-1.1%	11.2%	6.9%	7.0%	10.1%	7.8%	5.6%	4.0%	4.0%
Real GDP																														
Australia	-0.6%	0.1%	2.7%	2.3%				2.2%	3.6%				6.6%	10.3%	12.6%											3.2%	0.2%	1.6%	6.4%	0.1%
Austria	0.3%	-0.9%	1.6%	4.3%	-4.4%	-5.9%	-12.3%	4.2%	1.5%									1.7%	2.3%	9.9%	-30.9%	-42.3%	4.0%	-24.6%	10.7%	3.2%	13.2%	2.3%	1.9%	5.3%	-0.9%
Belgium	0.1%	-0.9%	1.9%	3.1%	1.2%	0.4%	-1.3%	3.1%	1.6%						2.9%	4.5%	0.0%	2.4%	1.8%	2.0%	-8.4%	-7.1%	2.4%	-5.0%	2.0%	4.9%	9.6%	-0.5%	2.3%	5.4%	-0.9%
Canada	1.2%	1.0%	3.1%	2.6%	3.4%	3.5%	4.2%	2.5%	3.5%									3.6%	3.2%	5.8%	2.0%	5.2%	-0.5%	5.9%	7.0%	3.9%	3.2%	3.0%	0.3%	5.4%	1.0%
Denmark	0.9%	-0.7%	1.3%	2.0%	2.4%	2.1%	2.2%	2.0%	1.3%				3.7%	3.5%	2.2%	3.7%	0.3%	2.1%	3.2%	3.4%	-1.5%	7.3%	-0.8%	-1.1%	3.7%	4.6%	5.5%	-0.7%	1.5%	4.6%	-0.7%
France	0.0%	-1.1%	1.3%	2.3%	-1.2%	-1.7%	-4.2%	2.2%	1.3%				1.5%	2.0%	1.7%	3.5%	-2.1%	2.0%	2.5%	1.0%	-8.9%	-1.6%	-6.5%	-18.5%	1.5%	4.4%	7.9%	-1.1%	0.8%	5.1%	-1.1%
Germany	0.1%	-0.5%	0.9%	3.7%	-20.7%	-19.2%	-32.0%	3.6%	1.1%							4.5%	0.1%	2.5%	3.4%	2.7%	-23.9%	-91.5%	8.8%	-23.0%	8.8%	6.1%	11.3%	3.0%	0.8%	4.4%	-0.5%
Greece	-0.6%	-4.4%	-0.1%	-2.9%	-27.6%	-23.3%	-34.7%	-3.1%	0.0%					-0.6%	4.2%	3.9%	0.0%	4.2%	0.5%	2.4%	1.8%	-18.1%	-2.3%	-94.6%	0.2%	6.8%	3.5%	-12.9%	-5.5%	6.1%	-4.4%
Hong Kong	1.9%	2.8%	3.1%	5.5%				5.4%	3.4%																	7.8%	11.7%	2.5%	6.4%	4.2%	2.8%
Ireland	8.2%	3.5%	5.8%	3.9%				4.0%	4.9%														-1.3%	-2.2%	1.4%	2.9%	3.4%	-0.3%	5.9%	7.3%	3.5%
Italy	-0.6%	-2.2%	0.4%	-0.1%	-2.1%	-2.2%	-3.6%	-0.2%	0.2%								-1.5%	2.6%	0.8%	3.4%	-8.9%	-0.1%	1.1%	-28.8%	6.4%	6.3%	1.5%	-1.7%	-2.2%	4.1%	-2.2%
Japan	2.3%	-0.7%	0.4%	5.2%	-0.6%	0.0%	-3.3%	5.1%	0.9%									1.3%	-1.7%	1.5%	4.6%	1.7%	-2.6%	-38.5%	8.8%	10.7%	9.6%	10.9%	5.1%	1.5%	-0.7%
Netherlands	0.7%	-1.0%	1.5%	3.7%	3.2%	2.9%	2.4%	3.6%	1.5%				1.6%	0.9%	1.3%	3.7%	0.2%	3.1%	2.0%	1.4%	1.7%	5.5%	3.8%	-5.5%	3.9%	6.1%	10.8%	2.1%	1.9%	5.3%	-1.0%
New Zealand	0.5%	2.2%	3.2%	1.7%	2.0%	2.0%	2.2%	1.6%	4.2%								5.8%	1.9%	3.1%	4.4%	-0.7%	5.3%	3.6%	-2.4%	3.6%	1.7%	1.3%	-2.6%	1.4%	6.4%	2.2%
Norway	-1.7%	-2.7%	1.0%	2.4%	2.6%	2.3%	2.3%	2.4%	1.0%					2.5%	3.5%	4.9%	-0.1%	1.6%	2.3%	1.9%	0.2%	6.4%	1.6%	-2.3%	3.8%	4.7%	8.3%	-0.5%	1.8%	5.3%	-2.7%
Portugal	0.9%	-1.7%	0.7%	-1.9%	-1.4%	-1.8%	-1.6%	-2.1%	0.8%								-1.2%	2.2%	-1.5%	3.0%	-10.3%	-14.1%	-0.2%	2.5%	3.5%	4.9%	-2.9%	-8.1%	-1.1%	4.6%	-1.7%
Spain	1.3%	-1.4%	1.9%	1.1%	-0.5%	0.1%	-0.6%	1.0%	1.7%							1.6%	0.8%	0.8%	-0.6%	3.8%	1.5%	0.5%	-5.5%	-6.7%	-4.1%	6.3%	4.5%	-2.3%	-1.1%	6.3%	-1.4%
Sweden	-1.3%	-0.2%	1.6%	1.3%	2.0%	1.7%	2.1%	1.2%	1.7%			0.7%	0.7%	0.2%	1.1%	2.4%	-0.4%	1.2%	2.5%	1.3%	-1.2%	5.9%	2.2%	-0.7%	2.8%	3.8%	4.6%	-0.7%	-1.1%	3.9%	-0.2%
Switzerland	2.3%	2.6%	3.1%	4.6%	4.3%	3.8%	3.2%	4.6%	3.6%							3.3%	-0.8%	3.0%	3.6%	2.9%	-0.4%	5.9%	1.7%	3.0%	4.4%	4.6%	12.2%	1.6%	0.8%	6.4%	2.6%
UK	-1.4%	-0.1%	1.4%	1.0%	1.1%	0.9%	0.9%	1.0%	0.8%	1.5%	1.1%	3.3%	2.9%	1.4%	2.1%	3.7%	0.0%	2.4%	2.3%	0.9%	-1.2%	3.4%	0.0%	-1.9%	3.1%	1.8%	1.8%	-0.6%	2.3%	1.8%	-0.1%
US	2.3%	2.3%	2.5%	2.8%	3.2%	3.2%	3.5%	2.8%	2.2%	2.3%	3.7%	5.3%	6.1%	4.2%	4.2%	1.9%	6.6%	4.7%	4.3%	4.6%	2.3%	3.3%	0.9%	5.4%	4.3%	4.4%	3.3%	3.1%	3.4%	1.8%	2.3%

Source : Deutsche Bank, GFD

Figure 70: Emerging market nominal and real GDP growth for different time horizons

	Growth by Decade																														
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
Nominal GDP																															
China	9.0%	11.0%	12.8%	13.3%				13.2%	12.4%																3.1%	7.6%	15.1%	18.6%	14.4%	11.0%
India	10.3%	12.9%	12.7%	13.2%	9.2%	8.4%	5.2%	13.3%	12.5%									1.7%	1.1%	3.6%	6.2%	0.5%	-2.8%	13.0%	5.1%	11.4%	11.0%	15.6%	14.6%	12.1%	12.9%
Korea	5.3%	5.2%	7.0%	14.6%	23.1%			14.3%	6.6%													0.0%				25.7%	31.1%	17.3%	13.2%	7.7%	5.2%
Malaysia	6.1%	7.3%	8.2%	10.3%				10.4%	7.9%																4.7%	7.3%	15.3%	8.2%	12.3%	8.6%	7.3%
Mexico	5.7%	6.4%	10.7%	24.0%	16.4%	19.7%	16.7%	24.3%	7.7%											8.4%	75.6%	-0.1%	4.8%	16.0%	15.2%	10.9%	22.7%	68.3%	23.9%	8.0%	6.4%
Philippines	8.1%	8.8%	9.7%	13.5%				13.3%	9.2%																7.1%	10.4%	20.1%	16.6%	12.6%	9.6%	8.8%
Russia	6.9%	10.2%	23.2%	29.6%		30.8%	31.4%	30.0%	19.1%										5.1%	3.7%			28.7%	8.5%	6.2%	6.8%	5.3%	2.7%	148.5%	23.2%	10.2%
South Africa	5.9%	7.2%	9.6%	12.8%	9.7%			12.9%	9.4%													1.7%	4.1%	9.6%	8.1%	9.8%	15.8%	17.6%	12.4%	11.5%	7.2%
Taiwan	3.0%	3.9%	4.2%	9.5%	23.4%			9.4%	3.4%												10.9%	3.1%	5.7%	211.5%	33.4%	14.4%	19.8%	12.7%	9.3%	2.8%	3.9%
Thailand	5.0%	5.7%	6.3%	10.2%				10.2%	6.3%																8.0%	10.4%	15.8%	12.6%	10.1%	7.3%	5.7%
Real GDP																															
China	6.7%	7.7%	9.0%	10.2%				10.0%	8.9%																2.2%	7.3%	9.7%	16.3%	10.3%	7.7%
India	6.9%	7.2%	6.8%	5.6%	3.7%	3.3%	1.7%	5.6%	7.0%										0.6%	1.9%	0.3%	0.2%	0.8%	0.5%	3.9%	4.0%	2.8%	5.9%	5.3%	6.8%	7.2%
Korea	4.7%	4.2%	4.7%	7.0%	4.5%			6.9%	4.7%													1.3%	3.8%	-2.9%	4.6%	4.0%	10.4%	8.7%	7.0%	4.7%	4.2%
Malaysia	4.9%	5.4%	6.2%	6.8%	5.1%			6.9%	6.5%													6.1%	1.7%	0.8%	2.1%	6.8%	7.9%	5.7%	7.2%	7.8%	5.4%
Mexico	1.1%	2.2%	2.4%	2.9%	3.2%	3.0%	3.1%	2.8%	2.1%											3.2%	0.7%	0.9%	1.9%	1.8%	6.3%	7.1%	4.7%	1.8%	3.9%	2.0%	2.2%
Philippines	6.6%	6.3%	5.0%	4.2%	3.9%			4.2%	5.3%												6.6%	3.6%	3.0%	-0.1%	6.5%	4.7%	5.8%	1.9%	2.6%	4.4%	6.3%
Russia	0.5%	1.7%	4.1%	2.1%				2.0%	3.6%														6.1%	0.8%	5.2%	5.0%	3.1%	1.8%	-1.5%	5.4%	1.7%
South Africa	0.7%	1.6%	2.5%	2.4%	3.2%			2.3%	2.6%													1.3%	4.5%	4.4%	4.7%	5.3%	3.3%	2.0%	1.6%	3.5%	1.6%
Taiwan	2.5%	3.5%	4.1%	6.3%	5.6%			6.2%	3.8%												2.2%	4.5%	2.5%	-0.8%	9.4%	9.5%	10.2%	6.8%	7.4%	3.8%	3.5%
Thailand	3.4%	3.6%	3.4%	6.7%				6.6%	4.0%																3.9%	8.3%	7.3%	7.2%	11.1%	4.3%	3.6%

Source : Deutsche Bank, GFD

Figure 71: Emerging market nominal and real GDP growth for different time horizons in USD

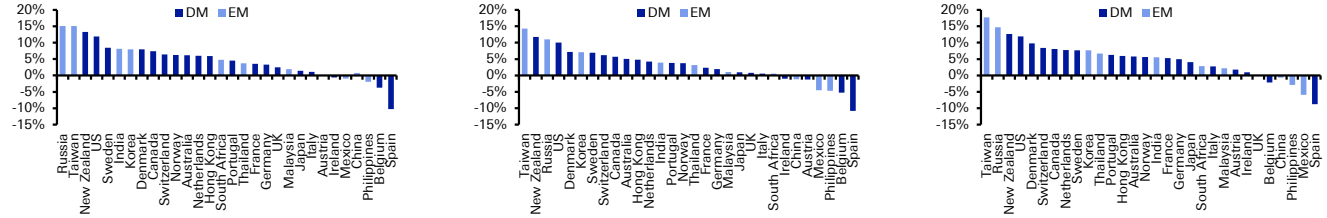
	Returns by Decade																														
	Last 5yrs	Last 10yrs	Last 25yrs	Last 50yrs	Last 100yrs	since 1900	1900-1970	since 1971	since 1999	1800-1809	1810-1819	1820-1829	1830-1839	1840-1849	1850-1859	1860-1869	1870-1879	1880-1889	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2019
Nominal GDP																															
China	6.5%	10.8%	13.7%	10.9%				10.8%	13.3%																	3.1%	13.1%	2.6%	12.1%	16.6%	10.8%
India	7.6%	8.2%	9.0%	8.2%	5.5%	5.6%	3.9%	8.3%	9.7%									0.3%	0.6%	3.7%	9.6%	-1.5%	-4.6%	9.0%	5.0%	6.4%	10.3%	7.2%	4.3%	11.3%	8.2%
Korea	4.1%	5.3%	5.4%	11.6%	7.8%			11.3%	6.8%													-0.3%				4.9%	25.2%	13.4%	7.6%	7.4%	5.3%
Malaysia	2.9%	5.4%	6.1%	9.7%				9.8%	7.5%																4.6%	7.2%	19.3%	6.0%	8.5%	9.7%	5.4%
Mexico	0.6%	2.5%	5.0%	7.1%	6.2%	6.4%	6.0%	7.1%	4.5%											8.7%	6.6%	-0.6%	-4.9%	10.9%	11.0%	10.9%	15.5%	4.4%	9.3%	4.6%	2.5%
Philippines	5.5%	7.9%	6.5%	7.8%				8.6%	7.8%																7.1%	3.3%	13.2%	4.6%	5.5%	8.0%	7.9%
Russia	5.5%	2.6%	9.9%	3.7%		4.9%	5.9%	3.5%	13.1%										5.7%	3.9%			28.4%	8.5%	-0.3%	7.9%	7.3%	2.7%	-13.1%	22.0%	2.6%
South Africa	1.9%	0.5%	3.8%	6.3%	6.1%			6.2%	5.0%													4.4%	1.9%	5.9%	8.0%	9.8%	14.1%	5.2%	2.9%	9.5%	0.5%
Taiwan	4.2%	4.6%	3.6%	10.2%	8.0%			10.1%	3.8%												11.1%	2.8%	-1.8%	6.3%	7.2%	15.6%	21.1%	16.4%	7.3%	2.6%	4.6%
Thailand	7.1%	6.9%	5.6%	9.5%				9.4%	7.3%																8.9%	10.5%	16.3%	9.9%	6.0%	8.5%	6.9%
Real GDP																															
China	4.3%	7.5%	9.9%	8.0%				7.7%	9.8%																	2.2%	12.8%	-2.2%	9.9%	12.5%	7.5%
India	4.3%	2.7%	3.3%	1.0%	0.2%	0.6%	0.4%	0.9%	4.4%										0.1%	2.0%	3.5%	-1.8%	-1.1%	-3.0%	3.9%	-0.6%	2.3%	-1.8%	-4.2%	6.1%	2.7%
Korea	3.5%	4.3%	3.1%	4.2%	-8.5%			4.1%	4.9%													1.0%	-3.6%	-43.2%	-30.0%	-13.2%	5.4%	5.1%	1.7%	4.4%	4.3%
Malaysia	1.7%	3.5%	4.3%	6.2%	4.5%			6.2%	6.2%													8.8%	-0.3%	-2.6%	2.1%	6.7%	11.6%	3.5%	3.6%	8.9%	3.5%
Mexico	-3.8%	-1.5%	-2.9%	-11.1%	-5.8%	-8.4%	-6.3%	-11.4%	-1.0%											3.5%	-38.9%	0.4%	-7.5%	-2.7%	2.4%	7.1%	-1.4%	-36.8%	-8.3%	-1.3%	-1.5%
Philippines	4.0%	5.4%	2.0%	-1.0%	0.6%			-0.1%	3.9%												6.1%	4.1%	3.1%	-0.1%	6.5%	-2.1%	-0.3%	-8.6%	-3.9%	2.9%	5.4%
Russia	-0.8%	-5.3%	-7.2%	-18.3%				-18.8%	-1.6%														5.8%	0.8%	-1.3%	6.1%	5.1%	1.8%	-65.6%	4.3%	-5.3%
South Africa	-3.1%	-4.7%	-3.0%	-3.5%	-0.1%			-3.7%	-1.5%													4.0%	2.4%	0.8%	4.7%	5.4%	1.9%	-8.8%	-7.0%	1.6%	-4.7%
Taiwan	3.6%	4.2%	3.6%	6.9%	-7.5%			6.9%	4.2%												2.4%	4.1%	-4.8%	-66.2%	-12.1%	10.6%	11.3%	10.3%	5.5%	3.6%	4.2%
Thailand	5.5%	4.8%	2.7%	5.9%				5.9%	5.0%																4.8%	8.3%	7.7%	4.7%	7.0%	5.5%	4.8%

Source : Deutsche Bank, GFD

LT Asset Returns in Charts

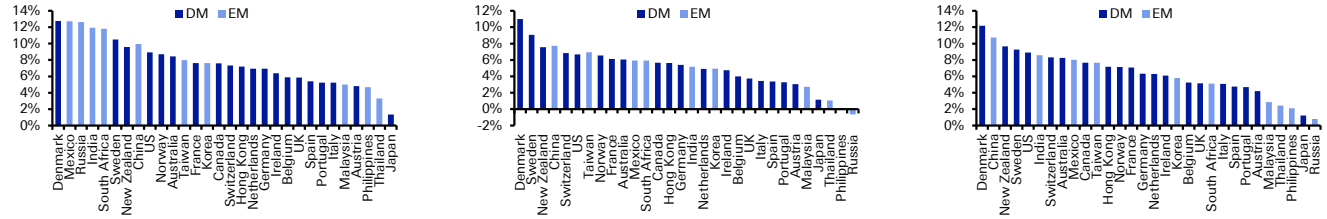
International equity return charts

Figure 72: Last 5 years annualised equity returns - nominal (left), real (middle), USD (right)



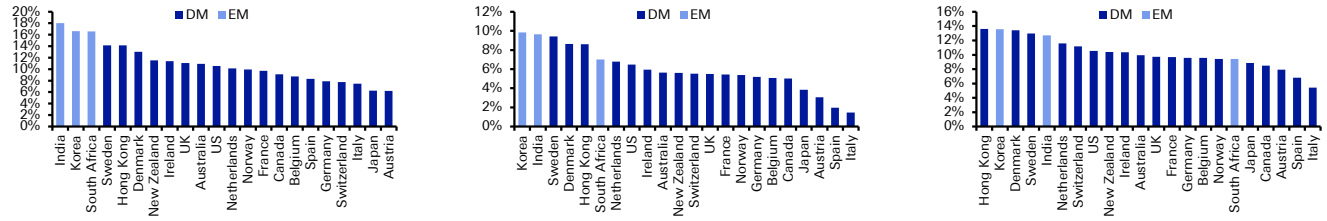
Source : Deutsche Bank, GFD

Figure 73: Last 25 years annualised equity returns - nominal (left), real (middle), USD (right)



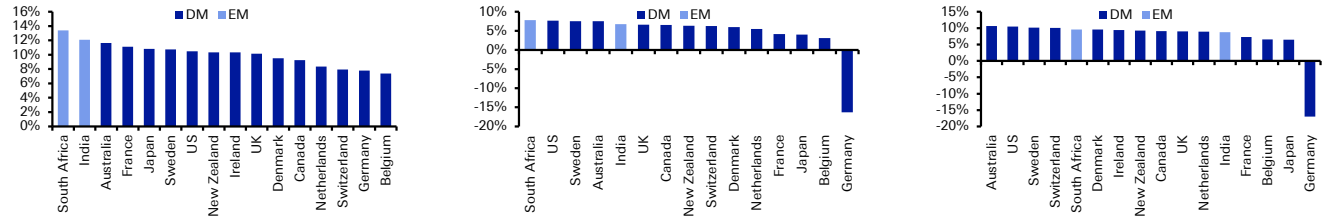
Source : Deutsche Bank, GFD

Figure 74: Last 50 years annualised equity returns - nominal (left), real (middle), USD (right)



Source : Deutsche Bank, GFD

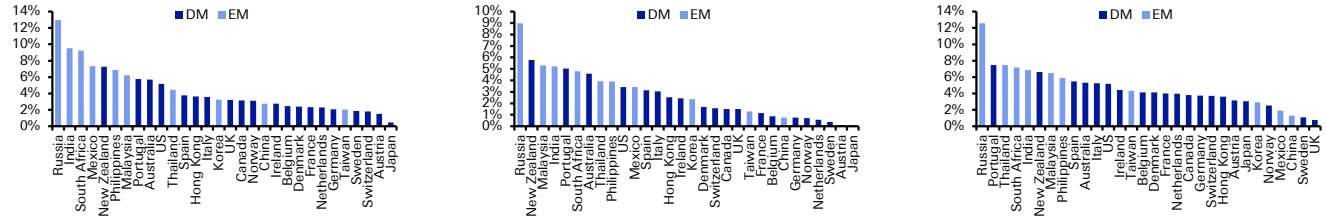
Figure 75: Last 100 years annualised equity returns - nominal (left), real (middle), USD (right)



Source : Deutsche Bank, GFD

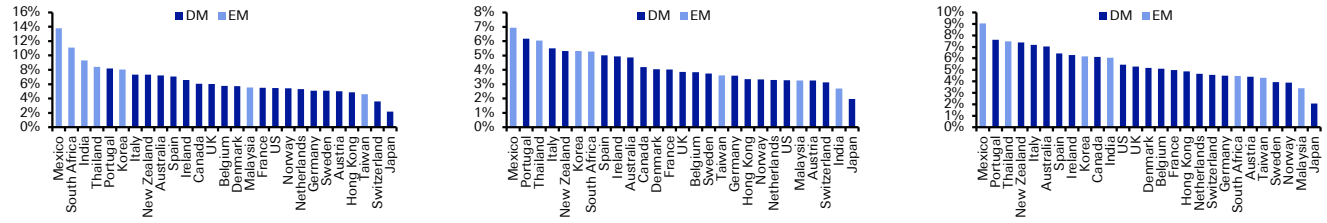
International 10 year government return charts

Figure 76: Last 5 years annualised bond returns - nominal (left), real (middle), USD (right)



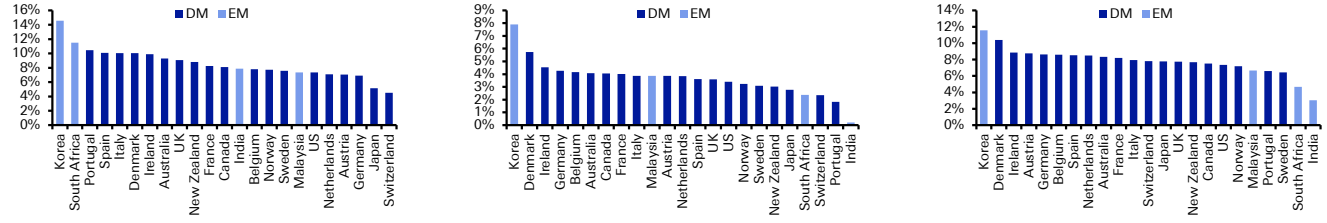
Source : Deutsche Bank, GFD

Figure 77: Last 25 years annualised bond returns - nominal (left), real (middle), USD (right)



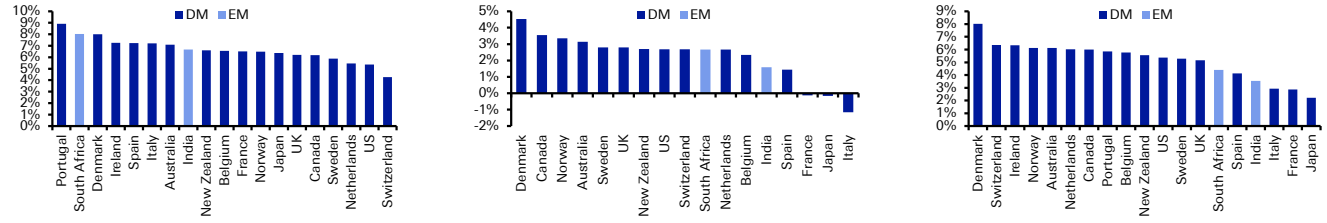
Source : Deutsche Bank, GFD

Figure 78: Last 50 years annualised bond returns - nominal (left), real (middle), USD (right)



Source : Deutsche Bank, GFD

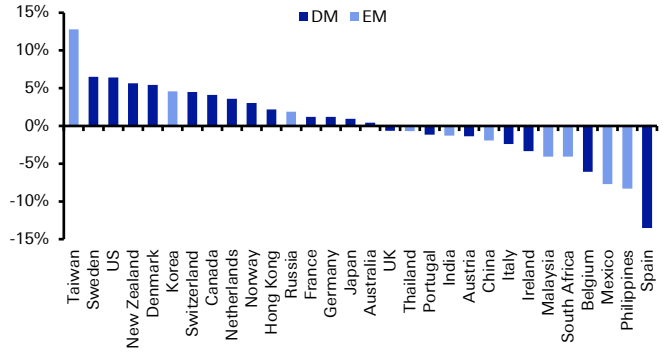
Figure 79: Last 100 years annualised bond returns - nominal (left), real (middle), USD (right)



Source : Deutsche Bank, GFD

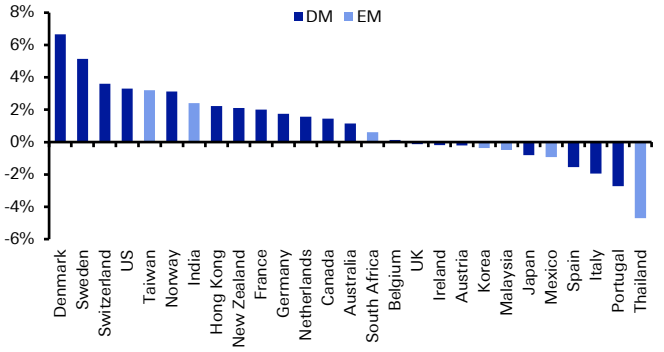
International equity minus bond returns

Figure 80: Last 5 years annualised equity-bond return



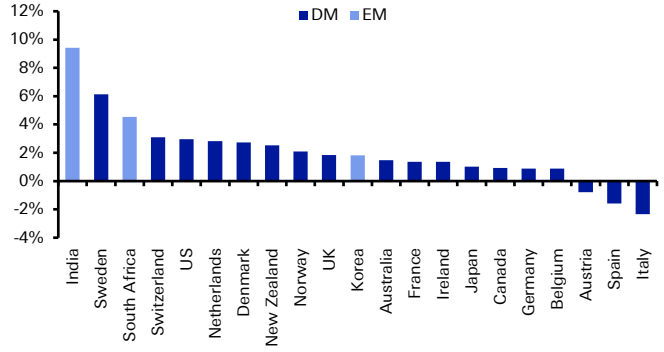
Source : Deutsche Bank, GFD

Figure 81: Last 25 years annualised equity-bond return



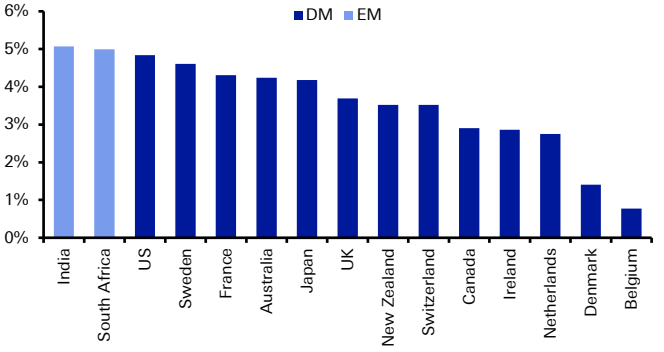
Source : Deutsche Bank, GFD

Figure 82: Last 50 years annualised equity-bond return



Source : Deutsche Bank, GFD

Figure 83: Last 100 years annualised equity-bond return



Source : Deutsche Bank, GFD

Appendix 1

Important Disclosures

*Other information available upon request

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Recessions and shocks

Contents

The coronavirus pandemic is a highly unusual circumstance, and in several ways we are in uncharted waters. In this short report we will apply our tools, our signals and our outsider approach to:

- distinguish between recessions and novel exogenous shocks
- show that markets tend not to front-run novel exogenous shocks in the same way they try to front-run ordinary business cycles or earnings cycles
- show that a tangible improvement in the underlying event is usually needed before we get a tradeable bottom for novel shocks
- show that once the current pandemic passes "peak fear", there is huge stimulus waiting in the wings
- highlight the most beat-up industries that are approaching an once-in-a-decade buying opportunity

A US and global recession is very likely to be triggered by the increasingly draconian responses of governments in an effort to avoid overwhelming heath-care systems. The recession could be made more serious by the underlying excesses and weakest links in credit markets we have discussed previously in our Dec 19 thematic report *Leveraged to the Hilt,* and in our *Themes for 2020*. We also show that historically the size of the equity market's sell-off before a recession tells you little about the magnitude of the sell-off after the recession starts.

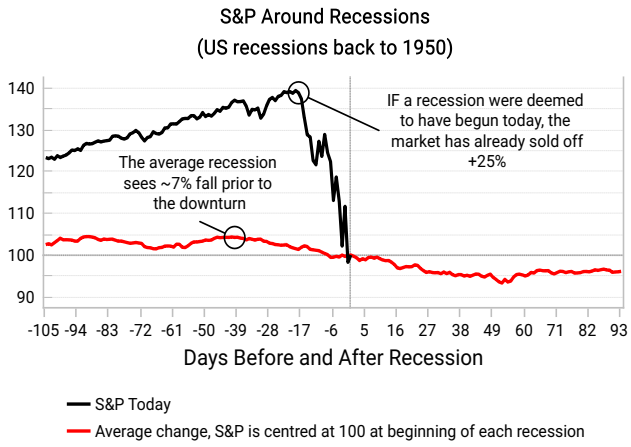
The market will remain prey to whipsawing, with large up-and-down moves that gradually decrease over time. Endogenous risks dominate for now as the imbalances built up over the previous years come home to roost, with the unwinding of a gigantic short-volatility position. When we get a tradeable bottom, though, it is likely to come from a tangible improvement in the exogenous virus-event that was the trigger for this huge unwind. We believe that this would take a coordinated "whatever it takes" monetary and fiscal response, as well as a tangible improvement in combatting the virus, either through flattening infection curves or progress on vaccine developments.

Once this point is reached the unprecedented amount of stimulus waiting in the wings is ready to fuel one of the best buying opportunities in decades. We highlight some of the most beat-up industries and tie it into our capital returns framework, on which we will release a thematic report shortly.

OUTLINE

In this report we will show:

- for truly novel exogenous shocks, markets have historically needed to see a tangible improvement in the underlying event before they make a bottom
- pandemics have historically preceded US recessions
- the depth of today's equity sell-off does not tell us how much more equities will sell off after any ensuing recession - instead endogenous risks will dominate, and we are unlikely to get a tradeable bottom until we see a tangible improvement in virus containment
- what sectors look most poised to benefit from the record stimulus waiting in the wings



RECESSIONS AND EXOGENOUS SHOCKS

A recession is a general decline in economic activity. To use the jargon, they are generally caused by "endogenous" factors: a slump in housing, a sharp fall in consumer spending and so on. An exogenous shock is something that happens to the economy, such as a war or a natural disaster.

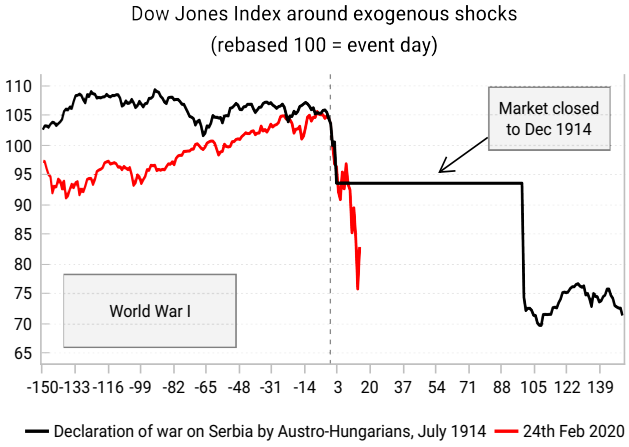
What we are most interested in is how markets behave around both of these. **By looking at previous recessions and exogenous shocks, we find that markets tend not to front-run the evolution of an exogenous event the same way they do with business cycles. Markets, historically, have often waited for a *tangible improvement* to the underlying event that caused their sell-off before they reach a tradeable bottom.**

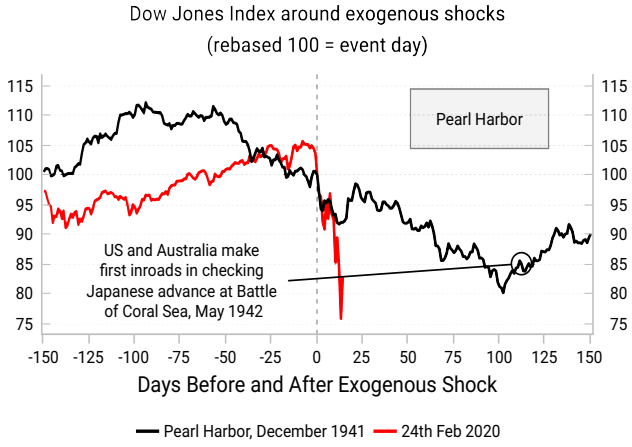
We look at several exogenous shocks that markets have faced through the 20th and 21st centuries. They show that the market does not usually bottom until we see a tangible improvement in the underlying event (source for dates, *McClellan Financial Reports*).

Charts Source: Bloomberg, Macrobond and Variant Perception

- **At the start of WWI**, the catalyst for the market sell-off was the declaration of war on Serbia by the Austro-Hungarian Empire in July 1914. The market sold-off about 10%, then the market was closed for almost 6 months. When the market re-opened, it slumped 25%, but then rallied through the rest of the war. The market's re-opening was itself a positive development in the exogenous event, despite the war carrying on for another three years.

- **In WWII** the pivotal event for the US was Japan's surprise attack on Pearl Harbor in 1941 that dragged the US fully into the Pacific theatre and preceded a large market sell-off. However, it wasn't until the Battle of Coral Sea in May 1942 which showed the tide of war was turning that the market bottomed. It was still an overall victory for the Japanese, but it was the first time the US had curtailed a Japanese advance. The market ended up rallying through until 1946.

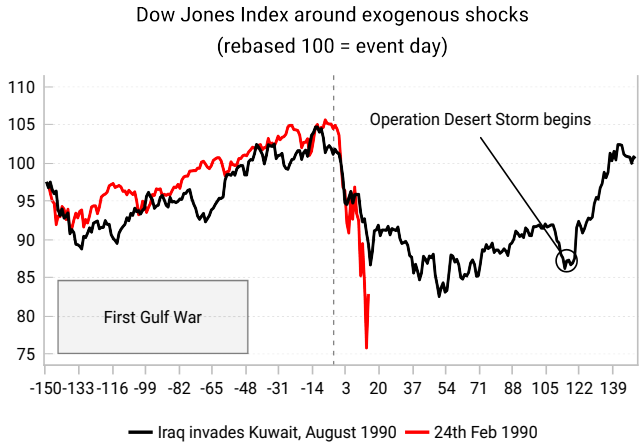




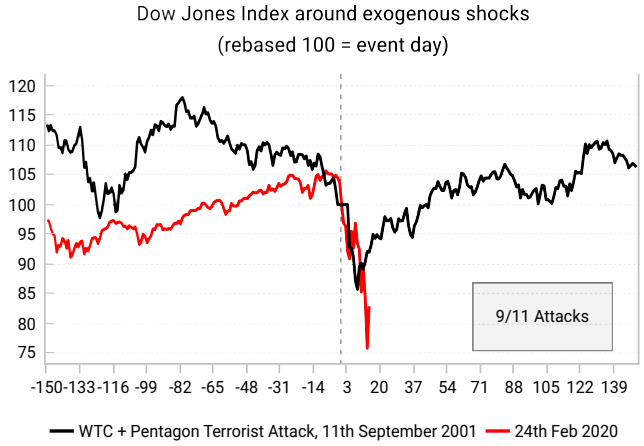
- **In the Korean War** in 1950, the trigger for the sell-off was the sudden incursion of North Korea into South Korean territory. In this case, 'good' news from the market's perspective arrived pretty quickly as South Korean troops managed to hold off the North Korea troops effectively. Even though fighting continued until 1953, this was enough for the market to rally for most of the next three years. Such a sudden recovery may in part be due to recency bias: World War II had recently been won by the Allies and this was a smaller challenge by comparison.

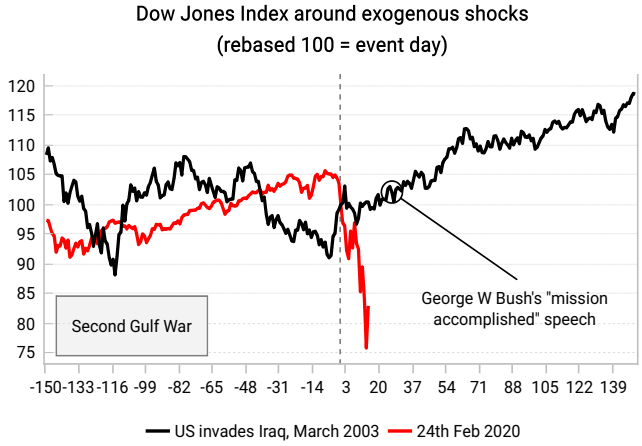
- Fast forward to 1990 and the **First Gulf War**. A surprise invasion by Iraqi troops into Kuwait put the West's oil security at risk and the market started to sell off. It wasn't until operation Desert Storm was launched in January 1991 that markets began to recover and rallied sharply.

Charts Source: Bloomberg, Macrobond and Variant Perception



- Two of the most recent exogenous shocks excluding the current one are the **Second Gulf War and the 9/11 terrorist attacks**. The 9/11 attacks in 2001 caused the market to sell off about 12% (over a period including when markets were closed for a week), but they had made back their losses by November. There was no clear trigger for an improvement in the underlying event, other than a patriotic call for consumers to get out and start spending again, which they duly did.





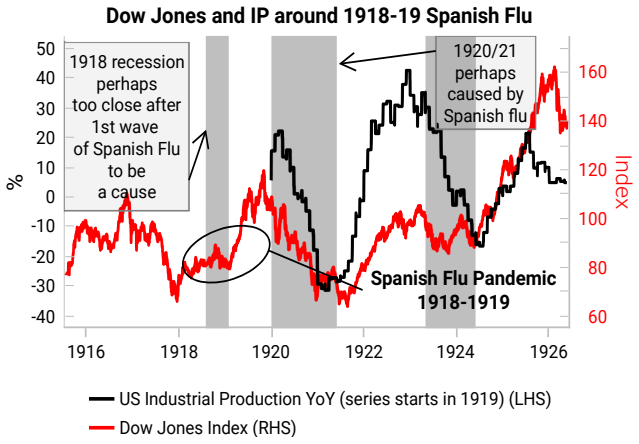
The market sold off little after the announcement of the US invasion or Iraq in March 2003. This was partly as it was "priced in" - there had been ongoing discussions between the US and its allies about creating a "coalition of the willing" in the run up to the war. And partly as the market was only just emerging from the 2000-2002 bear market. Bear markets already carry a lot of bad news so it takes a real negative shock to have a notable and lasting impact.

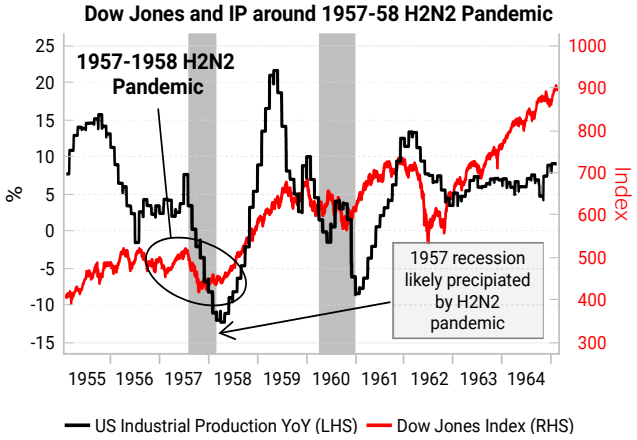
PREVIOUS PANDEMICS AND RECESSIONS

Pandemics are a different type of exogenous shock to wars. They rarely have a definitive start date, and even then it often takes a bit of time before the gravity of the situation filters through. Coronavirus was initially perceived to be a 'China' problem, but it wasn't until late February that the problem became global. Pandemics also tend to come in waves which means that even when progress has been made on curbing the virus's spread, there is always a risk it may return before a vaccine is developed.

Pandemics are also much more likely to be linked to recessions compared with wars. Wars can certainly cause recessions, but they can also create booms, especially when most of the economy is orientated towards the war effort and full employment is reached.

Taking an outsider approach to previous 20th century pandemics, it is clear they tended to happen around recessions. The largest pandemic was the so-called Spanish flu in 1918-1919. It is hard to disaggregate its effects on the economy due to the end of WWI, but it is highly likely it triggered the 1920/21 US recession. Similarly the 1957/58 H2N2 pandemic occurred around the time of the 1957 recession.

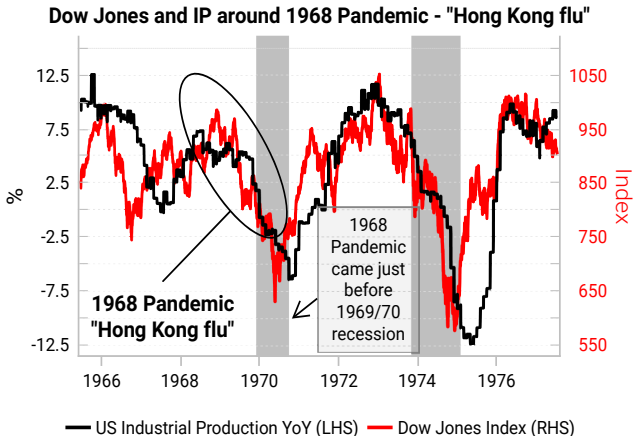


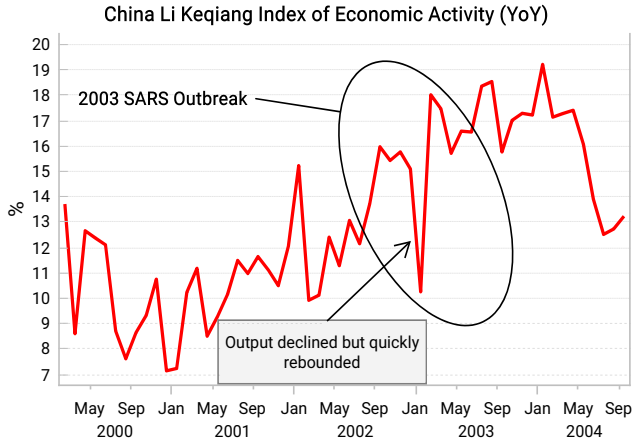


Finally, the "Hong Kong" flu of 1968, which spread to the US in September and was estimated to have caused 100,000 deaths, happened just before the 1969 recession.

SARS was not a pandemic, but it proved to be far less infectious (although more deadly) than the three 20th century pandemics. It was contained relatively quickly and did not spread widely outside of Asia. China, the epicentre of the outbreak, saw a V-shaped recovery in growth.

Charts Source: Bloomberg, Macrobond and Variant Perception





One important thing to note is the level of coordination, quarantining and openness in the three 20th century pandemics was lower than is the case today. For instance, in the Spanish flu in 1918/19, news of the deadliness of the flu was suppressed in many Western countries due to the war (not in Spain, which is how the outbreak got its name). Closures of schools, churches, etc took place, but not comprehensively and not in a coordinated fashion.

Today, with the coronavirus, the direct economic impact is likely to be greater. In fact, generally the "cure" for an epidemic is worse than the "disease". The following is from a World Bank report (link) of 2014 (emphasis added):

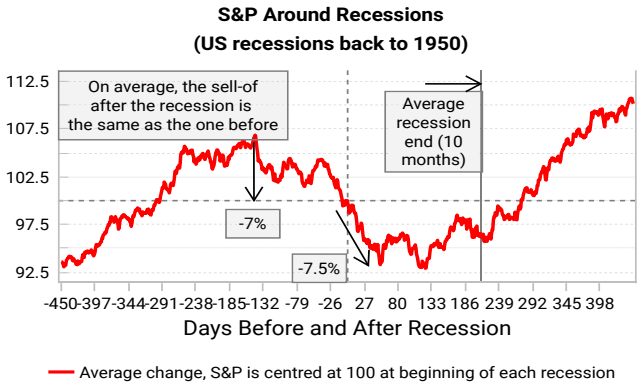
> *The analysis finds that the largest economic effects of the crisis are not as a result of the direct costs (mortality, morbidity, caregiving, and the associated losses to working days) but rather those resulting from aversion behavior driven by fear of contagion. This in turn leads to a fear of association with others and reduces labor force participation, closes places of employment, disrupts transportation, and motivates some government and private decision-makers to close sea ports and airports. In the recent history of infectious disease outbreaks such as the SARS epidemic of 2002-2004 and the H1N1 flu epidemic of 2009, the analysis notes that behavioral effects have* ***been responsible for as much as 80 – 90 percent of the total economic impact of the epidemics.***

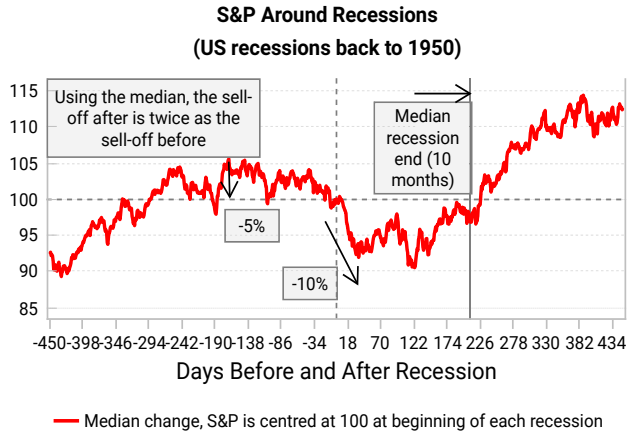
MARKETS AROUND RECESSIONS

How do markets behave around recessions? As we said in the introduction, unlike exogenous events, markets often try to front-run the beginning and end of recessions. They often start to sell off before the recession is deemed to officially start, and they begin to rally before the recession is deemed to have ended.

The two charts below show clearly the behaviour of the S&P before and after postwar recessions. The charts have been created such that for each recession, we rebase the S&P to 100 at the recession's start (using NBER official dating). We then take the average and the median of these rebased series.

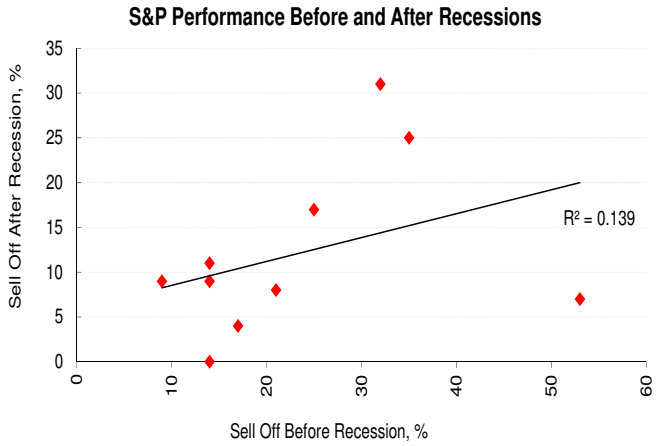
We can see that on average, the sell-off's magnitude after the recession is about the same as the sell-off's magnitude before the recession (left-hand chart). If we look at medians, the sell-off after the recession is about twice the size of the sell-off before (right-hand chart).





Also important to note on these charts is that ***the market begins turning up before the official end date of the recession (on average).***

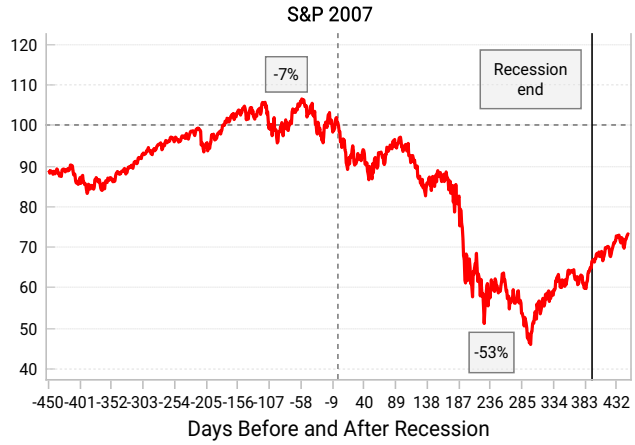
We also note there is a small positive relationship between the size of the sell-off before the recession and the size of the sell-off after the recession.



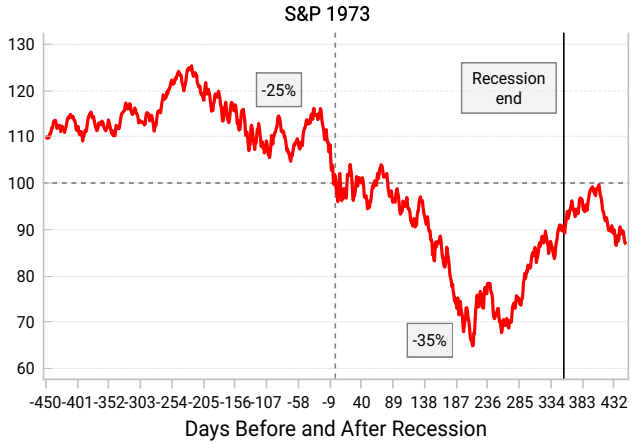
The relationship is fairly weak, so one can't make any firm conclusions. Therefore if and when a recession hits the US, the fact the market is already 25/30% off its highs does not necessarily mean most of the sell-off is already over. There is little correlation.

The 2007-2009 recession was an example where the sell-off before the recession was shallow but the recession afterwards was large. The market, though, bottomed before the recession ended.

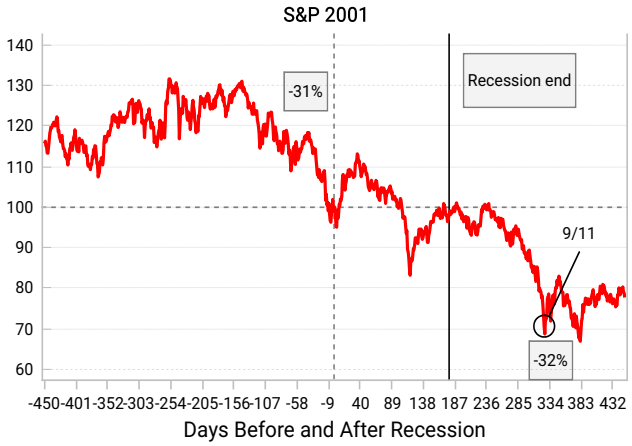
Charts Source: Bloomberg, Macrobond and Variant Perception



In the 1973 recession, the S&P had sold off a similar magnitude to today (albeit over a longer period of time). Nonetheless, the market continued to sell-off another 35% over about 9 months. Again, the market bottomed before the recession ended.



The 2001 recession saw a similar large sell-off before and after the recession. However, this time the market made another bottom after the recession's end after the 9/11 attacks.



Charts Source: Bloomberg, Macrobond and Variant Perception

TODAY'S LIKELY RECESSION AND CREDIT MARKETS

Credit is one of the most direct linkages between economies and markets, and it is the credit market - and the feedback loops between funding and the real economy - that pose the greatest medium-term risk for the depth and severity of any ensuing recession we are likely to see after today's shock.

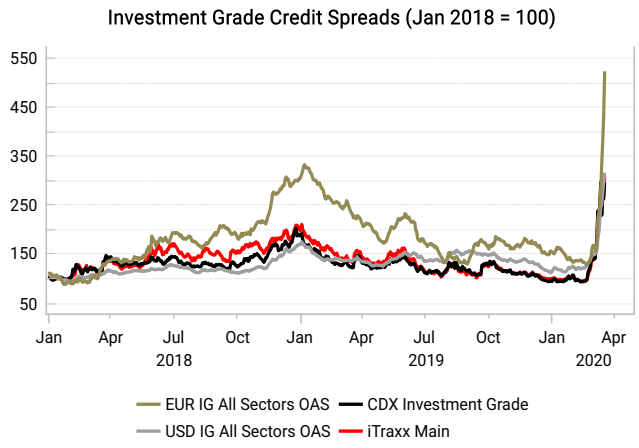
We have been writing about the risks to credit - high-yield and investment-grade debt, and especially leveraged loans - showing that there are many "weakest links" that could trigger a break. The virus was the switch that tripped these weakest links into the systemic falls we are seeing today, and which will do great damage to the economy if left unchecked.

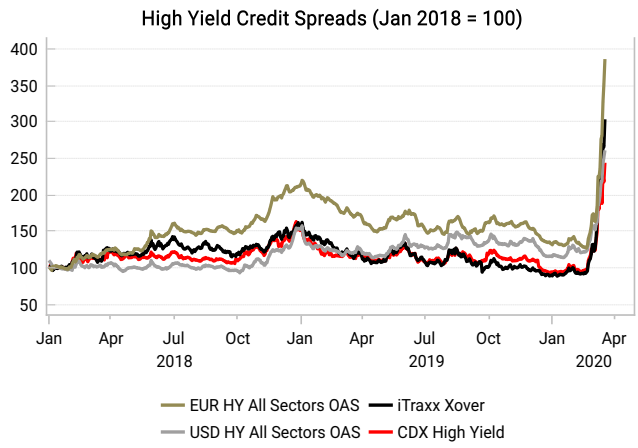
To prevent any US recession from being too protracted and severe, we will need to see greater action from the Fed to address corporate credit. As it stands, for the Fed to buy corporate debt this requires a change in the law for outright purchases, or the invocation of the "unusual and exigent" circumstances clause (although the Fed is free to lend against corporate debt).

The re-launched commercial paper funding facility (short-term (90 days) paper issued by companies and banks) is a step in the right direction, but the real pain is with the holders of corporate debt and loans: mutual funds, ETFs, asset managers, hedge funds, insurance funds and pension funds.

Until pressure is relieved in corporate credit markets, the risk is that feedback loops intensify any recession.

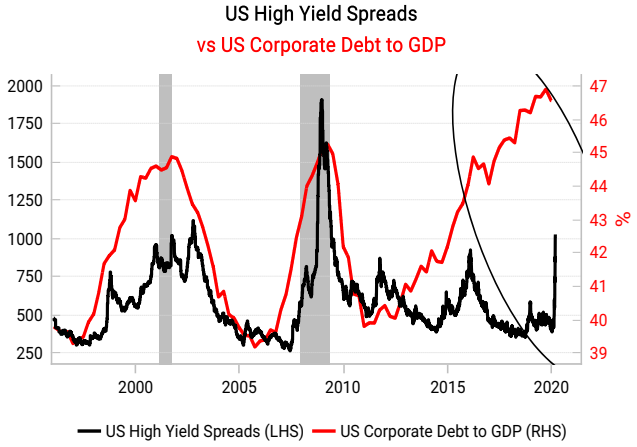
Spreads have already blown out to alarming levels, not only in high yield (HY) but in investment grade (IG) too.



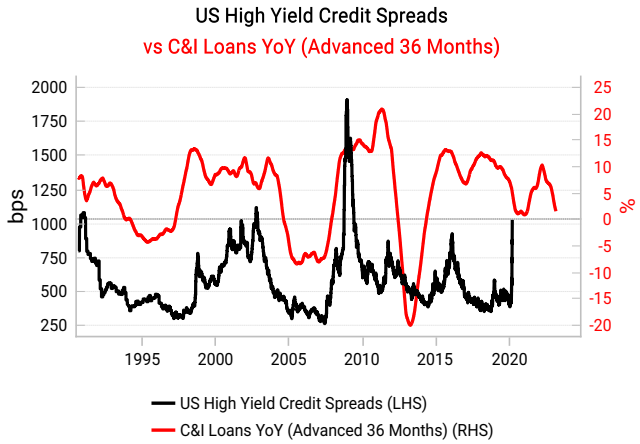


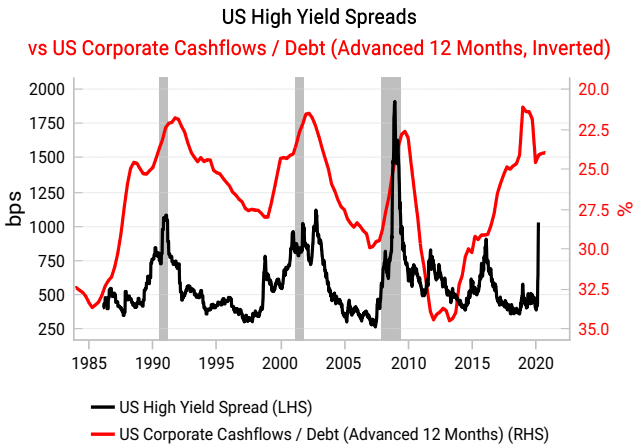
Years of credit excess have been building up, and the chickens are coming home to roost. We can see that spreads had long departed from the overall corporate leverage in the economy.

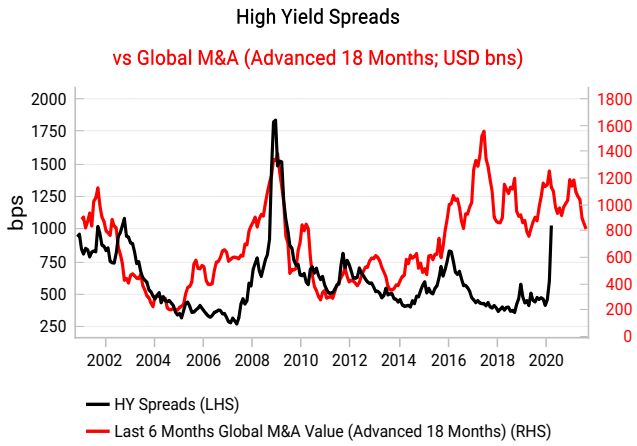
Charts Source: Bloomberg, Macrobond and Variant Perception



Structural long-term leading indicators show that credit spreads could widen much more unless there is greater Fed intervention. The lagged effect of lending, leveraged corporate balance sheets, and boom in M&A all point to credit spreads that could yet go significantly wider.





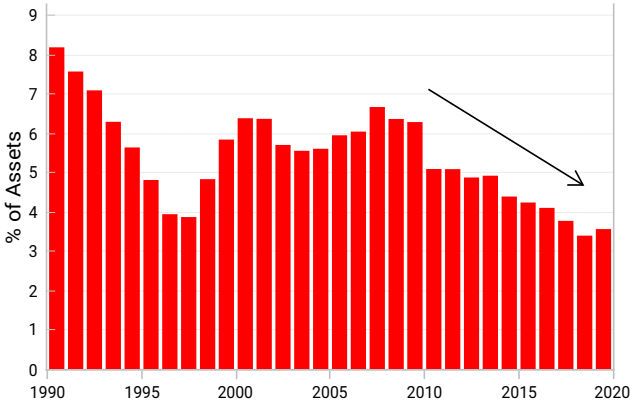


What is happening today in credit markets is being significantly exacerbated by liquidity mismatches. More stringent regulation and enhanced bank capital requirements have led to banks carrying significantly less inventory of corporate bonds than in the past. Banks'

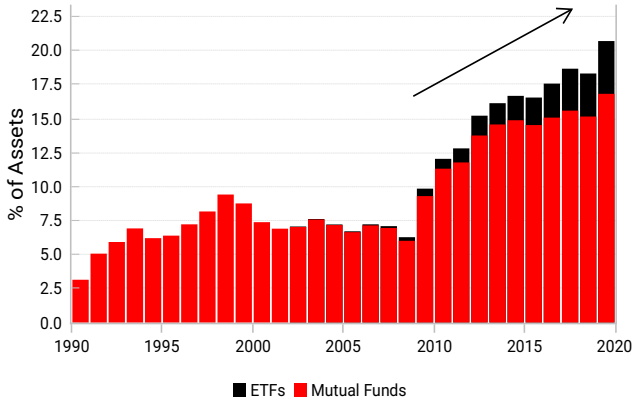
Charts Source: Bloomberg, Macrobond and Variant Perception

market-making activities in corporate bonds have correspondingly gone down significantly. At the same time, mutual funds and ETFs have ramped up their holdings of corporate debt. As these types of funds often offer daily liquidity this is a potential disaster when taken in tandem with the banks' withdrawal from corporate-debt market-making. A latent, but potentially highly destructive, risk for credit markets.

US Depository Institutions Holdings of Outstanding Corporate Bonds



Mutual Fund and ETF Holdings of Outstanding Corporate Bonds



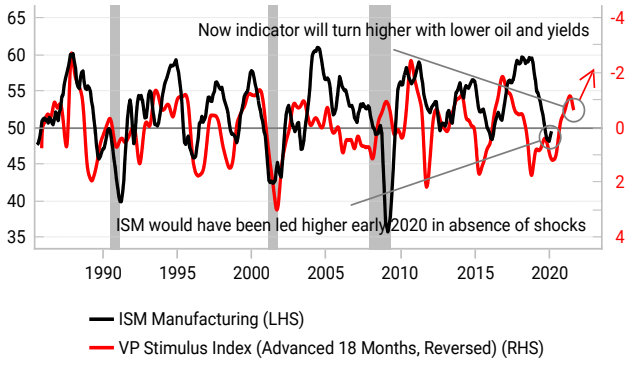
STIMULUS IN THE WINGS

Looking past the point of "peak fear" over the virus we expect many sectors in the economy to benefit from a V-shaped recovery with the wave of fiscal and monetary stimulus waiting in the wings, plus the added boost of much lower oil prices. Manufacturing, auto and housing are likely to be the biggest winners.

However, these effects will take time to feed through and the historical lags have been long, often up to 12-18 months. The announcement of fiscal and monetary stimulus with sharply lower oil prices do not usually spark an imminent economic recovery. **Before we approach the point of "peak fear" it will remain rational for businesses and households to use extra money to bolster their balance sheets and pay down debt.**

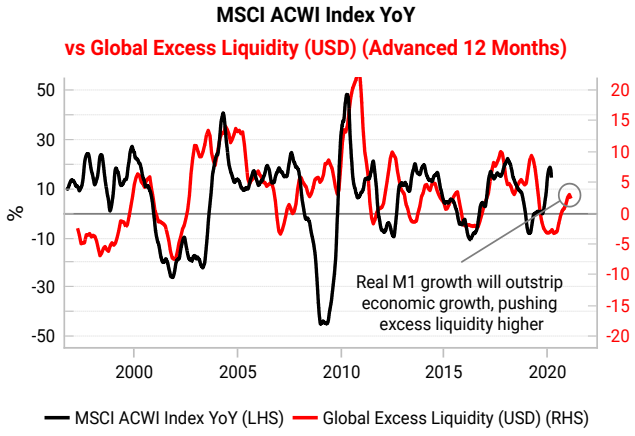
Once we move past peak fear, a supercharged post-virus recovery lies in the waiting. Our Stimulus Index captures this process through aggregating the standardised changes in yields and oil prices, providing a 12-18 month lead on US manufacturing.

ISM Manufacturing
vs VP Stimulus Index (Advanced 18 Months, Reversed)

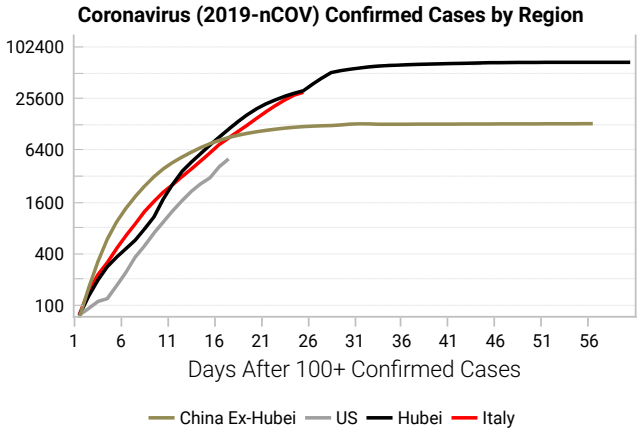


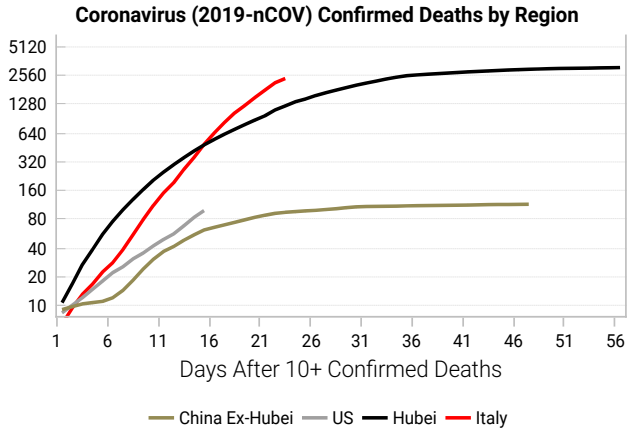
Charts Source: Bloomberg, Macrobond and Variant Perception

Excess liquidity is a related concept, calculated from real M1 growth less economic growth. As another wave of monetary easing works through the economy and market, this will add another layer of support for equities.



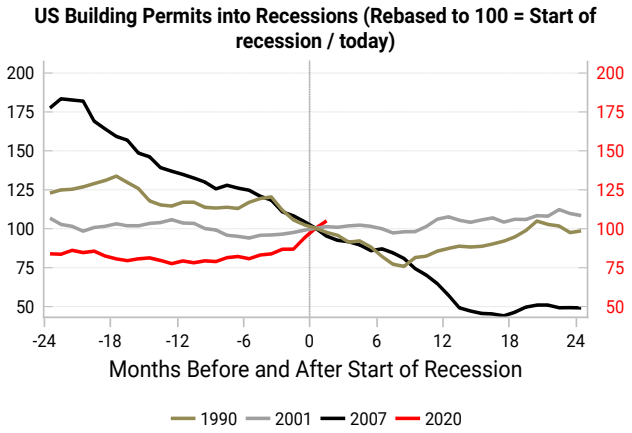
Looking at China, we are seeing evidence of the economy returning back to some degree of normalcy as their virus trajectory has now flattened with investors looking through the transitory data and focusing on policy stimulus. Anecdotally, we have seen bookings for domestic flights departing in June rise by 250% compared to the previous week - signalling that they are past the point of peak fear.

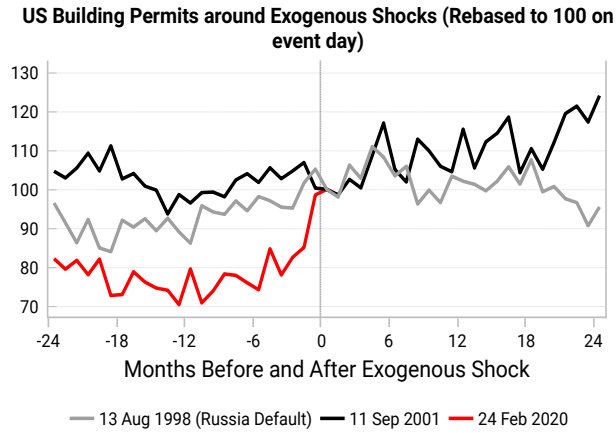




For now the US and Italy virus data are seemingly following the path of Hubei - where the initial policy response was inadequate. What remains to be seen is how effectively western governments flatten the infection curve.

While economic data prints are likely to be terrible for now, we note that leading indicators had bottomed and were rising into 2020. Building permits offer a very reliable lead on economic activity - comparing this to past recessions and shocks, we note that the 2020 trajectory pre-virus was reasonably strong.



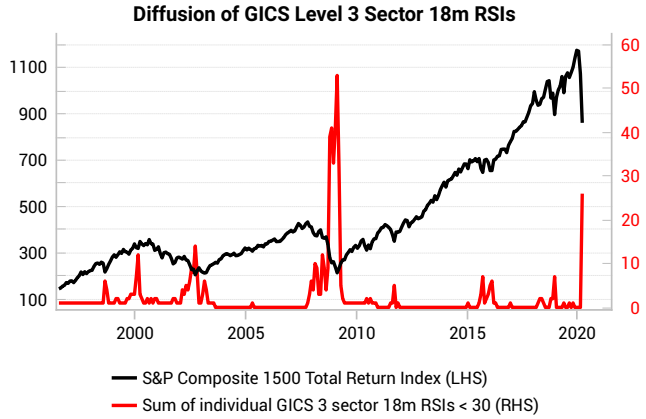


Once investors see confirmatory evidence that the shock is receding, we expect the most rate-sensitive sectors to benefit most from the recovery.

SCREENING FOR LONG-TERM WINNERS

We use our long-term 18-month RSI buy signals as a starting point to identify oversold industries. Tying this with the output from our Capital Returns framework (identifying capital scarce industries) highlights industries with the highest upside potential. We will release an updated Capital Returns thematic report shortly.

For all the GICS level 3 industries, we process 18m RSIs and rank to find the most oversold industries. We can then aggregate these individual industry signals to get a sense of how oversold the market is. The chart below shows a diffusion of GICS Level 3 industries with 18m RSIs under 30. The current sell-off is starting to see a number of sectors fall into long-term oversold territory, but not quite at 2009 levels yet.



Historically when we have seen the diffusion index pickup to current levels (suggesting many sectors are oversold), this has been a very strong buying opportunity for the sectors with the lowest 18m RSIs.

The following table illustrates the backtest results from buying an equal-weighted basket of he lowest 5 sectors ranked by 18m RSIs and holding for 1,2,3 year periods.

Charts Source: Bloomberg, Macrobond and Variant Perception

18m RSI Signals for Top 5 Ranked Sectors (n = 10 signals since 1996)

Sector Fwd Returns	1y fwd	2y fwd	3y fwd	Sector Fwd Returns vs S&P 1500 Index	1y fwd	2y fwd	3y fwd
Worst	-41.9%	-1.9%	21.1%	Worst	-14.5%	-14.3%	-17.7%
Best	52.7%	86.6%	107.9%	Best	28.2%	59.1%	58.4%
Median	24.6%	45.3%	49.8%	Median	6.5%	14.2%	8.7%
Average	21.4%	49.1%	51.4%	Average	6.4%	16.2%	12.5%

There is demonstrable value-add over holding the index through identifying the most oversold sectors.

The table below indicates where we are now, ranking sectors by their current 18m RSIs.

GICS Level 3 Industry	18m RSI Score	Industry Rank
Oil, Gas & Consumable Fuels	18.3	1
Automobiles	20.5	2
Airlines	20.6	3
Energy Equipment & Services	20.9	4
Hotels, Restaurants & Leisure	21.2	5
Consumer Finance	21.9	6
Diversified Consumer Services	22.4	7
Insurance	24.1	8
Independent Power & Renewable Electricity Producers	24.7	9
Specialty Retail	24.9	10
Auto Components	25.1	11
Construction Materials	25.3	12
Construction & Engineering	25.4	13
Household Durables	25.8	14
Aerospace & Defense	26.2	15
Leisure Products	26.3	16
Chemicals	26.4	17
Marine	26.8	18
Industrial Conglomerates	27.1	19
Gas Utilities	27.3	20
Paper & Forest Products	27.3	21
Containers & Packaging	27.7	22
Thrifts & Mortgage Finance	28.1	23
Distributors	28.7	24
Building Products	28.8	25
Metals & Mining	29.6	26
Real Estate Management & Development	30.2	27
Capital Markets	30.6	28
Electronic Equipment, Instruments & Components	30.7	29
Machinery	30.9	30
Textiles, Apparel & Luxury Goods	31.1	31
Road & Rail	31.3	32
Electrical Equipment	31.9	33
Air Freight & Logistics	32.0	34
Communications Equipment	32.7	35
Commercial Services & Supplies	33.0	36
Health Care Equipment & Supplies	33.3	37
Health Care Technology	33.6	38
Personal Products	34.7	39
Tobacco	34.8	40
Professional Services	35.3	41
IT Services	35.5	42
Trading Companies & Distributors	36.5	43
Health Care Providers & Services	37.1	44
Food Products	37.3	45
Beverages	38.0	46
Multiline Retail	38.3	47
Semiconductors & Semiconductor Equipment	40.0	48
Multi-Utilities	40.4	49
Electric Utilities	41.9	50
Life Sciences Tools & Services	42.5	51
Pharmaceuticals	44.5	52
Wireless Telecommunication Services	45.0	53
Diversified Telecommunication Services	45.4	54
Internet & Direct Marketing Retail	48.3	55
Software	49.8	56
Technology Hardware, Storage & Peripherals	52.7	57
Biotechnology	53.5	58
Food & Staples Retailing	59.6	59
Household Products	60.8	60
Water Utilities	62.9	61

There is a natural overlap between sectors that are oversold and capital scarcity. As company share prices plummet and are starved of capital, well-managed companies that are able to survive enjoy excess returns as competitors shut down and new entrants are discouraged to enter. This lends well to a 2-3 year investing time horizon, mirroring that of our long-term buy signals.

In situations like today's, it is always better to buy a date late than a day early. Bearing that in mind, we would recommend for now only gently easing into any positions that look attractive, and doing so unlevered, until we see more tangible signs that a tradeeable bottom is at hand.

Charts Source: Bloomberg, Macrobond and Variant Perception

All data is sourced from Bloomberg unless otherwise stated.

Analysis

Man

Inflation Regime Roadmap

June 2020

Teun Draaisma, Ben Funnell and Henry Neville from Man Group's DNA team study the history of inflationary regimes, and conclude that current extremes in deflation, inequality, debt and globalisation could lead to several major transitions in the next decade: from monetary to fiscal; from capital to labour; from more to less globalisation; and from deflation to inflation. The team provides a detailed roadmap to monitor progress towards this new inflationary regime, as well as a description of the potential dramatic changes in the investment landscape, prompting shifts from growth to value; from paper to real assets; and from traditional to alternative assets.

Authors

Ben Funnell & Teun Draaisma
Joint Lead Portfolio Managers of DNA, Man Group

Henry Neville
Analyst, Man Group

Executive Summary

> Our analysis points to higher and more volatile inflation in the long-run, and we think the market is not priced for it.

This report has three parts.

- Part One 'Inflation Regimes' explains why we think that now, after four decades of disinflation / deflation, policy change may create an inflationary regime for the coming decade
- Part Two 'The Roadmap' shows how we will monitor progress (or lack of it) towards this new regime
- Part Three 'New Investment Strategies' lays out the investment strategy implications

We review the history of inflationary periods, and conclude that prevailing economic regimes reach their apotheosis, and then change, when the extreme conditions they have created lead to permanent policy change. We believe current extremes in deflation, inequality, debt levels and globalisation may lead to four major transitions in the next decade: from monetary to fiscal; from capital to labour; from globalisation to localisation; and from deflation to inflation. Yes, some disinflationary forces such as technology, debt and demographics are still present, but we conclude policy is the dominant driver of economic outcomes.

The current recession is deeply deflationary for the next few quarters, but our analysis points to higher and more volatile inflation in the long-run, and we think the market is not priced for it. The market has so far priced only the deflationary impact, as witnessed by the relative performance and valuations of value stocks and 5Y5Y inflation break-evens, for instance. We expect this new regime to be characterised by higher average inflation, say 4%; higher inflation volatility; and financial repression leading to negative real rates, say 2% nominal 10Y rate, and well behaved credit spreads.

The level and direction of inflation is the most critical element in our asset allocation choices, as per our *Fire & Ice framework*. We have written extensively about the theory and practice of this concept. Now, after four decades of disinflationary policies, we believe there is a strong likelihood that the policy winds will create a new Inflationary regime going forward.

We provide a checklist to monitor progress towards this new Inflationary regime. While we do expect this all-important change, the transition will likely be messy and lengthy, and it is contingent on policy. We provide a detailed list through which we will monitor the progress towards the new regime, including stock-bond correlations; monetary and fiscal policies; and metrics of inflationary pressure.

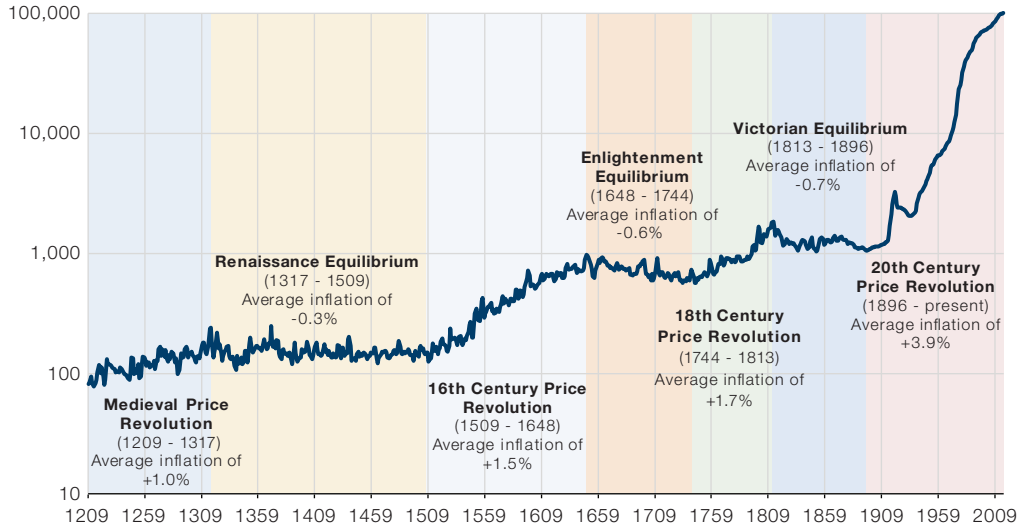
New investment strategies needed. Winners and losers would change dramatically in an inflationary regime, prompting shifts from growth to value; from paper to real assets; and from traditional to alternative assets. In particular, some of the big investment winners in recent years and decades, such as the quality-growth style in equities as well as products relying on traditional long-only risk premia in 60/40 or risk parity proportions, could struggle unless they adapt. We provide a list of strategies that could be the new winners.

Part One – Inflation Regimes

1.1 Inflation Past

Inflation regimes tend to last longer than you'd think. In his magisterial review of inflation in Europe, '*The Great Wave*', David Hackett Fischer identifies four great price revolutions, when prices rose consistently for a century or more, since 1200. These episodes occurred in the 1200s, 1500s, 1744-1813, and 1896-date. The rest of the time prices have been largely unchanged or have gently deflated. On average over the whole period, prices rose by an average of 1% annually.

Exhibit 1. The Price of Consumables in England (1200-Present, Indexed at 100,000 in 2015)



Data first collated in David Hackett Fischer – The Great Wave: Price Revolutions and the Rhythm of History – November 1996 – Figure 0.01. We re-create from Bank of England data.

As to what causes price revolutions, Fischer quotes French historian Fernand Braudel in declaring the task of tracing their genesis accurately 'impossible to solve', before offering seven causal explanations for inflation which he labels thus:

- Monetarist – changes in the quantity and velocity of money cause inflation;
- Malthusian – imbalances between demographic and economic growth cause supply-demand imbalance for commodities;
- Marxist – changing terms within social systems alter labour's bargaining power;
- Neoclassical – changes in supply-demand balance after supply or demand-side events, changes in industry structure;
- Agrarian – links prices to harvest conditions;
- Environmental – imbalances between human activity and the natural environment;
- Historicist – each price revolution is a unique event with its own ad hoc explanation.

So there's plenty to choose from here and all seven are useful to hold in mind when thinking about inflation. For our part, we think an acceleration in inflation could now be driven by a combination of the following – the **first two being critical** to our case:

- **Monetarism –** expecting persistent deficit financing causing the money stock (M2) to rise relative to GDP. Some would classify this as demand-pull inflation;
- **Marxism –** believing that it will be impossible to re-impose austerity after the Coronavirus is over and that voters will demand rising real wages to control income inequality. Some would classify this as cost-push inflation;

- Neoclassical effects – the just in time, Asia-dominated global supply chain is likely to morph into a just in case, home-grown supply chain, causing a large-scale supply-side disruption;
- Environmental effects – on the basis the one should never let a good crisis go to waste, it's likely that G7 governments now use their new-found balance sheet room to accelerate the capital investment required to make their economies ecologically sustainable, which will have the side effect of raising fixed capital costs for private sector firms.

Five Regime Changes in History

We'll come later to look in a lot more detail at why inflation might now accelerate. But first we want to look at more recent history to consider when and how inflation regimes have changed over the last century. We have identified just five significant regime changes.

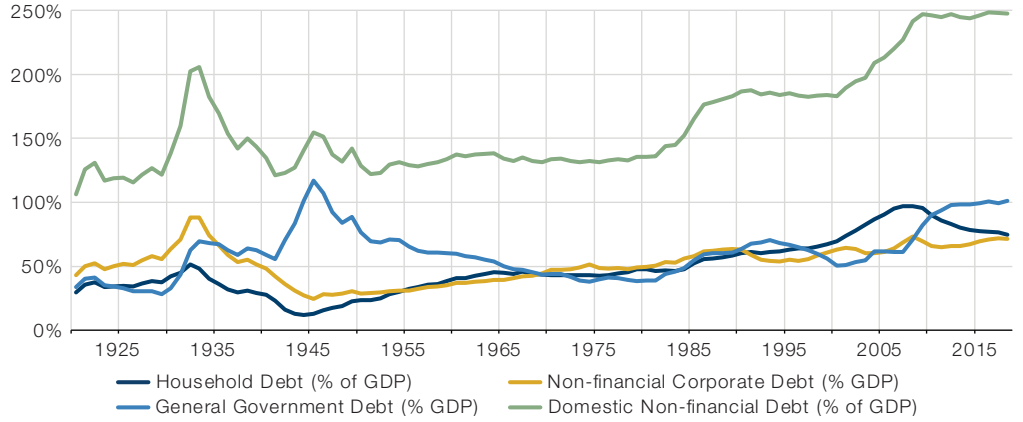
> "US Treasury Secretary Andrew Mellon insisted in 1929 that the state … "liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate. Purge the rottenness out of the system".

Hoover's Depression and Roosevelt's New Deal (Deflation to Reflation). In what immediately became the text-book case study of how not to fend off a debt deflation, US Treasury Secretary Andrew Mellon insisted in 1929 that the state stand aside as the private sector liquidated assets, urging President Hoover to "liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate. Purge the rottenness out of the system". The Depression got worse and Hoover was unceremoniously dumped in the 1932 election in favour of Franklin Roosevelt, who was elected by a landslide and wasted no time in instituting a huge and combined monetary and fiscal stimulus. Within a month of being sworn in he had abandoned the gold standard, devaluing the dollar against gold and causing the CPI to immediately accelerate from -10% to +5% in less than a year. He also instituted his New Deal, which comprised public works programmes on a grand scale, and set up the National Recovery Administration to provide relief to the unemployed. This quickly became the text-book case of how to successfully fend off deflation, and what is most striking is it involved the combination of monetary stimulus (devaluation, in this case) and fiscal stimulus at the same time. (This marks it out as very different from the Japan experience of the last three decades, where when the monetary taps were opened, the fiscal taps were closed and vice versa, but very rarely were the two tried together). Separately it is just worth noting, in passing, that the marginal income tax rate on the USD100,000th dollar of income rose under Roosevelt from 25% in 1931 to 92% by 1944; and it was still 89% as late as 1954. While real incomes may rise in a reflation for the vast majority of the income distribution, those at the top end are likely to be subjected to much higher taxes if history is a guide.

WW2-1951 Debt Work-down (Inflation to Disinflation). The Depression of 1929-32 then the war spending in the early 1940s caused US government debt to balloon from 28% of GDP in 1929 to 117% by 1945. (It was 107% of GDP as of end Q4 and is forecast by many to be 125% by end Q2).

To deal with the debt overhang Roosevelt ordered the Federal Reserve to fix the price of government bonds so that bills yielded not more than 3/8ths (0.375%), 10-year bonds less than 2.00% and long bonds less than 2.50%. At the same time, between Pearl Harbour and the Fed-Treasury Accord of 1951 inflation averaged 5.5%. So real interest rates were sharply negative, by several hundred basis points. In looking for the lesson today in this we need look no further than the New York Fed's recent publication on its Liberty Street blog of a short (and instructive!) history of yield curve control in the post war period. It is a veritable "how to" manual of financial repression, and it is very unlikely that it was posted without a broader subliminal message being published with it: "Treasury Department, we at the Fed have got your back".

Exhibit 2: US Domestic Non-Financial Debt / GDP (1920-2019)



GDP data are 4Q, seasonally adjusted at annual rate from 1947 onwards. Data before from 1929 to 1947 are annual GDP released by the BEA. Debt data from 1920 to 1945 are Morgan Stanley estimates using data released by the Historical Statistics of the United States. Source: Haver Analytics, Bureau of Economic Analysis, Federal Reserve Board, Historical Statistics of the United States, Morgan Stanley Research.

The Twin Oil Shocks of the 1970s (Inflation). Oil prices went from USD2 to USD12 in 1973 and then from USD12 to USD35 in 1978-9 in the text-book example of a cost-push inflation. CPI soon followed, rising from under 3% in 1972 to 12% in 1974 and peaking at 15% in 1980. The policy response to the inflation threat was underwhelming, to say the least. Under Chairman Arthur Burns, whom history has not treated kindly, the Federal Reserve kept interest rates at or below inflation – with real rates as low as -3.5% in December 1974, for example, and still zero at the end of 1976. Similarly fiscal policy was set loose, with ever growing Federal budget deficits in the second half of the 1970s. Loose fiscal, loose money and as a result nothing to slow down an admittedly cost-push inflation. This led to a bonfire of paper assets, with the PE ratio on the S&P500 reaching 7.3x and on the FTSE100 index a miserly 2.9x in December 1974.

Paul Volcker (Disinflation). This was the situation inherited by Paul Volcker on his appointment as Fed Chairman in August 1979. There was much disbelief that monetary policy could be deployed to overcome a cost push inflation driven by constrained supply in several key commodities but especially oil. Volcker disregarded this, maintaining that if you could contain inflation expectations by a combination of tight money (positive real interest rates) allied with incomes policies that de-indexed wages from inflation, then inflation itself could be contained. And so it came to pass, as inflation responded to 8% real interest rates and a determined Fed Chairman, falling from nearly 15% to below 3% by 1983. The key lesson for central bankers from this episode was that you could control inflation if you are determined enough. (As a side note, the unemployment penalty from high real interest rates is stiff – there were riots outside the Marriner S. Eccles building during Volcker's tenure.)

This later led to Ben Bernanke's observation of the asymmetry of risks between inflation and deflation – the idea that inflation can be contained (following the Volcker playbook) but deflation is a trap with much more severe consequences – which is another reason to believe that policymakers are more likely to over-react to deflation risk as we reach the endgame in this long battle against deflation today. They will attempt to be "responsibly irresponsible" now in order to shock inflation expectations higher.

The Global Financial Crisis (Deflation to Reflation and back again). The GFC was another tipping point for inflation – lower. From inflation's peak at 15% in 1980 it had been on a long, happy deceleration until in 2008 for the first time there were real deflation fears in the US. From pricing OUT inflation (good), markets had started to price IN deflation (very bad!). Breakeven inflation (the gap between nominal bond yields and TIPS yields) turned negative for the first time in October 2008, just after Lehman's

bankruptcy. This is where having Ben Bernanke – student of the Depression and fan of FDR – as Fed Chairman was so a propos. He immediately deployed his toolkit for how to avoid deflation by cutting interest rates (from 5% to 0.25% in 18 months), and started buying up assets on the Fed's balance sheet to push investors off the risk-free curve in the first of three Quantitative Easing programmes.

This worked very well in shoring up financial asset prices on traded markets, but while this prevented an endogenous financial system failure it exacerbated another equally worrying trend, that of wealth inequality. And it really did nothing for the real economy, which is why we still find ourselves in a world where breakeven inflation hovers around 1%, far lower than the Fed's symmetrical 2% target and even lower than any inflation catch-up target that may eventually be announced. Inflation expectations are stuck in low gear.

The difference between financial QE and fiscal QE. The question is, why has financial QE not worked on the real economy? Our answer is that there has been no money creation. Key to understand is that in financial QE – where the central bank buys assets from the non-bank financial sector, swapping cash for a financial instrument, no actual money is created. The central bank 'pays' for the bonds it buys by crediting the reserve balance of the commercial banking system, which raises M0 (or high powered money, the monetary base). But unless the commercial banks then lend against those reserves, no deposit will be created (M2). And because the private sector has been in a major deleveraging process, especially households, there has been no lending not because banks couldn't lend, but because there was no demand for credit.

The transition we now expect, from financial QE to fiscal QE, solves this problem by cutting out the middle-man (the commercial banks). Under fiscal QE, the central bank still buys bonds directly from the treasury in what is termed monetary financing. The T-accounts are thus: CB gains an asset (Treasury bond) and gains a liability (the US Treasury General Account). The TGA is an asset of the government, which it can spend at its own discretion. Typically these will be works programmes, infrastructure plans etc – all of which end up paying money into the accounts of people very likely to spend it. Now we should see the money stock rising rather sharply and maintaining velocity. Unless there is a corresponding increase in productivity, inflation should follow.

Conclusions from history – go in all guns blazing (monetary and fiscal). So the lessons for today from past inflation regimes seem to be … First, the correct response to a deflation shock is to combine very loose monetary policy with very loose fiscal policy. Second, err on the side of doing too much rather than doing too little. You can always raise interest rates extraordinarily high to control inflation but deflation is much harder to escape once it's entrenched. Third, high debt and deficits are affordable only by financial repression where you keep real interest rates negative. There will need to be new rules to enforce purchase of negative real yield bonds by the general public and commercial banks. Capital controls are likely. Definitions of what constitutes high quality liquid assets may change, favouring the purchase of government bonds. But the key to remember is deflation shocks can be defeated with determined and clear reflation policies – it's just getting the political agreement that is the tricky bit (see the German Constitutional Court proceedings, to name a live example).

> "Conclusions from history – go in all guns blazing (monetary and fiscal)".

1.2 Inflation Present

Why are we in a deflationary world? This is territory that has been much covered over the years including by ourselves (see for example A Japanese Roadmap for European Equities, 14 April, 2003), but in our view it boils down to:

- Debt – high debt loads discourage private sector consumption via Ricardian equivalence;
- Demographics – a rising share of old people who consume less and save more;
- Offshoring – replacing expensive home-grown supply chains with less expensive EM supply chains;
- Digitisation – substituting capital for labour by digitising previously human processes;

- Monopsony – few employers in any given urban centre, with employers dominating the labour supply. Hence wages are depressed and sticky. See Jonathan Tepper's '*The Myth of Capitalism'*.

Do we see any of these deflationary forces changing? Well obviously you can't wish away a pile of debt (many have tried) and you aren't going to be able to influence the aging of the population on any reasonable time frame, so both of these must be taken as givens. It's also unlikely you could or would want to reverse the digitisation of the G7 economies.

However, you can warehouse the debt on the balance sheet of the central banks and promise – or expect the markets to realise the possibility – never to run those assets back off into the broader investor base – effectively writing the debt off even if it still exists. So you can change the public's attitude to the debt overhang. You can insist that companies re-build supply chains in their own countries of operation (see the US Entity List). You can penalise companies that persist in using foreign labour (take a bow, Donald J Trump). You can partially ban foreign suppliers from your own supply chains (see the Huawei debate globally). You can direct incomes policies in a reversal of the 1970s, mandating minimum wages or set ratios between workers' and bosses' pay. There's actually a lot you can do as a policymaker if you put your mind to it.

The bottom line is that many of the deflationary forces currently in operation are not going away soon. But there are changes occurring in these processes. They are likely on balance to be less deflationary in coming years, when subjected to increasing political scrutiny, than they have been over the last two decades when left to grow unchecked. And, as previously stated, one of the lessons from history is that active economic policy – such as permanently high government budget deficits and central banks allowing an inflation overshoot – can dominate other economic forces such as demographics, if applied forcefully enough.

Why is the deflationary status quo unsustainable? Basically, two reasons. First, we suppose it must be the case that high debt loads risk financial instability, discourage risk taking by capitalists and therefore impede capital formation. Many emerging economies, especially China, have long passed the point where adding units of investment capital to the economy creates progressively less and less incremental output – the rise of the so-called Incremental Capital Output Ratio (ICOR). In other words, they are saturated with manufacturing capacity and saturated with debt. And this is the case globally. Debt/GDP has never been so high in the US – even at the end of the war US Government debt/GDP at 117% was lower than it will be by the end of the quarter at 125% on our expectation. People debate whether Reinhart and Rogoff's empirical study of debt thresholds restraining economic growth is correct – see "This Time is Different". Logically, it has to be. If it's not, then just borrow enough to make everyone a millionaire. (Why wouldn't that work?) So action needs to be taken to bring down the real value of debt in the world.

It's the second reason the status quo is unsustainable that is the real key to our thinking, though: inequality. We have been thinking and writing about the political time-bomb that is income and wealth inequality for a long time, from before Piketty's famous book on the subject "Capital in the 21st Century" 2013 – see for instance "Debt is Capitalism's Dirty Little Secret", June 2009, Financial Times Opinion piece. Google Trends tell us that the word inequality is searched for more than twice as frequently today as it was a decade ago. "Levelling up", a "Green New Deal", the "people's QE", call it what you will, but the notion that policymakers should attempt to redress the imbalance that has built up over 40 years and get real wage growth after decades of stasis has entered the political mainstream. This process will only be accelerated by the Corona crisis, but it's not going away, we think, and will not even be dependent on left wing governments to put it in motion. It's becoming a political consensus.

How might it end? Essentially we believe there is one good way out of a debt overhang and three bad ways out. The good way out is via growth. For this to work you need, ideally 1) an under-levered consumer with lots of pent-up consumption demand; 2) a demographic dividend with rapid growth in the working age population; 3) a productivity boom so that higher inflation does not result in high unit labour cost growth, which in turn could kill the recovery; 4) political control of the central bank,

so that borrowing costs are not forced higher by bond market vigilantes. All of these things were in place in the 1942-51 debt work-down, with returning soldiers hungry to consume and start families, with no debt as it's hard to get credit when you're fighting a war. None of the first three are in place today in most advanced economies. But the fourth element, political control of central banks, arguably is or can be made to be quite quickly. Certainly, central bankers generally are keen to emphasise that fiscal solutions must now be deployed given we are running out of monetary solutions.

So that leaves the three unpalatable solutions to the debt overhang. What are they? Well, you can either choose to default on your debt; or you can devalue it either by allowing inflation to accelerate or by letting your currency depreciate; or you can take the "Austrian cleanse" approach favoured by our old friend Andrew Mellon, and deflate your economy, purging the system. And we know that's out, just by watching the revealed preference of the Authorities around the globe – no-one has an appetite for a depression. (We are reminded of Jean-Claude Juncker's marvellous line at the time of the GFC, when austerity was being advocated: "we all know what we're supposed to do – we're just trying to work out how to get re-elected when we've done it!")

Which leaves us with default or devaluation – neither at all palatable but both essentially the same, devaluation being default by another name. How do you default gracefully? Well, there are good ways to do it and bad ways to do it. The bad way is an abrupt, one-off, cliff-face default / devaluation, which causes a sudden stop to all finance and causes the economy to completely seize up. This can be deflationary if no other policy action is taken, which is why what usually follows is an attempt to print money to pay government workers and pensioners, which can be and usually is extraordinarily inflationary. All very difficult. So what's the way out?

> "The imbalance must be redressed not just by raising real wage growth in the lower 60% of the population, but also by constraining growth in the level of real income of the top 40% and especially the top 1%."

1.3 Inflation Future

We dare to assume that politicians choose what is in our opinion the best way out of this mess. A new austerity is politically impossible and societally undesirable to an increasing majority of the electorate, as witness the many political upsets and the rise of extremist parties of both hues. Policymakers must hear the complaint and deal with it. The precise nature of the complaint is that the majority of the population has endured stagnant or falling real incomes for more than two decades, made all the more galling by the glittering ascent of "the 1%", whose real incomes have doubled over that time period. The imbalance must be redressed not just by raising real wage growth in the lower 60% of the population, but also by constraining growth in the level of real income of the top 40% and especially the top 1%. This can be achieved by a combination of higher fiscal spending, higher tax take and higher public borrowing, the latter all financed by the central bank. Fiscal plans would need to be flexible, reining in fiscal spending when inflation was accelerating in a threatening way, and turning it back on when the opposite happened. But above all, governments must be prepared to embark on a policy of potentially large fiscal deficits, semi-structurally.

For all of this to happen, the following would also be likely

- **Financial repression and negative real interest rates.** The government must be able to issue paper with yields below inflation, to reduce the real stock of debt over time. To the extent possible the private sector should be encouraged to buy this paper. Beyond that, the central bank commits to buy the remainder while keeping the yield curve at set levels. The private sector may have to be coerced to buy the paper, either by regulation or by law. At the same time the government should put in place capital controls to stop a flood of money leaving the country. Safe assets in liberal democracies with strong institutions and the rule of law will revalue sharply higher.
- **Debt monetisation and MMT.** The central bank's balance sheet will grow exponentially. The watchword for how much money to print will be Stephanie Kelton's dictum (we paraphrase): "to the extent the United States has an unemployment problem, there's too little money in the world; to the extent it has an inflation problem, there's too much money in the world." Either way there's going to be a lot *more* money in the world. Watch M2 / GDP.

- **Inflation make up.** Central bankers are likely to complete the framework reviews many already had in place before Coronavirus struck by changing the inflation targeting procedures. This could include the concept of inflation make-up, where they would ignore inflation running hot, above central targets, in order to allow the general level of prices to catch up with where it should have been had CPI hit its 2% target every year (taking the US as an example)
- **Building redundancy into the supply chain.** In strategic sectors expect a move to "just in case" from "just in time" – and we should also see re-on-shoring of manufacturing in certain sectors – a reversal of globalisation.

There are of course many risks to this direction of policy travel. Is there a limit to the balance sheet of a central bank, or to the amount of debt a government requires? We believe in theory there is no limit, while in practice it is asset markets – currencies, bonds, equities – that will determine the limit of these policies. But if the combination of policies succeeds in reducing the debt-to-GDP ratio over time, while debt service remains manageable these limits are not likely to be reached. Won't elevated private savings offset higher fiscal deficits thus nullifying their impact via a process of Ricardian equivalence? Well, not if the fiscal stimulus finds its way into the pockets of those with a very high marginal propensity to consume and not if the investment programmes are sufficiently well-designed to raise total factor productivity over the medium term. (See for example Jason Furman, '*The New View of Fiscal Policy and its Application'*, October 2016[1]). How will Emerging Markets cope with an inflationary regime? Our answer is that they will have to adapt, probably by running tighter fiscal and monetary policies than Developed Markets, which should support their currencies and make dollar borrowings easier to finance but could delay their recovery from the current crisis.

So this is our vision of what we would have thought a dystopian future only a dozen or so years ago, but which has become our central scenario.

In Part Two we look at what to watch to identify which regime we're in (our Roadmap), and in Part Three we look at what portfolio managers can do to potentially mitigate or benefit from a change in inflation regime.

1. Speech at *Global Implications of Europe's Redesign* conference, New York, October 2016.

The DNA team are indebted to a number of people in thinking about these topics. Most notably Gerard Minack for his work on the drivers of deflation, Jamil Baz on the exit routes from a debt overhang, and Russell Napier on what the new regime might look like.

Part Two – The Roadmap

What we are watching to confirm or rule out the transition. The beleaguered reader who wishes to skip this section may just peruse the table in Exhibit 3.

Exhibit 3. Summary of Man DNA Team's Inflation Regime Change Checklist (Red Demarcates Greater Risk)

Metric	Section	Explanation	Qualitative Metrics	Quantitative Metrics	Current Signal	Comment
Stock-Bond Correlation	2.1	Historically we observe that disinflationary or deflationary periods coincide with protracted low or negative SB correlation. These periods of muted inflation tend to end when the SB rises back into significantly positive territory	None	Daily SB correlations for US, UK and Japan	GREEN	UK has been significantly higher than RoW since Brexit, consistent with higher inflation expectations due to weakened FX. Both US and Japan have risen sharply 2020 YTD. All still negative, however
Fiscal Populism	2.2.1	Fiscal policy needs to be pointing the same way as monetary to get inflationary regime change. It is the budget balance impulse that matters rather than the absolute size of the deficit. Is the deficit as a % of GDP getting bigger, or being maintained, on a multi-year basis?	Political comment jettisoning austerity. Development of Gilets Jaune and similar movements	12 Month Fwd Sell Side Deficit Estimates for US, UK, EZ and Japan	AMBER	We have seen huge blowing out of deficits, but this will need to be sustained to turn this indicator red
Policies to Tackle Inequality	2.2.1	Inequality is disinflationary because the rich have a higher propensity to save. Combatting inequality is the key enabler of fiscal populism	Political comment around 'levelling up' (UK), or manufacturing re-shoring (US), and similar examples in other countries	US Unemployment spreads between degree and non-degree educated. US industry specific wage growth	RED	Political consensus across the spectrum on the need to spend. Corona exacerbating unemployment spreads
Monetary Policy	2.2.1 / 2.2.2	To keep their interest costs low enough to fund fiscal populism governments could enact **financial repression** policies. Ultimately this could involve explicitly co-opting central banks in some degree of **MMT** Before that, however, it is likely we will see central banks **using more intensively tools already available to them**	Discussion of ZIRP, YCC and price level targeting in the US (where they have not yet been tried). Political attacks on central bank independence	UST10 yield discounted by 10Y breakeven. US Banks proportionate UST holdings. Central bank balance sheet growth	AMBER	Price level targeting under active discussion at the Fed. Futures markets pricing in negative US base rates (but still strongly denied by FOMC). US real 10Y yields negative but not yet significantly so. QE stepped up but not yet comparable to GFC on global basis. Central bank independence eroded across the world although not yet explicit
Monetary Aggregates	2.3	The monetary response to GFC failed to create money, so it wasn't inflationary. Need to watch M2 (in the US) or equivalent	Any comment around commercial banks tightening or easing lending standards	YOY % growth rates in US M2, EZ M3, Japan M3, China M2 and UK M4	AMBER	US money growth at unprecedented levels but need to see it staying high. RoW yet to accelerate in the same way
US Inflation Detail Dashboard	2.4	Close up look at the US as the world's key inflation driver	None	Various metrics covering inflation momentum, pipeline, slack, labour tightness, wages, expectations and gold prices	GREEN	Currently heavily deflationary. But also showing that momentum has held up and the supply side is disrupted. So could reverse fast in scenario where demand recovers faster than expected

For illustrative purposes only. Forward looking statements should not be relied upon when making investment decisions.

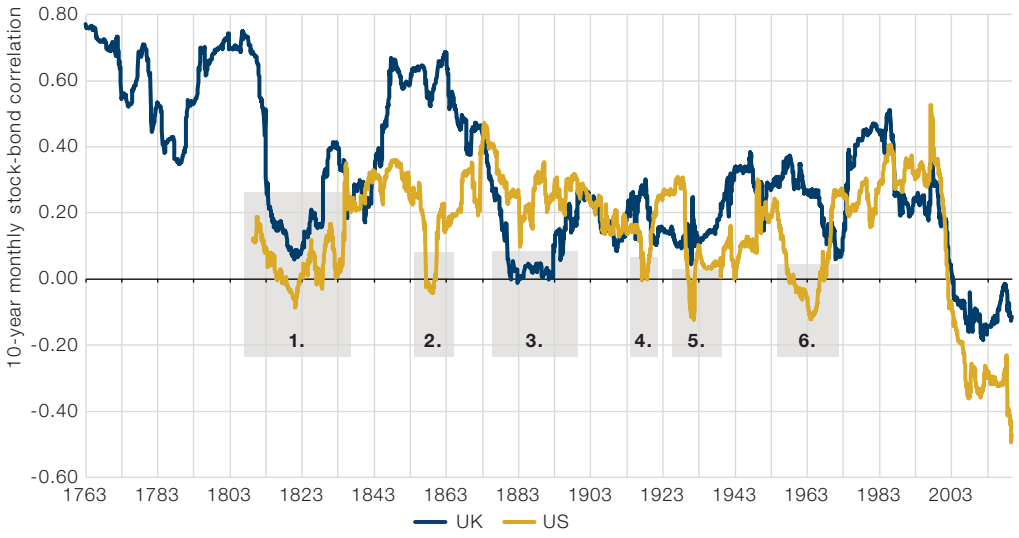
2.1 The Stock-Bond Correlation

Exhibit 4 shows that **stock-bond correlations are generally positive, despite the significant negative readings of the past two decades.** Apart from the present, we count three episodes in the UK and five in the US where the relationship was significantly low for a sustained time. As we outline in our annotations, of these eight chapters, we think seven have an explicitly disinflationary or deflationary reason.[2]

Our previous work has focused on the reasons for this interaction between the stock-bond correlation and inflation[3] so we won't rehearse the whole argument here. In brief, as Keynes observed, the co-movement of prices and interest rates is 'one of the most completely established empirical facts in the whole field of quantitative economics.'[4] Interest rates are inversely correlated with bond prices and positively correlated with inflation. Thus **if inflation falls, or if inflation expectations are suppressed, then rates will fall, and stock-bond correlations with them.**

Now admittedly, inflation has not been particularly low in this current negative stock-bond regime. Since the turn of the millennium headline inflation has averaged 2.0% in the UK and 2.2% in the US, but the psychology of the environment has been disinflationary. That has been reflected quantitatively in the collapse of inflation expectations, which we discuss further in Part 2.4.

Exhibit 4. Annotated UK and US Stock-Bond Correlations (1763-2020)



1. **UK:** In the 10 years following Napoleonic Wars (1803-1815) UK inflation averages -0.9%. SB falls to 0.06 in July 1821 and stays low through to 1826.
   US: Dragged into the Napoleonic Wars through its conflict with the UK in the War of 1812 (1812-1815). US inflation in the decade following the end of the war is -3.8%. SB falls to -0.08 in October 1921.
2. **US:** 1848-58, inflation averages +0.1%, with prices suppressed by expansion of railroads, annexation of Texas (1845), urbanisation and immigration especially from Ireland in wake of the Great Famine (1845-49). SB falls to -0.04 in June 1859.
3. **UK:** The Second Industrial Revolution (beginning around 1870) suppresses inflation which averages -0.6% between 1871-1893. SB remains around zero from 1881-1893.
4. **US:** SB falls to low of just under zero in July 1917 and stays there through to 1919. Reason unclear.
5. **US:** Heading into the Great Depression US experiences average inflation of -2.3% in the 10 years to 1932, as credit contracts and the Fed refuses to expand supply. SB drops to a low of -0.12 in April 1932.
   UK: Same trend but less pronounced, inflation averages -2.0% with SB falling to 0.04 in July 1931.
6. **US:** Disinflation following considerable inflation during and in aftermath of WW2. Inflation in the 10 years to 1954 averages +4.7% as financial repression is used to inflate away the debt that has been built up through the war. As this is achieved inflation moderates to +1.4% in the following 10 years. SB falls to -0.12 in August 1964.

Data collated from Bank of England, Professor Robert Shiller, Officer & Williamson database, Man DNA team.

2. The only one that didn't was US in 1917-19 which was an inflationary period. The most likely explanation was pronounced US equity volatility caused by uncertainty around US involvement in WW1, volatility which was not replicated in US bond markets. Between July 1914, when the war began with the US firmly committed to non-intervention, and January 1917, when the Zimmerman Telegram led to the US declaration of war, US equities were up 42% (UK was down 11%). As the scale of their commitment became clear, US equities then fell 24% through 1917 (UK was up 9%). **3.** Ben Funnell – Fire, Then Ice – Man GLG – 2017. **4.** John Maynard Keynes – A Treatise on Money – 1930. P.198.

Exhibit 5. Fast Developed Market Stock-Bond Correlation Measures (Last Ten Years)

We use TR indices for S&P, FTSE and Topix, and TR indices for 7-10 year government maturities. Data collated from Bloomberg, JP Morgan, Man DNA. As at 2nd June 2020.

Whilst Exhibit 4 gives us a good view of the arc of history, clearly it is not suitable as a real-time indicator given the periodicity of the data. For this we use daily speed annual correlations across DM, as shown in Exhibit 5, which contains US, Europe (proxied by UK[5]) and Japan.

On the fast stock-bond correlation measure, an inflationary turning point would be signalled by persistent move above zero, across geographies. In Exhibit 5 we can see that there was a glimmer of such a move in 2013, following the Eurozone Crisis and the Taper Tantrum. There were also idiosyncratic jumps in Japan in 2014 as the market digested the implications of Abenomics, and in the UK in 2017, following the fallout from the Brexit referendum. But **currently this indicator shows us no sign of a shift to an inflationary regime.**

2.2 The Policy Checklist

As discussed in Part One, Monetarism is one of two critical inflation risk sources. **If monetarist inflation is to take root it will be caused by policy decisions by governments and central banks.**

2.2.1 Governments

Fiscal Populism

> "Whether expanded fiscal policy becomes inflationary will be determined by the depth of the deficit and the duration of its expansion."

Fiscal expansion is the government's lever to generate inflation. The Corona crisis has elicited sizeable spending commitments across the world. Current forecasts for 2020 budget deficits as a percentage of nominal GDP are 15.0% in the US (4.6% in 2019), 9.5% in the Eurozone (2019 – 0.6%), 10.6% in the UK (2019 – 2.0%) and 8.0% in Japan (2019 – 2.6%)[6].

Whether expanded fiscal policy becomes inflationary will be determined by the depth of the deficit and the duration of its expansion. Exhibit 6 shows annual budget deficits for the US and UK from 1790 and 1700 respectively. Up until WW2, we see a pattern of balanced budgets, with deficits used proactively to wage war[7]. Since then, we see deficits used reactively in response to recessions, with increasingly unsuccessful attempts at their eradication in the aftermath (as reflected in the general pattern of progressively lower peaks and troughs).

Exhibit 6 shows current deficit spending ticking the 'depth' box, with the size of the expansion exceeding everything since WW2. The question now is whether it will be sustained. In the aftermath of the GFC, the US deficit expanded for two consecutive years, from 1.1% in 2007 to 9.8% in 2009. Such largesse did not last long,

5. Whilst we are cognisant of the irony of representing Europe with the UK, we find this to be the most efficient way of accounting for the FX effect, and the measure fits closely with a more complex, FX-adjusted approach in our backtests. Should the UK and European economies diverge significantly post Brexit, we will need to re-visit this measure. **6.** Sell side economist aggregates from Bloomberg as at 22/5/20. **7.** There are exceptions. The compensation payments the British government made in order to secure the abolition of slavery in 1833 and FDR's New Deal in the wake of the Great Depression can both be seen as proto-examples of deficit funded 'levelling up'.

however. As the Tea Party movement gained traction in the wake of the crisis, fiscal policy quickly began travelling in the opposite direction, with six consecutive years of tightening, leaving the deficit at 2.4% in 2015. This fiscal tightening dominated the monetary loosening and inflation went nowhere.

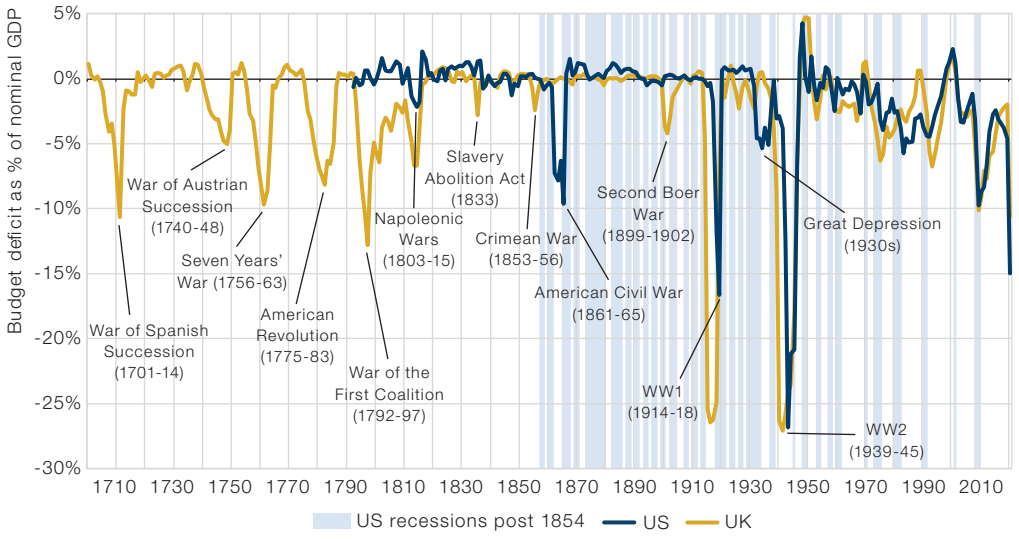
> We are more interested in the alphabetic implications for the budget balance: will it be a Great Depression U or a GFC V.

In the Great Depression the budget balance was cut from a 0.8% surplus in 1930 to a deficit of -4.6% in 1932, in contrast to the GFC it then remained at a similar level through to 1936 when it registered -5.1%. So for six years fiscal policy was either easing or neutral, a complement to the abrupt monetary easing that coming off the gold standard entailed.

Today it seems likely that the 15% US deficit forecast for 2020 will not be maintained through 2021, especially if an effective treatment is found for the virus. But what will be a crucial signal in our checklist is whether the pattern is more similar to the Great Depression or the GFC. Everyone's got a different letter for the shape of the economic recovery, but **we are more interested in the alphabetic implications for the budget balance: will it be a Great Depression U or a GFC V. Any sign of the former is to us indicative of an inflationary regime change.**

In the US this process is already underway. **The Corona Crisis is different from the Great Financial Crisis in that the US went into it already expanding its deficit.** Between 2015 and 2019 the deficit went from 2.4% of nominal GDP to 4.6%, increasing every year. This was in contrast to much of the rest of the developed world; in the UK for instance the trend was the opposite, from 4.2% to 2.0% and shrinking every year. This means that **as at the end of 2020 the US will have expanded its deficit for five years in succession.** President Trump is reported to have answered a question about fiscal prudence thus: "Who the hell cares about the budget? We're going to have a country."[8]

Exhibit 6. Budget Deficits for US and UK 1700-2020



Data collated from Bank of England, US Treasury, Man DNA team. 2020 is current consensus estimate collated by Bloomberg as at 22 February 2020.

So the deficit depth is there, and it seems like the appetite to sustain duration is also present, but we are closely watching for confirmatory evidence. Exhibit 7 is one way of watching this at an aggregate level. Here we see the sell-side's 12 month blended forward estimate for the budget deficits of the four major DM geographies. We haven't mentioned Japan and the Eurozone for the sake of brevity, but we can see a similar pattern to the US and UK, being pronounced tightening quickly after the initial GFC response, albeit with a bit of a lag in the case of Japan.

8. As reported by the Washington Post on 18th January 2020.

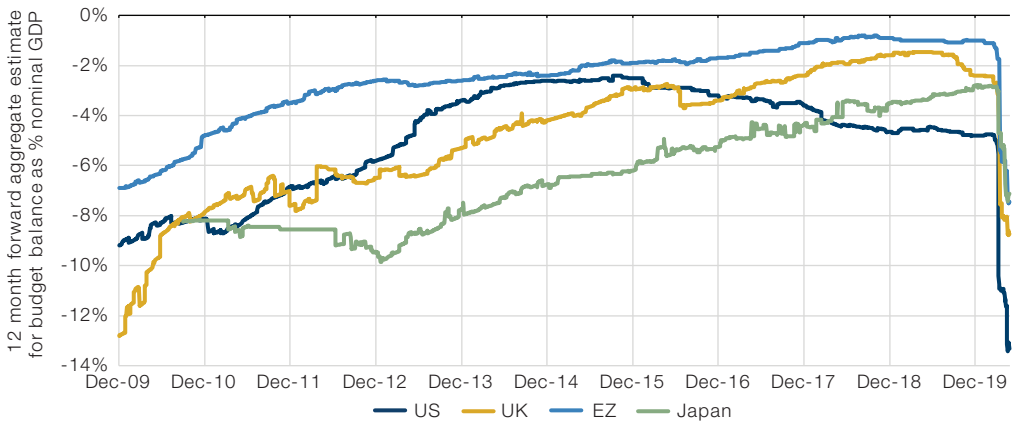
> In the US … a swathe of the population … were addressed directly in President Trump's inaugural address: "The forgotten men and women of our country will be forgotten no longer."

Inequality

If fiscal stays loose what will be the justification? There are myriad options. It is easy to see how infrastructure investment to **combat climate change** could enable deficit spending at massive scale and duration. Equally likely will be policies to combat inequality, as described in Part One.

Inequality was already gaining momentum as a political touchpoint prior to Corona. The phrase 'level(ling) up' occurred eleven times in the 2019 UK Conservative party manifesto. And the trend was perhaps even more pronounced in the US where a swathe of the population, whose manufacturing heartlands had been decimated by a dislocated globalisation, who had been derided as 'deplorables' by Hilary Clinton and a technocratic elite, were addressed directly in President Trump's inaugural address: "The forgotten men and women of our country will be forgotten no longer."[9]

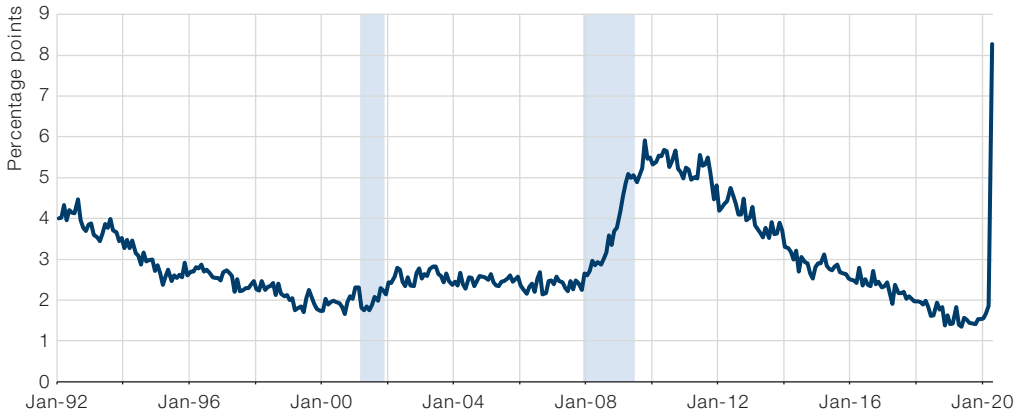
Exhibit 7. Daily 12 Month Forward Budget Deficit Estimates (Last Ten Years)



Data aggregated by the Man DNA team, from Bloomberg.

Exhibit 8 shows the US gap in unemployment rates between those with and without bachelor's degrees is at its most extreme since the data begins. The US non-degree educated segment is 62% of the adult population. Arguably this cohort was discriminated against in the 2008 cycle by predatory lending practices and dodgy securitisation, and they're being discriminated against today by the lockdown. The response will have to make them good.

Exhibit 8. US Unemployment Rate – No Degree Minus Degree Educated (Recessions Shaded)



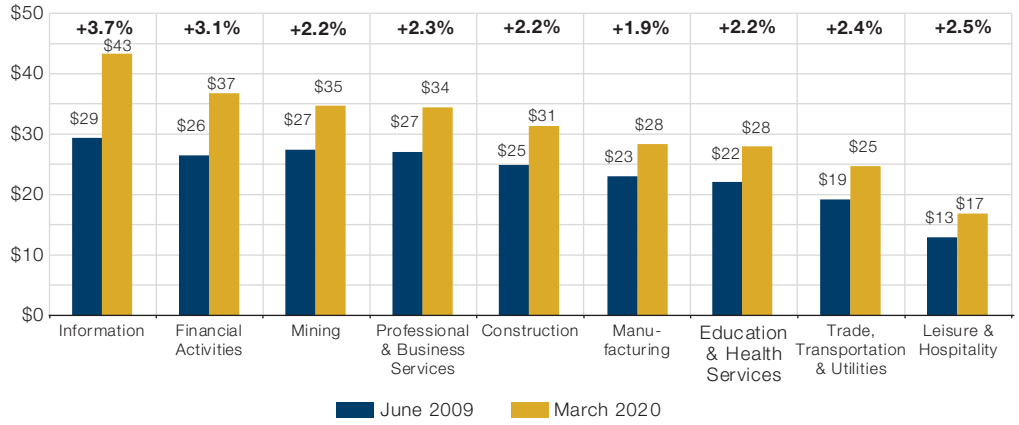
Man DNA calculations based off US Bureau of Labour Statistics data table A-4. No degree is aggregation of 'Less than High School Diploma', 'High School, no College' and 'Some College or Associate Degree' segments

9. President Trump inaugural address, 20th January 2017. https://www.whitehouse.gov/briefings-statements/the-inaugural-address/.

The other datapoint we watch is the industry segmental earnings from the BLS's B-3 table. In Exhibit 9 we show the change in these data, from the GFC trough to the present. This further reflects the unfairness of the GFC to Corona cycle.

We continue to watch both, but on our checklist they are clearly flashing red for regime change.

Exhibit 9. US Average Hourly Earnings from GFC Trough to Present (CAGRs at top)



Man DNA calculations based off Bureau of Labour Statistics data table B-3. We exclude the April datapoint due to distortions coming from the mix effect given the magnitude of the unemployment increase.

Financial Repression

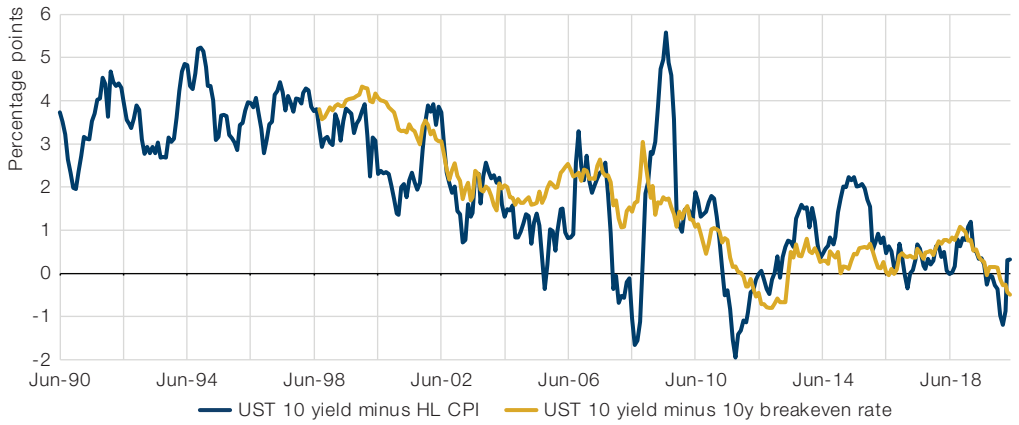
In Part One we discussed some of the historical precedents for when governments are pushed to make significant fiscal expansions. Often, and in particular in the case of FDR tackling the debt overhang from the New Deal and WW2, financial repression was used. It seems likely that the covering fire thus far provided by central banks has ensured that the bond markets have not revolted at the fiscal bonanza implied in Exhibit 7. Ten year yields for USTs, Gilts and Bunds are all down since the end of January, the last month of comparative normality. **But what happens if the government decides it wants to push the fiscal envelope further than central bank acquiescence will allow? We think some form of fiscal repression would be likely.** Here follows a checklist of measures to look out for.

Real rates might be kept negative to reduce the debt stock. Exhibit 10 shows an indicator of the extent to which this is happening. From this we see real yields moving negative in January for the first time since the aftermath of the Eurozone Crisis in 2011-12.

President Trump has exerted public pressure on the Federal Reserve more than any other recent POTUS. A count by Bloomberg found over 60 instances where Trump had publically rebuked Chairman Powell.[10] You would be hard pressed to find even one instance of Presidents Obama or Bush taking to the airwaves in such a manner. The flack is certainly coming both ways. Most notably, in August 2019 former New York Fed President Bill Dudley explicitly suggested that the Fed should make decisions consistent with stopping Trump's 2020 re-election. **If it becomes widely accepted that the Fed is a political institution, we will have reached a milestone in financial repression.**

10. https://www.bloomberg.com/news/articles/2019-12-17/key-trump-quotes-on-powell-as-fed-remains-in-the-firing-line.

Exhibit 10. US Real 10 Year Yields



Calculated from Bloomberg data by Man DNA team. As at 2nd June 2020.

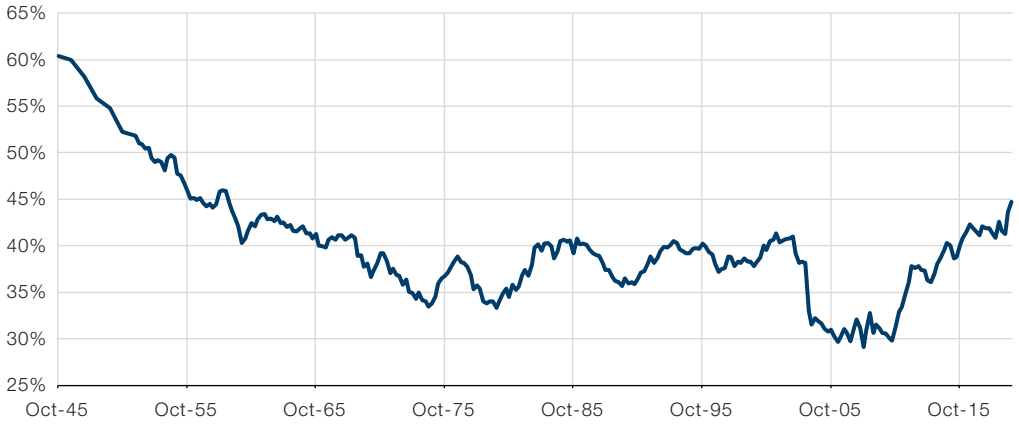
> Imagine a fireside chat between the Treasury Secretary and a beleaguered bank CEO. "That's a nice banking license you've got there – shame if anything were to happen to it."

The government might also try to exert pressure on commercial banks and other financial institutions. Of course this is unlikely to be superficially visible, but imagine a fireside chat between the Treasury Secretary and a beleaguered bank CEO. "That's a nice banking license you've got there – shame if anything were to happen to it."

We monitor this through the Fed's Flow of Funds accounts, to create the metric shown in Exhibit 11. This details how US domestic financial institutions' proportionate holdings of Treasury securities have been increasing from 30% in Q3 2010, to 45% at the end of 2019 (USD10trn of USD22trn outstanding). **Financial institutions are already buying, and could do considerably more, at least by the standard of history.**

Extreme financial repression would involve capital controls and confiscation of real assets such as gold. There is ample historical and, in the emerging world, current precedent for this. FDR's Executive Order 6102 of April 1933 made 'the hoarding of gold coin, gold bullion, and gold certificates within the continental United States' illegal[11], under pains of six months imprisonment and the seizure of the offending bullion. **We think any potential for this today is a long way down the line, however, and if it happens the inflation regime will have long since changed.**

Exhibit 11. US Domestic Financial Institutions Treasury Holdings as % of Total Outstanding



Man DNA calculations from Fed's Flow of Funds data, tables L.105 and L.108. Historical readings from Federal Reserve Bank of St. Louis.

11. https://www.presidency.ucsb.edu/documents/executive-order-6102-requiring-gold-coin-gold-bullion-and-gold-certificates-be-delivered.

2.2.2 Central Banks

We think it is clear that for governments to pull the levers we have described, they will need central bank acquiescence, whether willing or otherwise. But how can we know how far down that road we have travelled? Fortunately we don't have to guess. In November 2002 Ben Bernanke, then on the Board of Governors of the Federal Reserve and soon to be its Chairman, made a speech in which he outlined the checklist the Fed would follow to create inflation.

In Exhibit 12 we detail the measures Bernanke outlined, the names by which they have since become known, and where they first happened. We shade green all measures which have been enacted in a meaningful way somewhere in the world. The point to us is clear: central bankers may talk extensively of their toolboxes, but in reality there's not much left before they get effectively taken over by governments.

That doesn't necessarily mean this will happen imminently in time terms, however. Absent from Bernanke's list is NIRP (Negative Interest Rate Policy) and Price Level Targeting (an extreme form of forward guidance where the monetary authority targets an absolute level of prices rather than a growth rate). The Fed denies it is considering the former but the futures market wasn't buying it and on the 7th May began to price a negative rate by the end of 2021.

Meanwhile Price Level Targeting is under active discussion. Since the Fed introduced their 2% target in January 2012, the core PCE deflator has risen 14%, whereas it should be up 18% had it been consistent with the initial goal. That could mean inflation running at a little over 3% for the next three years.

In reality, if we do get MMT, it will creep up on us. In the 1933 'Chicago Plan' Irving Fisher noted that: 'irredeemable government-issued money represents equity in the commonwealth rather than debt.'[12] **If the government securities held by the Fed and other central banks became perceived as equity in the commonwealth it would be tantamount to their cancellation and thereby MMT in practice.**

One way in which this could happen is that the sheer quantum of central bank holdings becomes so large that its redemption is no longer accepted as a practical outcome. We are therefore watching very closely the acquisitions through the crisis of the world's leading monetary authorities. Exhibit 13 shows the 2020 YTD absolute and percentage growth in the world's four major central banks.

Whilst this is a live risk we are monitoring, we are not currently at the 'equity in the commonwealth' tipping point.

2.3 Monetary Aggregates

As discussed in Part One, financial QE did not create money, but fiscal QE could. The metrics described in 2.2 are a forward-looking framework for analysing the upcoming likelihood of fiscal QE. In addition to this **we also watch backward looking metrics of money growth**, as detailed in Exhibit 14.

This shows the US money supply growing at an unprecedented rate. In other regions, however, we are not yet seeing the same level of expansion as characterised the aftermath of the GFC.

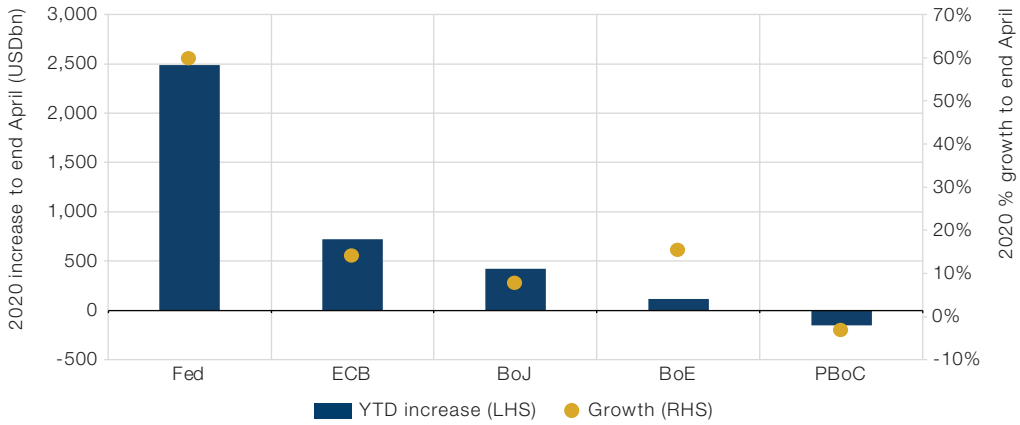
12. See for instance Jaromir Benes and Michael Kumhof – The Chicago Plan Revisited – IMF working paper August 2012 – p.4.

Exhibit 12. The Road to MMT

Bernanke said …	… which means	Where has it happened?
'the Fed should try to preserve a **buffer zone for the inflation rate**'	**Inflation targeting**	Fed was the last major CB to set an inflation target (2%) in Jan 12
'the Fed should take most seriously…its responsibility to ensure **financial stability** in the economy'	**Macro prudential regulation**	Tightening of banking regulations around the world in the wake of the GFC, e.g. Dodd-Frank in the US (Jul 2010)
'the central bank should act more pre-emptively and more **aggressively** than usual in **cutting rates**'	**ZIRP**	The Fed cut its lower bound to zero in Dec 09, the BoJ followed in Jan 16 (and went further) and the ECB in Mar 16
'lowering rates further out along the Treasury term structure…announcing **explicit ceilings** for yields on longer maturity debt'	**YCC**	BoJ announces YCC in Sep 16
'the Fed to **commit to holding** the overnight rate at zero **for some specified period**'	**Forward guidance**	Now used by every major central bank
'the Fed must expand the scale of its **asset purchases**'	**QE**	Pioneered by BoJ in early 2000s, since used by Fed (in 3 rounds: Nov 08, Nov 10 and Sep 12) and by ECB (PSPP began in Mar 2015)
'**expand the menu of assets** … to operate in the markets for agency debt '	**QQE**	The BoJ began buying commercial paper in 95, following up with QQE2 (buying equities) in Oct 14. The ECB followed with the CBPP and CSPP programs (Jul 09 and Jun 16)
'the Fed might next consider attempting to influence directly the yields on **privately issued securities**'	**TARP**	The Fed committed to insure up to USD700bn in troubled assets in Oct 08
'the Fed to offer **fixed-term loans to banks at low or zero interest**, with a wide range of private assets (including, among others, corporate bonds, commercial paper, bank loans, and mortgages) deemed eligible as collateral'	**LTRO**	The ECB has run 2 TLTRO programs, the first in Jul 14, the second in Jul 16. A third was announced in March 2019
'the Fed has the authority to **buy foreign government debt**, as well as domestic government debt'	**FX targeting**	Treasury Secretary John Connally described USD as: 'our currency, your problem.' B/w 2012-15 the BoJ implemented a massive foreign security purchase program
'the **government could increase spending** on current goods and services or even acquire existing real or financial assets'	**Fiscal expansion**	Government deficits around the world blowing out to peacetime records in the wake of the Corona Crisis
'the T**reasury [issues] debt to purchase private assets** and the **Fed then [purchases] an equal amount of Treasury** debt with newly created money' 'A **money-financed tax cut**…equivalent to Milton Friedman's famous "helicopter drop" of money'	**People's QE / MMT**	First proposed by Jeremy Corbyn (then a backbench MP) in the 2015 general election. Yet to be implemented

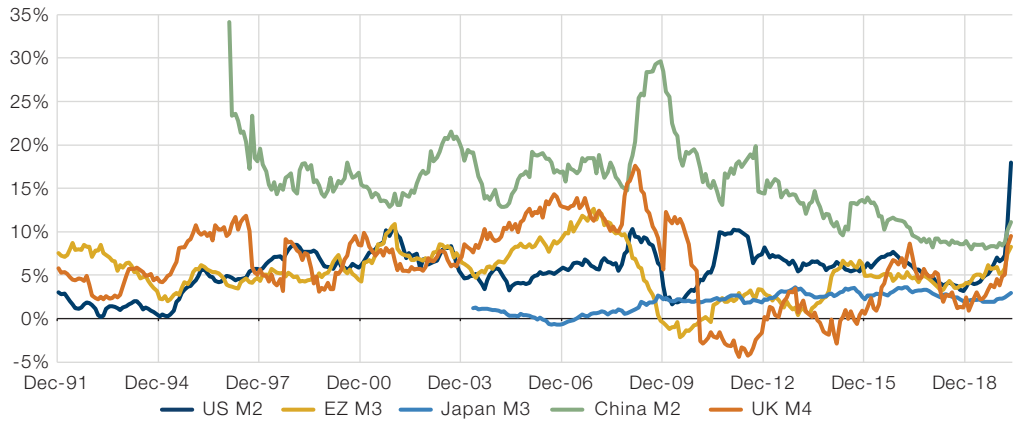
Ben Bernanke – Deflation: Making Sure "It" Doesn't Happen Here (speech to the National Economists Club, Washington DC – 21st November 2002.

Exhibit 13. YTD Growth in Major Central Bank Balance Sheets



Central bank balance sheet reports. FX conversions are a static three year average. YTD is four months to end April 2020.

Exhibit 14. YOY Growth in Selected Monetary Aggregates



Bloomberg. As at end April 2020.

2.4 Other Inflationary Indicators

Exhibit 15 shows our dashboard for monitoring US inflation by component parts. Each chart contains the indicator (blue line) and our calculation of the normal range (yellow dashed lines). If the indicator exceeds the upper bound the chart turns red to denote inflationary pressure, and vice versa if it drops below the lower bound. If it is within the range the chart is grey and inflationary pressure is seen to be neutral.

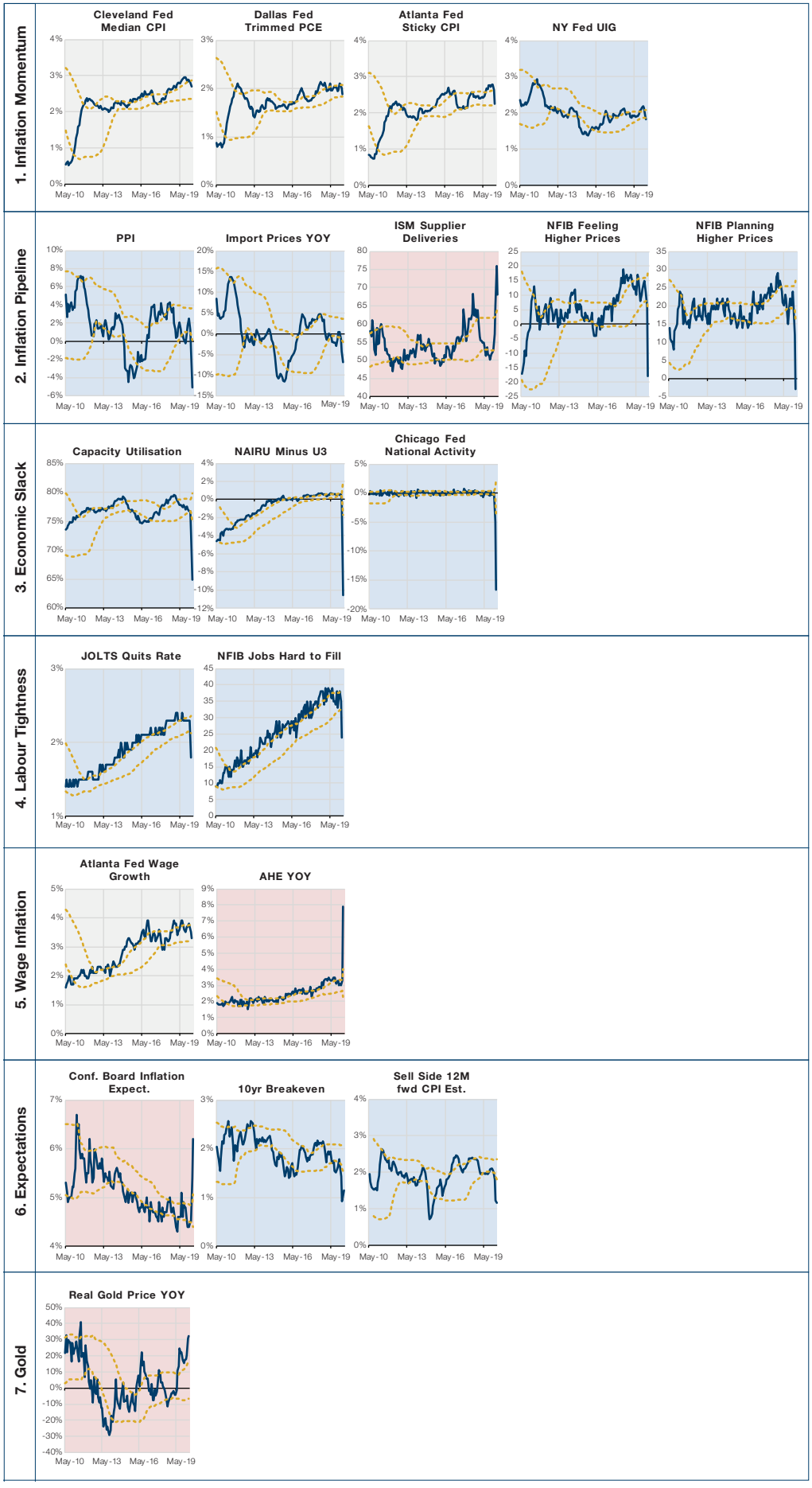
What is our dashboard telling us about inflation today? We comment on each row in turn.

1. Momentum (baskets stripped of extreme price movers) is broadly neutral
2. Pipeline is heavily deflationary. Supplier Deliveries is very high but this reflects supplier disruption rather than intensifying demand. This does suggest that pressure could reverse quite quickly if demand recovers
3. Economic slack large, and heavily deflationary
4. Labour tightness is loose, and heavily deflationary
5. Wage inflation is neutral to inflationary. There will be some mix effect here as the recent job losses have been skewed towards lower paid segments of the labour force (as per Exhibit 8)
6. Inflation expectations are inflationary for the consumer (likely a result of stockpiling and other supply constraints on basic necessities), but deflationary for the market and the sell side

7. We are careful with how we interpret the real gold price move. Our dashboard shows it as inflationary. Given that gold benefits from geopolitical uncertainty, usually present in both inflation and deflation, this in reality could be pointing to either. Our interpretation is that the gold price was pointing to inflation through 2019 due to increased perception of the abandonment of fiscal restraint (per 2.2.1). Through 2020 it has been supported by the uncertainty of deflationary forces

In sum, the dashboard currently feels a lot more deflationary than inflationary. That being said, the fact that momentum is holding up, and the supply side is disrupted, makes us think the picture could change quite rapidly if demand picks up faster than expected.

Exhibit 15. Man DNA US Inflation Dashboard



Source: Bloomberg, Man DNA calculations. We are indebted to Ian Harwood of Redburn Economics for helping us to think about these categories.

Part Three – New Investment Strategies

For the reader in a hurry, Exhibit 16 provides a summary.

Exhibit 16. Investment Strategies for Inflationary Times – Summary Table

	New Winners	Old Winners
Types of Funds	Alternative Risk Premia	Traditional Risk Premia
	L/S vehicles	L/O vehicles
	Alternative Multi-Asset Funds	Traditional Multi-Asset Funds
	... with a special emphasis on inflation-protection	... 60/40, risk parity, or other proportions
Assets	Real Assets, such as:	Nominal or Paper Assets, such as:
	... Inflation-Linked Bonds	... Nominal Bonds
	... Commodities (eg Gold)	
	... Asset-backed Securities (RMBS, CLOs)	
	... in FX, long commodity producer vs importer (eg AUDJPY)	
Equities	Value	Quality / Growth / Low Beta / MinVol
	Pricing Power vs Margin Pressure	Financial engineering through leverage and buybacks
	High Fixed-Rate Debt	Multi-nationals with global supply chains and optimal tax structures

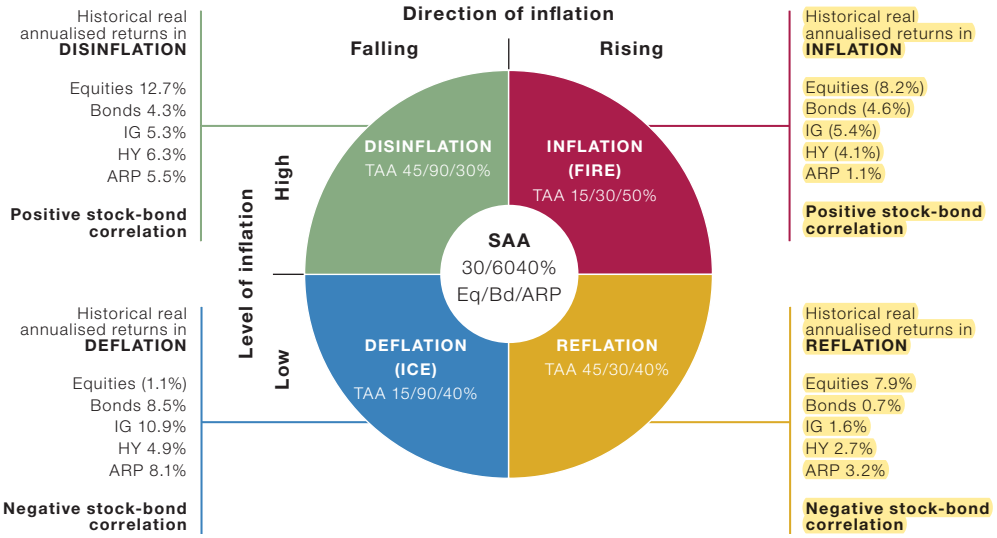
What new regime? Let's agree terms. In what follows, we assume that, after the transition period, this new regime will be a period with higher average inflation, say 4%; higher inflation volatility; negative real rates through financial repression, say 2% nominal 10Y rate; less reliance on global supply chains; and policies that favour labour over capital. A combination of the Monetarist and Marxist drivers of inflation.

Our *Fire & Ice* framework demonstrates that "Inflation" is the most challenging of regimes for all traditional long-only assets. The level and direction of inflation is the most critical element in our asset allocation choices, as per our Fire & Ice framework. We have written extensively about the theory and practice of this concept. Exhibit 17 illustrates that the Inflationary regime is the most difficult of the four regimes for all asset classes, with all long-only asset classes included in our studies delivering negative real returns on average during such periods, measured since 1926.

> "It's the landing that matters, not the fall. The landing, in our story, is Inflation, and our story continues even after the landing."

Reflation first, Inflation later. The French cult movie La Haine opens with the telling of the story of a man who falls from a 50 storey building. "So far, so good" the man tells himself reassuringly while passing each floor. "But", so the story goes, "it's the landing that matters, not the fall". The landing, in our story, is Inflation, and our story continues even after the landing. Most investors are not prepared for it. On the way to Inflation it will feel like Reflation for a good while, and all will seem fine. Perhaps markets have left the Deflation regime associated with this recession for good already, since 23 March 2020. Everyone knows what to do in the Reflation regime. It is the Inflation regime that provides a major challenge to investors.

Exhibit 17. Man DNA Fire & Ice Framework



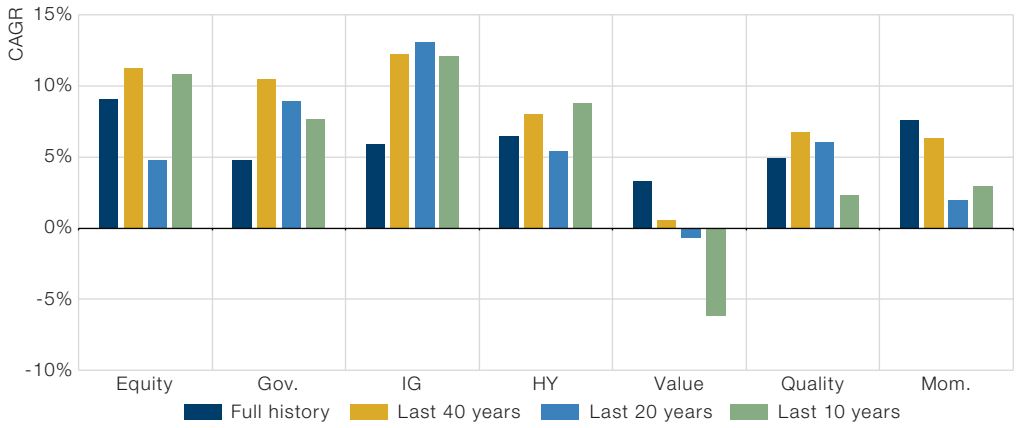
Source: Man DNA team using data from Professor Shiller, Fama-French and Morgan Stanley. Equities refer to the S&P 500, Bonds refer to 7-10 year US Treasuries, IG refers to corporate issuance with BBB rating or higher, HY corporate issuance below BBB, ARP is equal risk contribution long/short portfolios of Value, Size, Momentum, Quality and Low Beta. For a fuller explanation please visit our website: **www.man.com/dna** and click the Fire & Ice dropdown box.

Lack of data for inflationary times. Designing investment strategies for inflationary times requires a large degree of judgment based on an understanding of fundamentals, because data availability is very limited. Inflationary times occur just 13% of the time in our empirical studies of performance during the various Fire & Ice regimes since 1926. And these inflationary times were not all equal: for instance the 1940s were controlled demand-pull inflationary times starting from depressed levels of economic activity, facilitated by financial repression, while the 1970s were out-of-control cost-push inflationary times through oil price shocks and inadequate policies such as wage-price spirals and negative real interest rates.

A wide range of investment strategies have flourished in the prevailing investment regime of the last few decades, which we believe is now coming to its end. Some strategies have been beneficiaries in very explicit ways, while other types of successful strategies' reliance on the regime is up for debate. Here is the list of key beneficiaries that are at risk of this regime change, in our judgment – see also Exhibit 18:

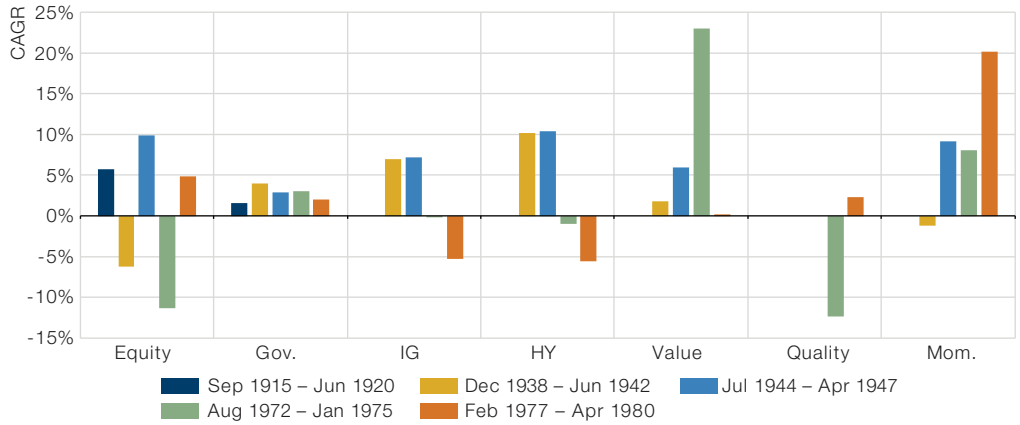
- **Long-only strategies –** traditional risk premia – as equities and bonds delivered excellent performance during this stable pro-capital period;
- **Traditional multi-asset strategies** relying on these long-only strategies – like 60/40, risk parity, or combinations in any other proportions – as equities and bonds offered each other excellent diversification benefits (see stock-bond correlation charts in Part Two). This is because when inflation is so low that deflation is the main threat, as has been the case for 20 years, a lower inflation print is bullish for bonds and bearish for equities; while when inflation is the main threat, as has been the case throughout prior centuries, a lower/higher inflation print is bullish/bearish for both asset classes
- **Within equities, the Quality / Growth-style**
  - Quality / Growth-type strategies performed much better than usual, as in a world of ever lower rates and low nominal growth these types of characteristics were more desirable than usual.
  - Stocks of companies that used financial engineering with financial leverage combined with buybacks performed strongly
  - Multi-nationals that focus on global supply chains; outsourced and just-in-time type production processes; optimal global tax structures

Exhibit 18. Asset Class Performance in Different Timeframes



Calculated by the Man DNA team from the following data sources: Professor Shiller's long term equity returns, GFD, Morgan Stanley and Fama-French. We term FF factors as follows: HML = Value, RMW = Quality and Momentum = Mom. The series start in the following years (corresponding to the 'Full history'): Equity = 1871, Gov. = 1871, IG = 1921, HY = 1921, Value =1926, Quality = 1963, Mom. =1927. FF factors are vol. scaled to 10% on 3 year lookback.

Exhibit 19. Asset Class Performance in Selected Inflationary Regimes



Assets defined in same way as previous exhibit. Inflationary regimes are Man DNA team's qualitatively defined regimes as per the Fire & Ice framework.

New investment strategies needed. Fundamental judgment, combined with our empirical studies of the Fire & Ice regimes, dictates that winners and losers would change dramatically in an inflationary regime, prompting shifts away from the list just mentioned. In what follows we describe broad thoughts about what may work well in Inflationary times. See also Exhibit 19. Work is on-going to design specific strategies – please contact your sales person if you are interested to explore this further.

> "Real assets instead of paper assets."

- **Alternative risk premia and long-short assets instead of traditional risk premia and long-only assets.** If indeed long-only strategies deliver negative real return, long-short strategies will be required.
- **Real assets instead of paper assets**, or derivatives of this concept, such as
  - Inflation-linked bonds through their direct link with higher inflation
  - Precious Metals (eg Gold, Silver) as the key alternative to currencies with limited supply, ie not devalued through money printing policies.
  - Crypto currencies would fall in the same category by their design albeit their drivers are perhaps more speculative given a much shorter history as stores of value
  - Industrial Commodities (eg GCSI)

"Within equities: Value style instead of a Quality / Growth style."

- Real Estate (albeit Commercial Real Estate and City Centre Residential Real Estate quite obviously stand to lose from a more permanent working-from-home culture)
- Asset-backed securities such as RMBs and CLOs
- Currency pairs of commodity-producing nations vs commodity importers such as AUDJPY

- **Within equities: Value style instead of a Quality / Growth style:**
  - Styles: Momentum and Long-Term Return Reversal are chameleon-like factors grounded in behavioural finance that should be very robust to this regime change, over time
  - Ability of the business to adjust to higher inflation: Pricing Power versus Margin Pressure, measured for instance by
    - Average profit margins (high is good)
    - Labour share of costs (low is good)
    - Herfindahl index (a commonly accepted measure of market concentration)
    - Commodity producer vs commodity buyers
  - Balance sheet: nominal debt levels can be inflated away by higher inflation, therefore businesses with High Fixed-Rate Debt / Equity Ratio could stand to benefit, but only if they can service their debt, measured for instance by High Interest Cover. The short leg of this strategy could be represented by businesses that have trouble servicing their debt, measured for instance by low profitability and low interest cover
  - Sectors: very much related to the aforementioned points, Cyclicals vs Defensives is expected to be a winning strategy in inflationary times

A wide variety of pitfalls amongst each of these new strategies. Each of these aforementioned individual approaches has its pitfalls, such as:

- manager selection challenges for long-short strategies;
- lack of liquid instruments for instance amongst inflation-linked bonds;
- many of these strategies or instruments are less than perfectly correlated with inflation, for instance each commodity has its own supply-demand dynamics which means its correlation with inflation is imperfect;
- the impact of duration changes on inflation-linked bonds may overwhelm its link with inflation;
- the roll costs in the futures curve of commodities;
- FX will have drivers other than commodity production or consumption
- the Equity Value style is particularly challenged by technological disruption
- negative real rates will continue to support growth stocks that are valued on DCF type methods

An additional important pitfall is represented by the fact that these strategies have different pay-off structures. Some of these investment strategies are akin to risk factors, in the sense that they will only make money in inflationary times – the more inflation the better – and will lose money in disinflationary times – the lower inflation the worse. Value versus Growth within equities, or long-short assets versus long-only assets, are such strategies than in all likelihood will only pay off well in inflationary times.

Other strategies are expected to make some money in all types of regimes, including inflationary times, such as the Momentum style within equities.

Finally, other strategies tend to be best during times of higher inflation volatility. This is the case for dynamic strategies that aim to time periods of higher and lower inflation, thus benefitting from the higher opportunity set due to the higher volatility of inflation. This can only be done through instruments with sufficient liquidity, which is a challenge in many markets – some futures markets and large cap equities lend themselves best to these timing strategies.

A final pitfall worth mentioning is sequencing and basis risk. This is most obviously prevalent for strategies that are linked with specific countries, such as inflation-linked bonds, where many investors wonder whether the more liquid US TIPS market can be used to hedge inflation risks in other countries. We believe this is a possibility worth considering, but dangerous. In the 1930s, for instance, there was a full five years between Britain abandoning the gold standard in 1931, and France in 1936. Whoever adopts helicopter-money type strategies fully first, will be the country that devalues its currency and increases its inflation first.

For all these reasons, we recommend a broad portfolio approach to inflationary strategies in order to address these pitfalls as well as to increase capacity of the combined strategy. Such a diversified portfolio approach should have the best chance to provide high liquidity and a superior Sharpe ratio.

Concretely, what should a responsible and sensible investor do now? We believe investors still have some time to prepare for this regime shift, in all likelihood, but one cannot be sure. Because the impact of the changes we anticipate would be so large, now is the time to make preparations. “By failing to prepare, you are preparing to fail” in the famous words of Benjamin Franklin.

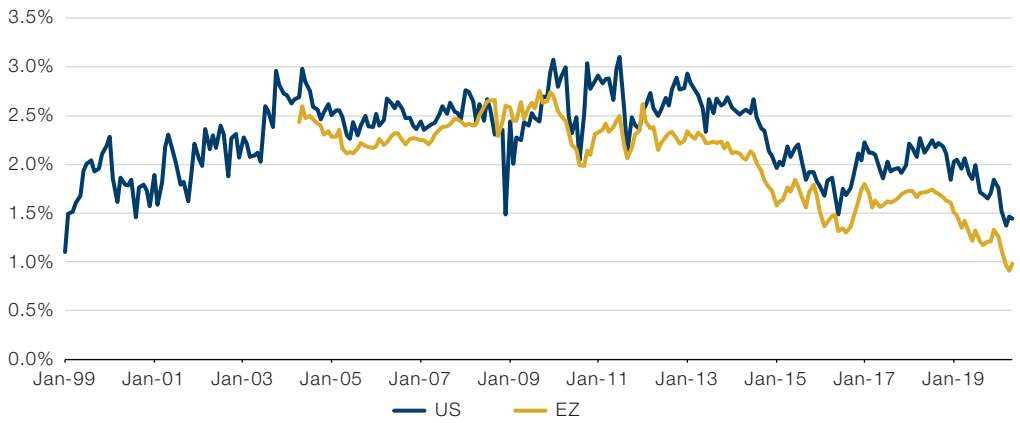
First, any responsible asset manager needs to assess existing signals and strategies for their robustness to the new inflationary regime. Aim to understand how robust existing strategies and signals are to this new regime, for instance through a simple scoring system. This could quite naturally translate into an action plan by allocating more capital to the more robust signals when the time comes.

Second, a blank-sheet-of-paper approach. As a second step one should aim to seek out new strategies that could thrive in the new investment environment. This is more complex, and not all investment professionals will have the resources or capabilities to perform this exercise, in part because backtest work is of very limited availability.

Markets are not currently priced for higher inflation at all, in our view. This is illustrated by the stock-bond correlations still being negative (see Part Two), by inflation rates implied by breakevens (see Exhibit 20), as well as the relative performance and valuation of value stocks within equities. We have also computed the implied inflation rate in the US, year by year, and even in year 10 from now inflation is not priced to be over the central bank target of 2% (see Exhibit 21).

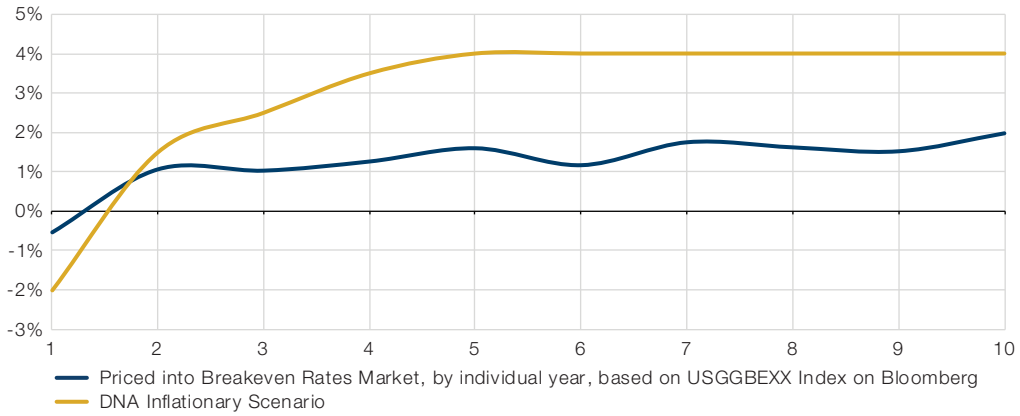
The timing of these regime transitions is uncertain. At what point would markets behave as if inflation is the main threat? The timing is uncertain – from Deflation to Reflation to Inflation. A lasting period of much higher inflation is unlikely to start with the current high levels of unemployment.

Exhibit 20. 5Y5Y Breakevens



Source: Bloomberg.

Exhibit 21. An Illustrative US Inflation Scenario



Illustrative scenario – for information only. There can be no guarantee that the scenario will occur or that any scenario identified will provide similar results. Bloomberg, Man DNA team calculations. As at April 2020.

> The need for preparation, however, is not uncertain: now is the time!

The need for preparation, however, is not uncertain: now is the time! We believe now is the time to make the necessary preparations for a variety of reasons. First, the likelihood of an inflationary regime is much higher than it has been in recent times; second, the investment implications of this new regime would be so large that all the things that have worked are at risk of stopping to work; and third, given that markets are not priced for higher inflation at all, the market inflationary regime may well start well before inflation actually kicks in, given the starting point. We explained in Part Two that we monitor a wide range of factors to judge this transition. The stock-bond correlation is quite possibly the most important of these, as it will reveal whether inflation is the markets' key concern or not.

For now markets are not yet behaving as in an inflationary regime, but we are watching this closely, and we stand ready with a plan for when it occurs.

Are you ready?

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THE NEXT COMMODITY SUPERCYCLE

October 2020

A new dawn for commodities

Executive Summary

- We are on the cusp of a **new commodity supercycle**
- There are 3 big secular drivers of this supercycle:
  - The long era of monetary-policy dominance is over, leading to a heightening of inflation risks not seen since the 1960s
  - Investors are deeply underweight and will need real assets such as commodities as a hedge against inflation
  - Commodities are generationally cheap, both compared to themselves and to other assets

Source: CFA Institute

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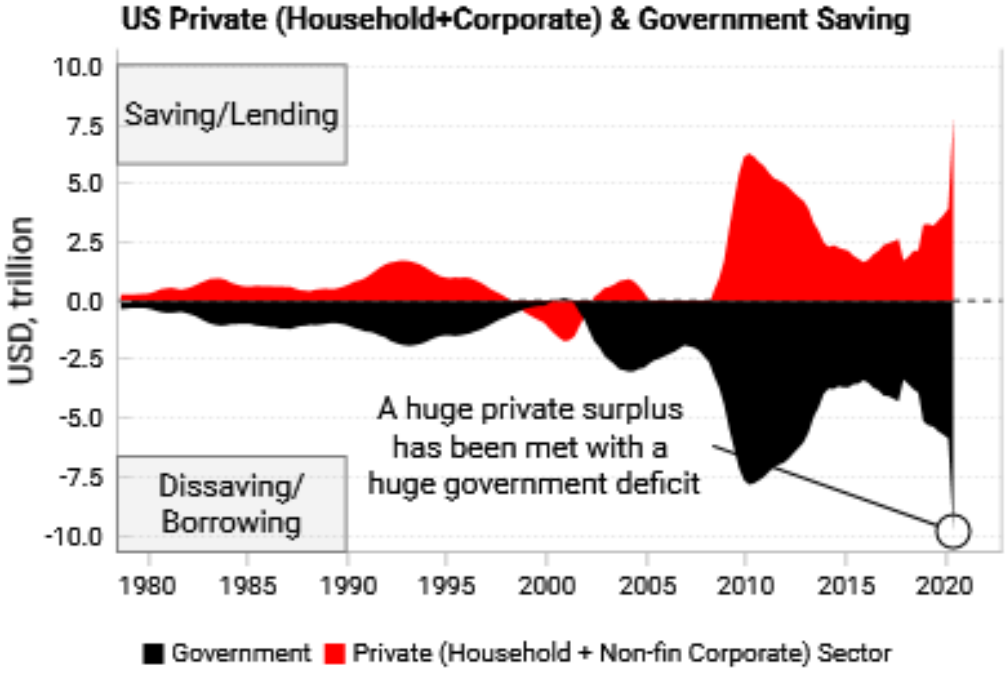
Inflation and fiscal dominance

In world of heightened inflation risks, owning commodities is key

The coming fusion of fiscal and monetary policy

- There is a seismic shift away from monetary-policy dominance towards fiscal-policy dominance
- The private sector's preference for saving – despite years of ever easier monetary policy – has meant the government needs to spend to make up the shortfall, supported by central banks' government bond buying
- The pandemic has only magnified existing trends. **We are heading towards the fusion of monetary and fiscal policy**
- This has profound implications for investing and portfolio construction



Source: Bloomberg, Macrobond and Variant Perception

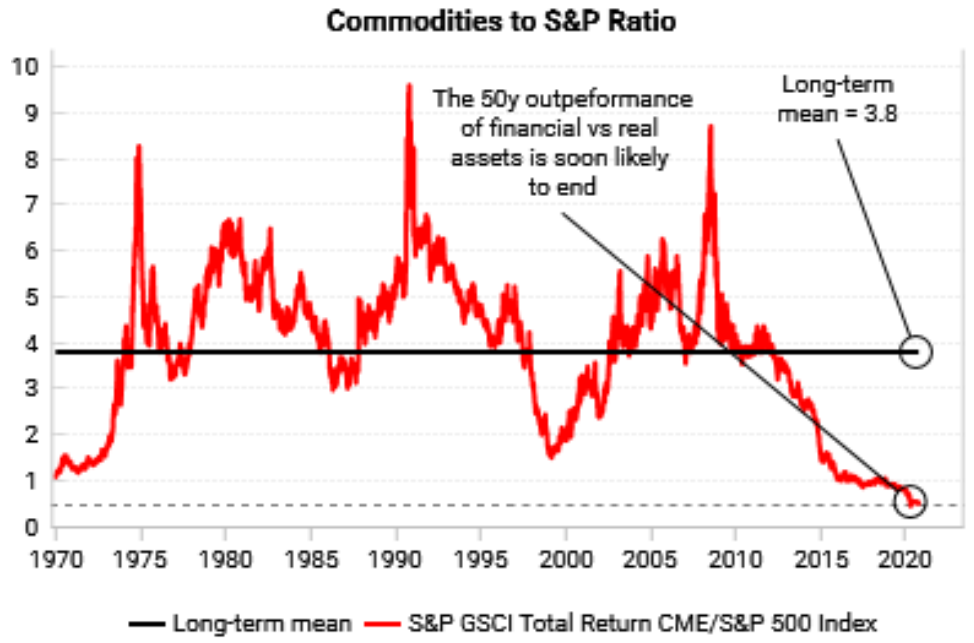
Lake and Ocean Regimes

- The blurring of fiscal and monetary policy creates a very different investing environment
- We have come from the “Lake Regime”, where rises in inflation are less likely to become disorderly
- We are now in the “Ocean Regime”
- In this regime, massively expansive fiscal policy and rapidly growing central-bank balance sheets means **garden-variety rises in inflation are more likely to lead to unanchored and disorderly moves higher in inflation**
- Lake-going vessels are not suitable for ocean travel, as are many portfolios not prepared for high inflation

Source: JMW Turner, Bloomberg, Macrobond and Variant Perception

Ocean Regime => a new investment world

- The Ocean Regime does not mean high inflation and a weaker dollar is imminent, but it does mean the balance of risks have changed
- Once inflation becomes unanchored, it is too late to take action. Portfolios should begin to be made more inflation-resilient **today**
- There are 3 main implications of moving to the Ocean Regime:
  - rising cross-asset volatility
  - too much leverage becoming a dangerous game
  - the long boom in financial assets ending, and real assets and commodities outperforming



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Source: Bloomberg, Macrobond and Variant Perception

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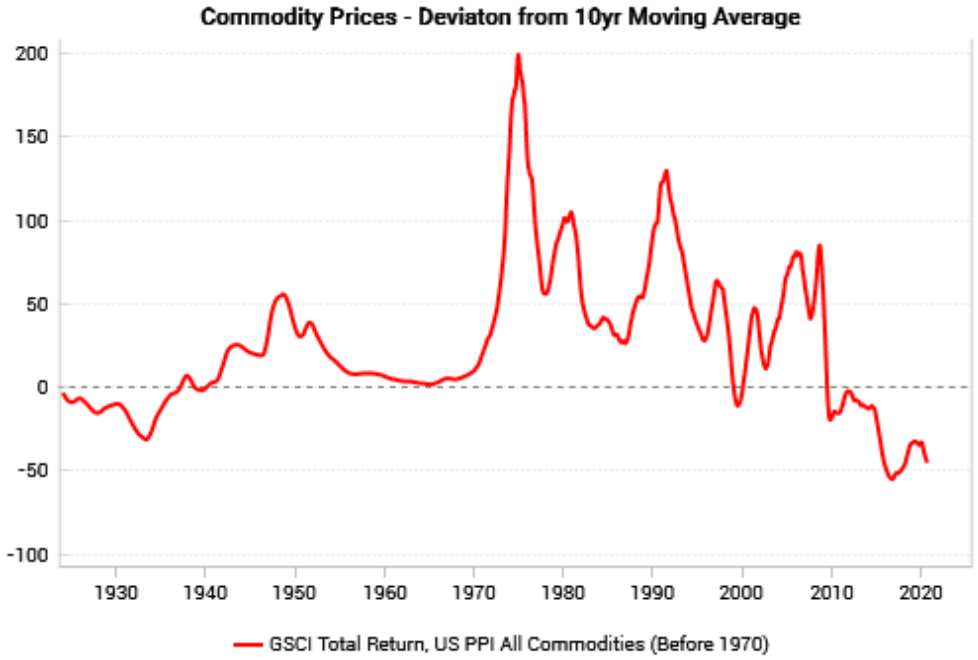
Demand and supply tailwinds

Positive dynamics for commodity demand and supply are lining up

Demand and supply imbalances drive the commodity cycle

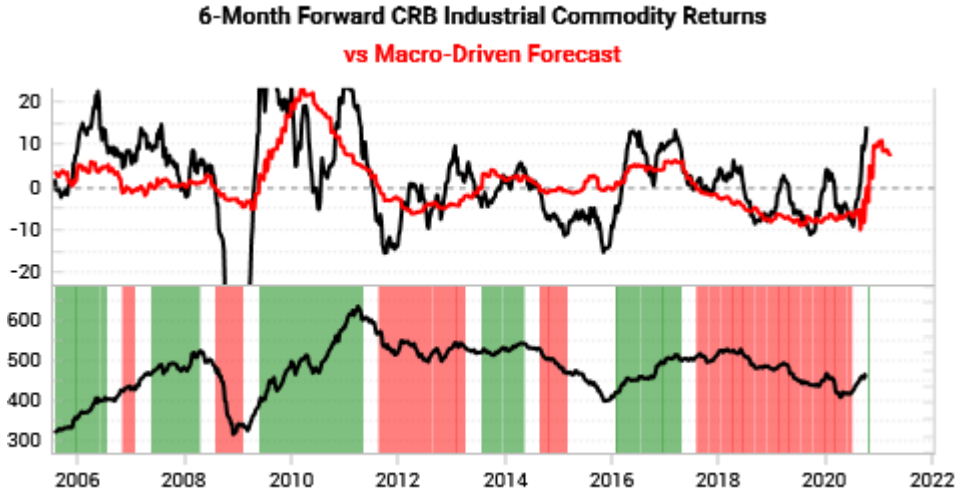
- Commodity prices can deviate greatly form long-run averages
- These imbalances take a long time to correct due to:
  - high start-up capex for new projects
  - time needed to bring new supply online as firms wait until they are sure of price upturns
- Previous demand-driven super cycles include global rearmament before WW2, and the reform of the Chinese economy and its accession to the WTO in 2001. The OPEC oil embargo in the 1970s was a supply-driven super cycle
- **The next commodity supercycle will be driven by heightened inflation risks, supply destruction and recovering demand**



Source: Bloomberg, Macrobond and Variant Perception

Demand is set to pick up cyclically

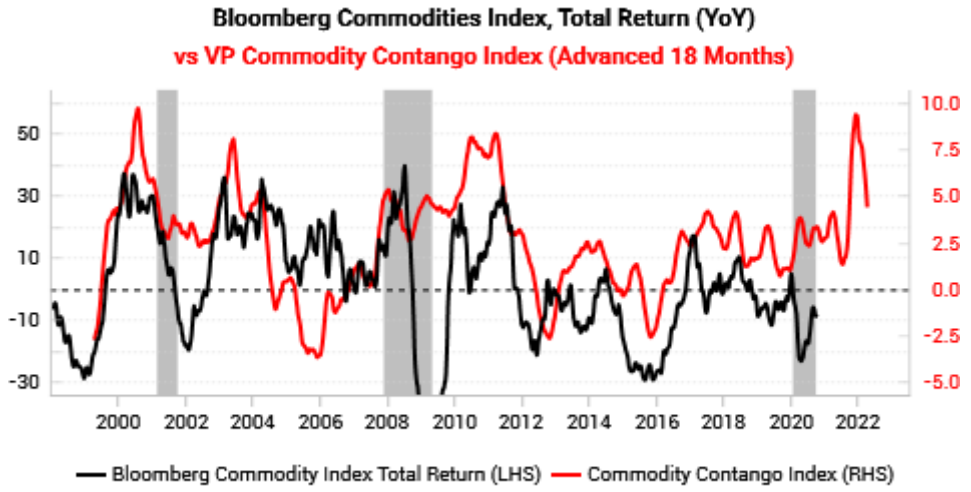
- China's economic leading indicators are rebounding which points to a cyclical upturn for commodities
- Our macro-driven forecast for commodities has surged over the past 6 months and continues to show positive expected returns for commodities
- Liquidity and demand factors are boosting the commodity outlook
- In our report from May of this year, ***China Deleveraging Over***, we noted a China rebound completes the "bullish commodity puzzle"

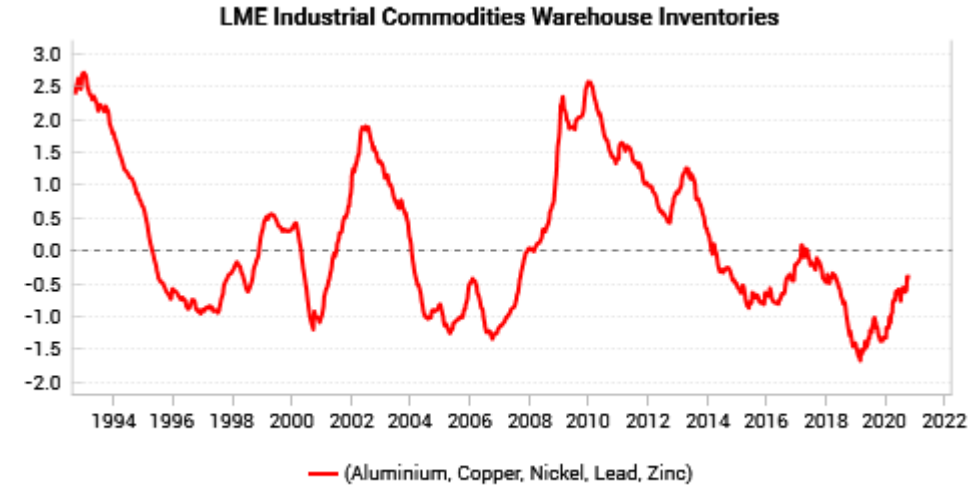


Source: Bloomberg, Macrobond and Variant Perception

Supply conditions also cyclically tight

- The huge contango in commodity futures markets in the wake of the Covid recession showed a mounting supply glut
- This forces producers to cut production, delay new projects and thus supply shrinks
- **Large commodity price spikes become a likelihood over the following 18 months** after recovering demand runs into tight supply conditions
- Low inventories mean prices are more responsive to a demand pick-up
- There are long lags to bring new supply online for many commodity sectors, eg it can take more than five years for a new mine to generate cash flow after initial spending





Source: Bloomberg, Macrobond and Variant Perception

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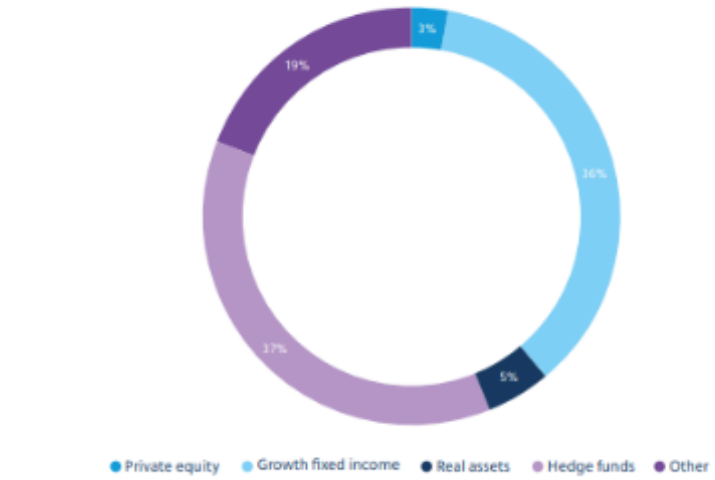
A huge investor underweight

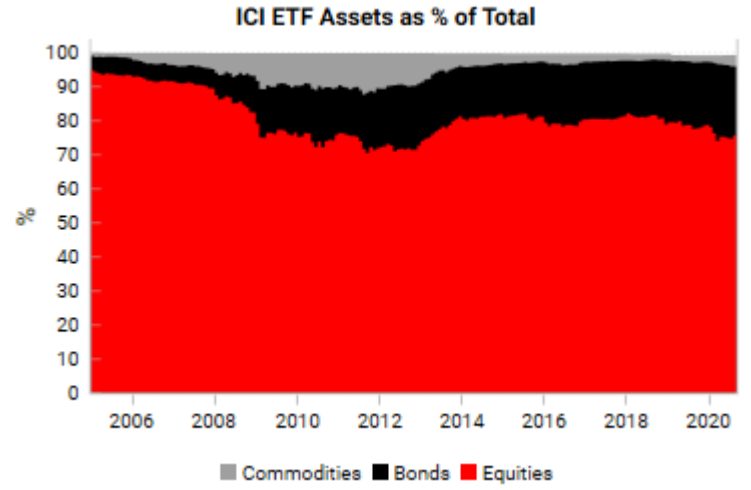
The underweight in commodities will drive investor demand

Investors are structurally underweight commodities

- The commodity asset class is massively underinvested
- The amount of capital in real assets is miniscule
- Pension funds prefer safety in fund vehicles (hedge funds, PE, etc) to fill their portfolios
- This is also playing out in the ETF world. Total commodity ETF AUM is a tiny proportion of the total AUM
- **There is a risk of a huge supply-demand imbalance in commodity markets as investor preferences shift towards real assets**
- Marginal capital inflows can lead to outsized price gains

Figure 5. Other alternatives allocation





Source: Bloomberg, Macrobond, Mercer and Variant Perception

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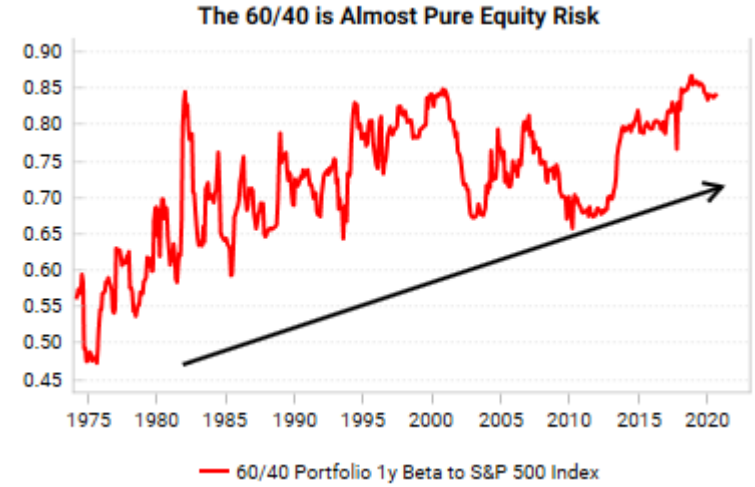
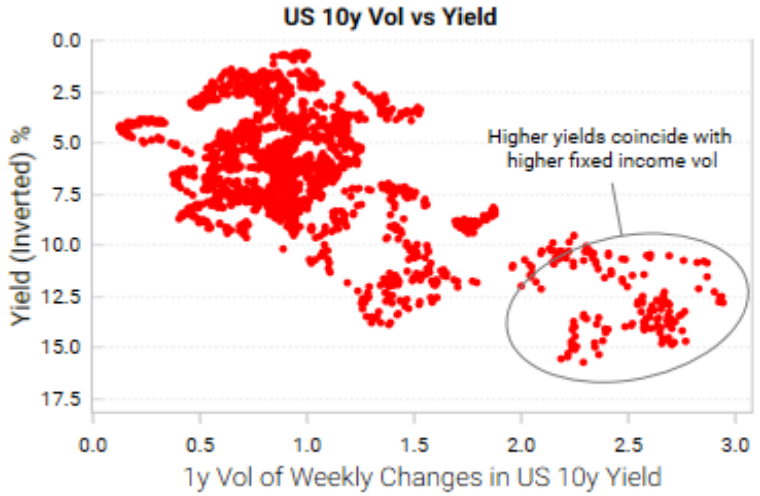
The end of the road for 60/40 portfolios

- Bonds are now a poor equity hedge given near-zero or negative yields
- **The traditional 60/40 portfolio is now riskier, and with lower return potential**
- Risk-parity solutions rely on equalising contributions to risk from different asset classes
- This means employing higher leverage on asset classes with lower volatilities – but leverage is a dangerous game in the Ocean Regime
- Risk-parity relies on a negative correlation between stocks and bonds to work
- **In the Ocean Regime, this correlation will likely become positive – making risk-parity much more risky**

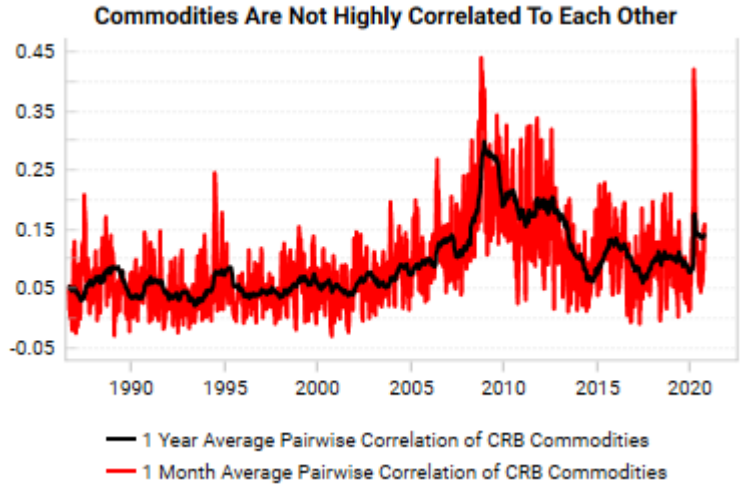


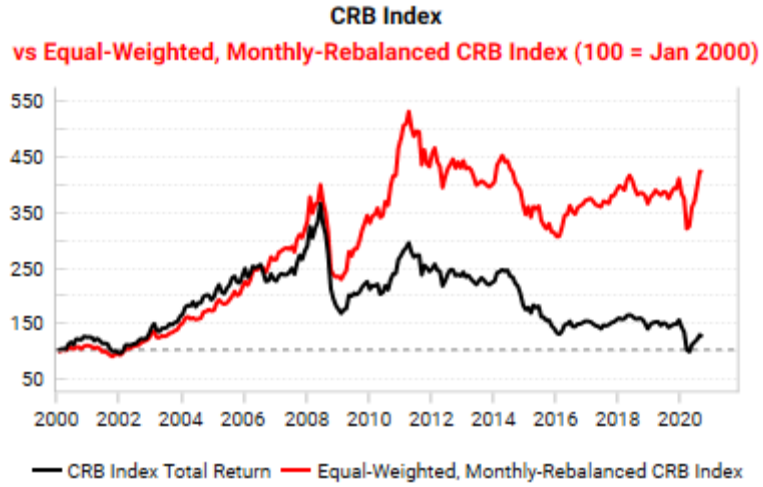


Source: Bloomberg, Macrobond and Variant Perception

Making the most of commodities in a portfolio

- A buy-and-hold portfolio of commodities has historically not served investors well, but an actively managed portfolio has
- Commodities offer a rebalancing premium in portfolios because they are volatile and are not correlated to each other
- Thus an equally-weighted portfolio of CRB commodities that is rebalanced frequently can enhance the value of commodity allocations in portfolios
- Rebalancing volatile commodities forces you to buy low and sell high
- See our report from July 2020, ***Portfolios for the High Seas***





Source: Bloomberg, Macrobond and Variant Perception

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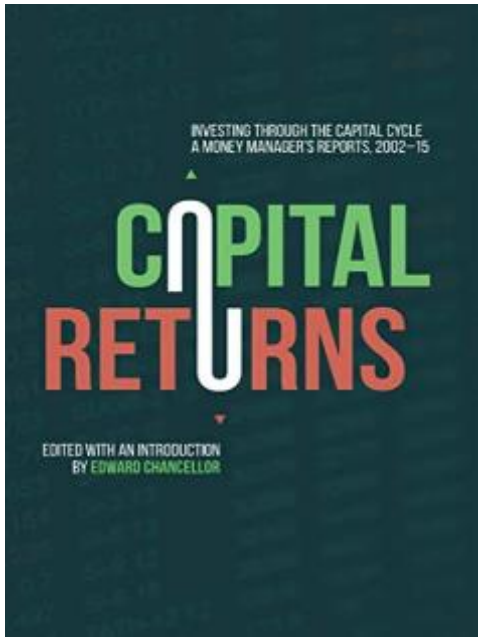
The capital cycle

Finding the most capital scarce commodity sectors to invest in

The capital cycle tells us what to buy

Plenty has been written about the capital cycle over the years, but by far the best is *Capital Returns: Investing Through the Asset Cycle*, by Marathon Asset Management.

This inspired us to create our own Capital Returns framework to **screen for capital-scarce sectors that outperform capital-abundant sectors on a 1-3 year forward basis.**



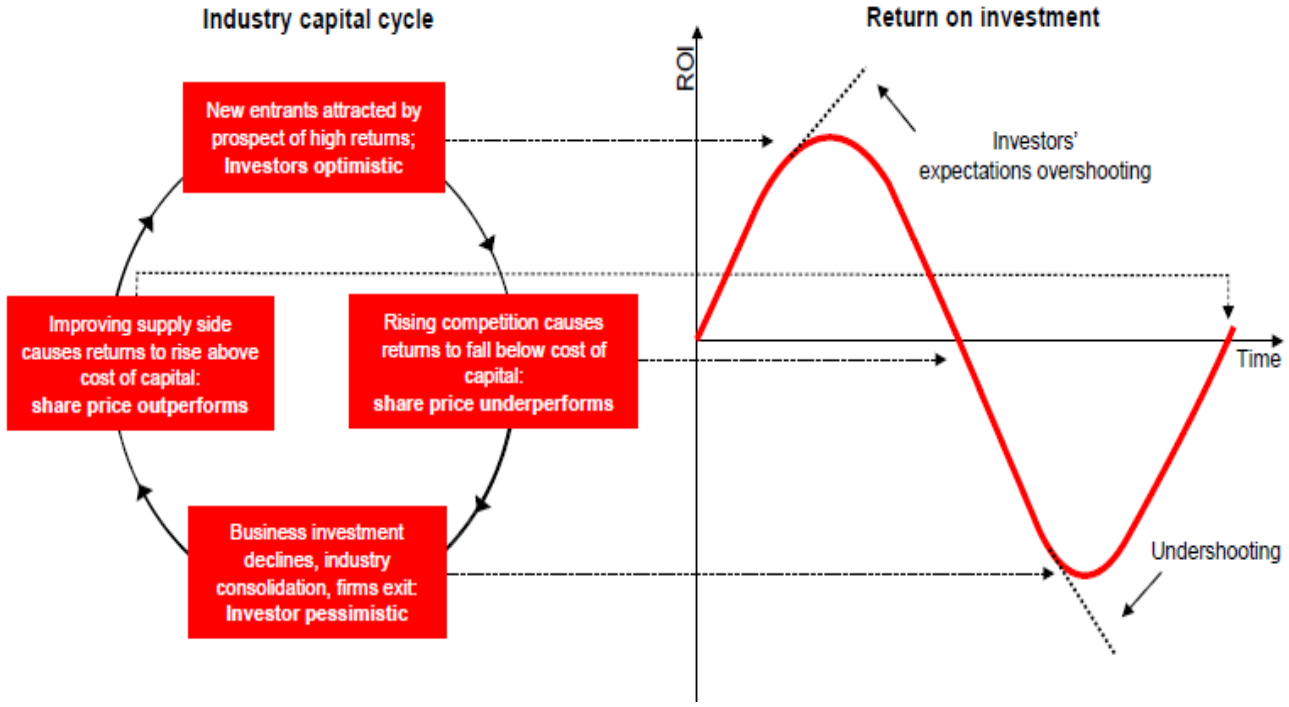
Source: Bloomberg, Macrobond and Variant Perception

Capital scarcity drives higher future equity returns

- The capital cycle follows a mechanical and repeatable process:

    1) large industry-wide investment coincides with a peak in investment returns
    2) this attracts new entrants, eroding incumbent company returns and become unprofitable
    3) firms exit and capital flows away, creating a much more profitable environment for the survivors

- This process typically takes 2-3 years for investment returns to materialise from the point of peak capital scarcity



Source: Bloomberg, Macrobond and Variant Perception

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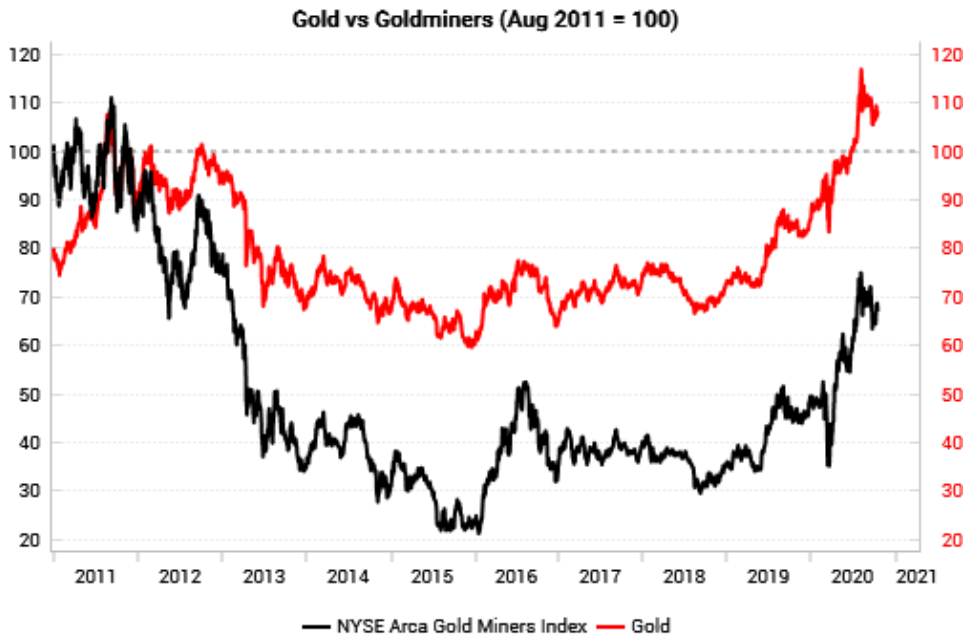
Oil and Gas

No more hate

Energy reminiscent of goldmining bear market in the 2010s

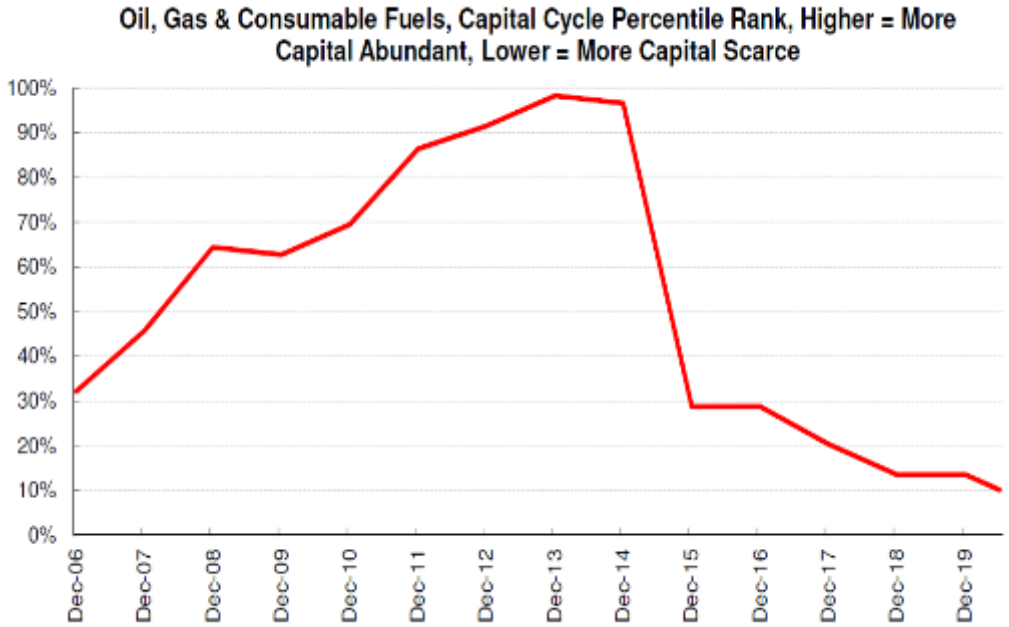
- Goldmining equities saw a multi-year bear market after the 2011 peak in gold prices
- They then experienced a protracted bottoming process, lasting even after gold prices stabilised in 2016
- It was only the surge in gold prices from 2019 that propelled goldmining equities higher
- We see the potential for a similar dynamic to play out for the energy sector – currently in its sixth year of a bear market



Source: Bloomberg, Macrobond and Variant Perception

Capital is very scarce for energy companies

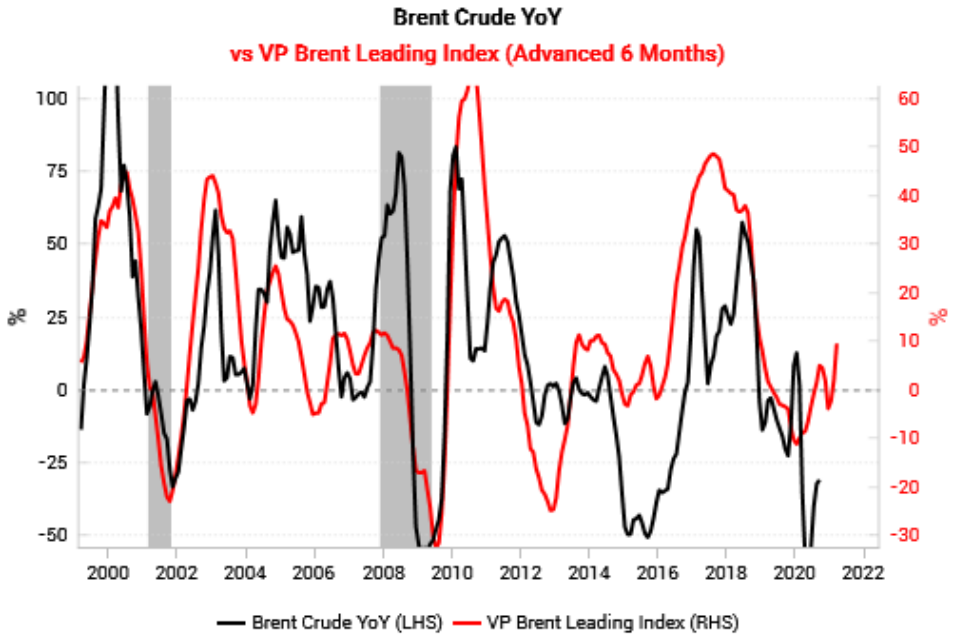
- According to our **Capital Returns** framework, oil producers saw an extended period of abundant capital availability before the 2014 oil price crash
- After the crash, capital become increasingly scarce – **this is forcing the industry to rationalise, reducing competition for the survivors**
- We proxy for capital scarcity using Capex + R&D to Asset ratio, D&A to Asset, and ROIC



Source: Bloomberg, Macrobond and Variant Perception

Cyclical leading indicators positive for crude

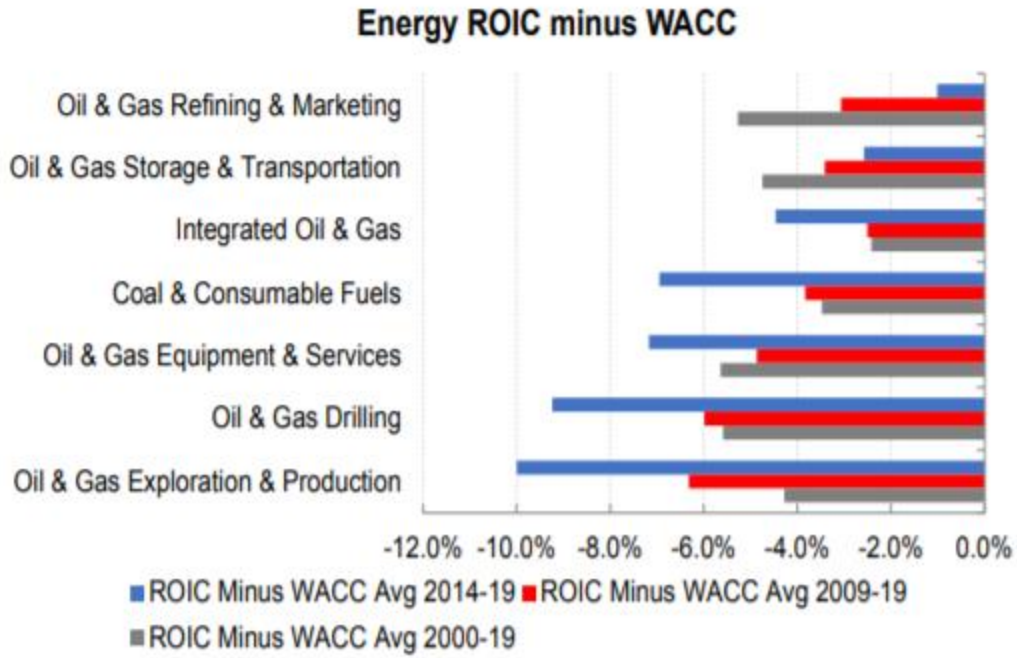
- **Cyclical as well as structural factors are starting to improve for oil**
- Our leading indicator for crude oil is rising and has turned positive
- This has been driven by signs of economic recovery - led by China - and tight supply



Source: Bloomberg, Macrobond and Variant Perception

Energy can be a minefield - stock selection is important

- It is important to differentiate different companies within energy and identify the best assets to invest in
- Capital-intensive industries like energy **are subject to large boom-bust cycles**
- As a whole, the energy industry has failed to achieve sufficient return on invested capital through the cycle for shareholders
- The chart on the right from our report: ***Improving Stock Selection - October 2019***, shows the aggregate destruction of value as boom turns to bust



Source: Bloomberg, Macrobond and Variant Perception

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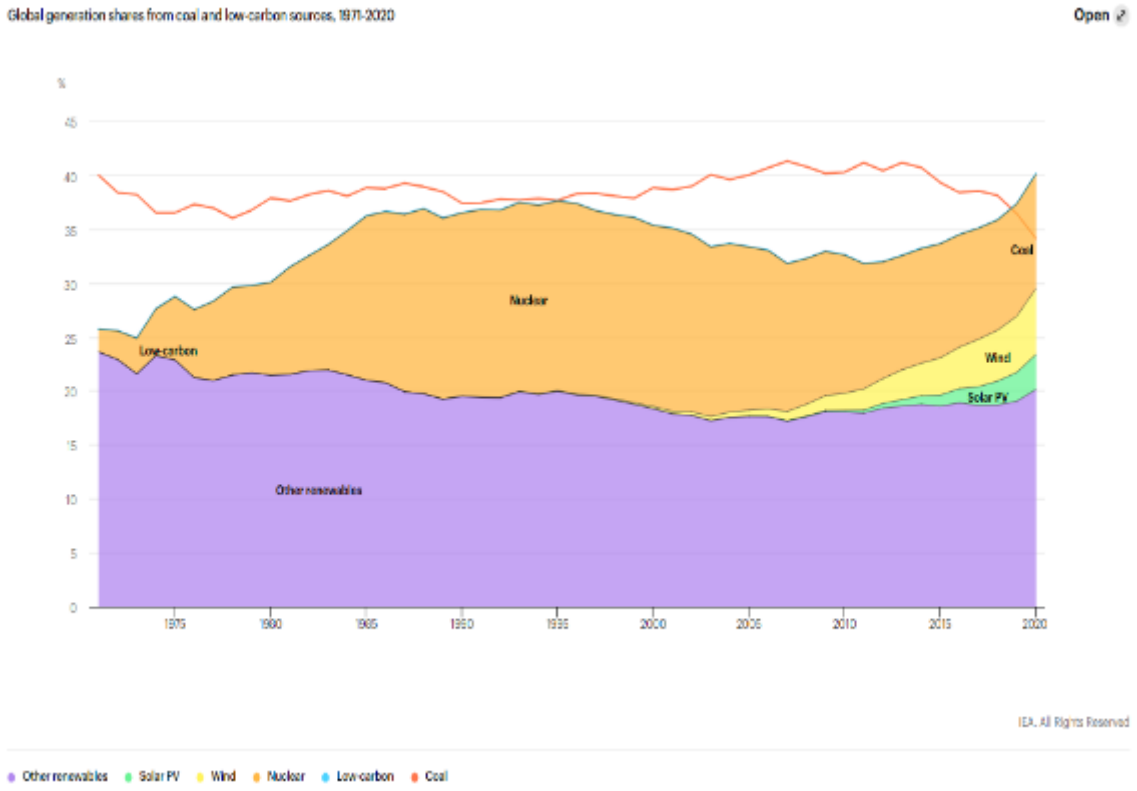
Coal

One last puff of the cigar butt

Coal: vital for EM, a pariah in DM

- Coal still accounts for **more than one-third of global electricity generation**
- Coal's share of electricity generation in EM countries like China and India is in the range of 60-70%. In the US/European union, the equivalent share is 10-15%
- Coal companies are treated as pariahs, given the ascendance of ESG investing
- Coal investing within DM fits into the "last puff of the cigar-butt" category
- In EM, the runway appears longer



Source: Bloomberg, Macrobond and Variant Perception

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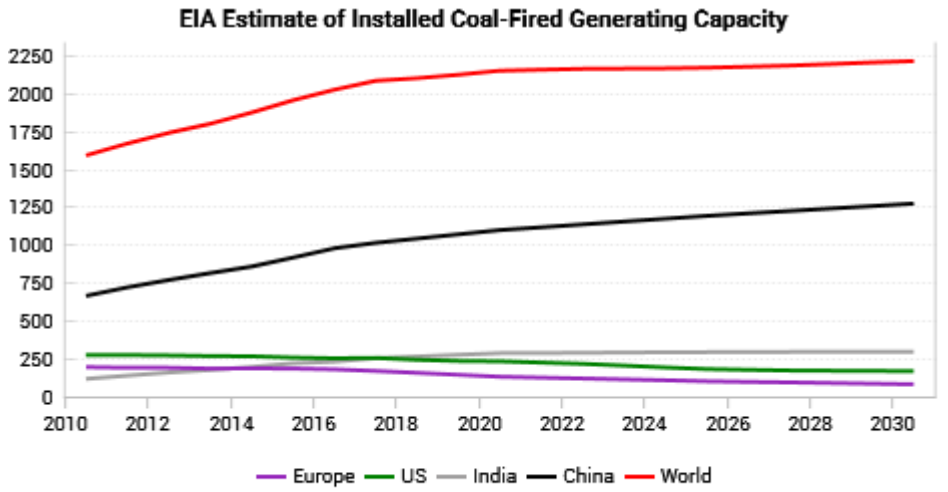
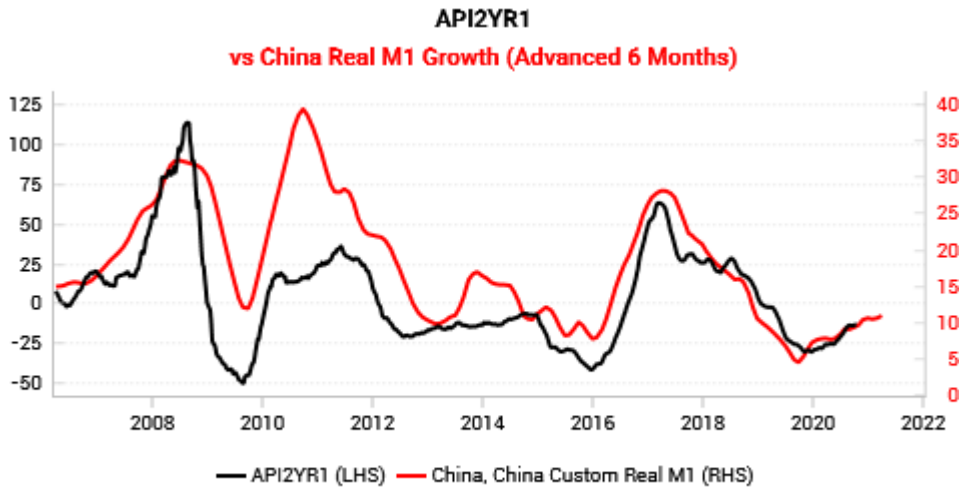
Coal is a China story

- China's coal-fired generating capacity is 50% of the world total
- China coal-fired capacity is set to keep growing over the next decade and offset losses in DM countries
- The Chinese economic cycle has typically led export prices for coal
- Chinese real M1 growth has led API2 coal prices consistently

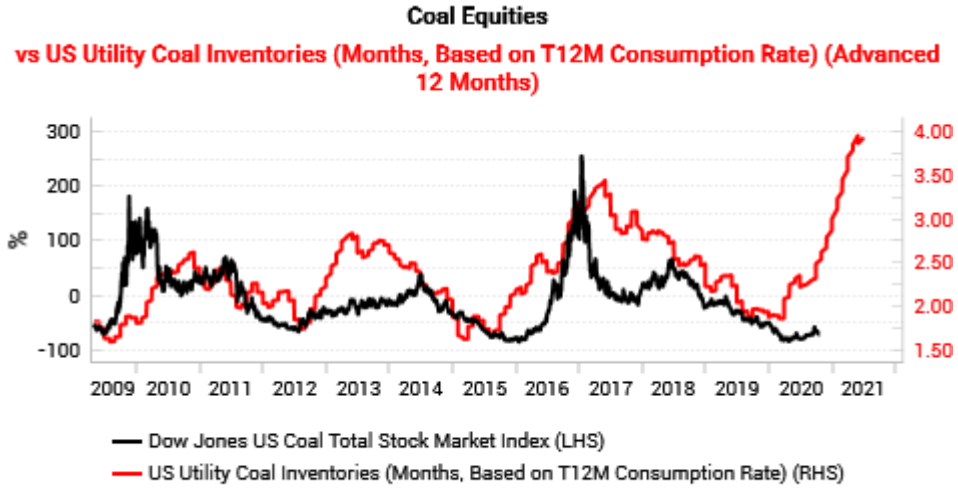


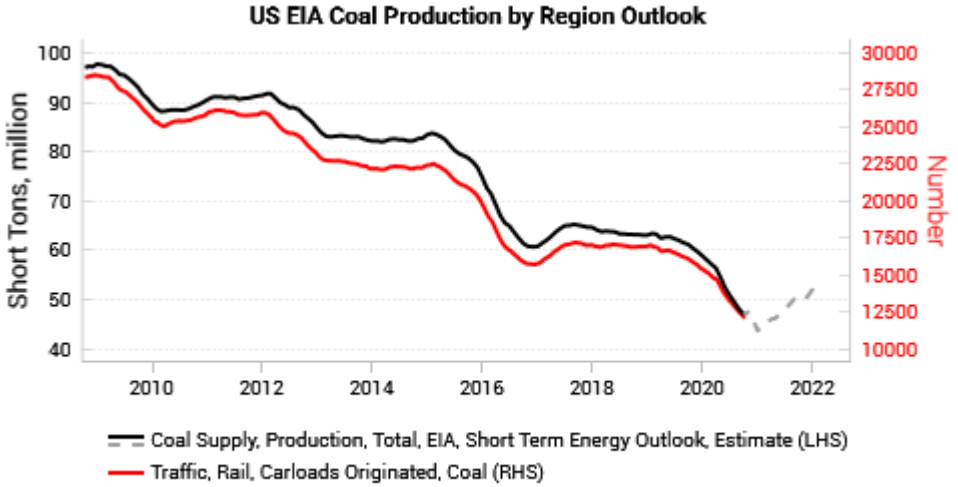


Source: Bloomberg, Macrobond and Variant Perception

US coal companies are at cycle lows

- The US natural gas glut has crushed the coal industry
- Low natural gas prices have accelerated switching trends toward gas-fired power plants away from coal
- Coal is relatively easy to store and remains important for utilities as a low-cost way to ensure grid resilience
- Surging US coal inventories have historically been a contrarian sign
- **More coal burning will be encouraged as natural gas prices normalise by rising over the next 12 months**





Source: Bloomberg, Macrobond and Variant Perception

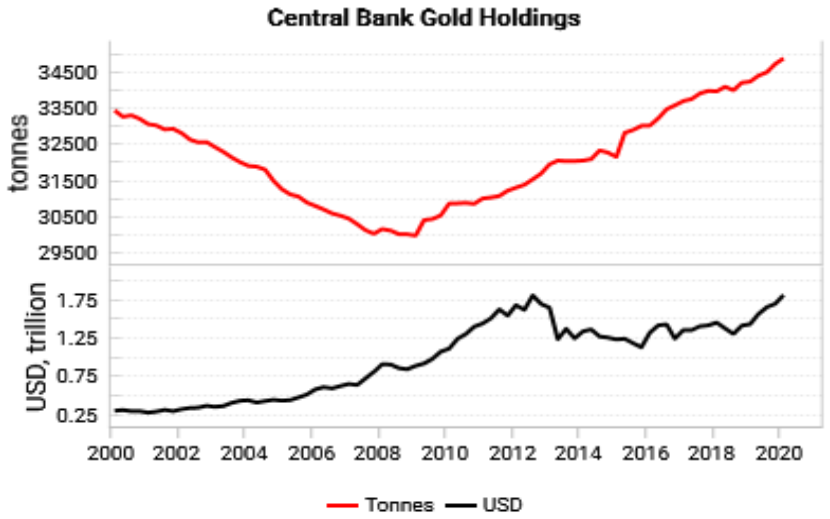
VARIANTPERCEPTION

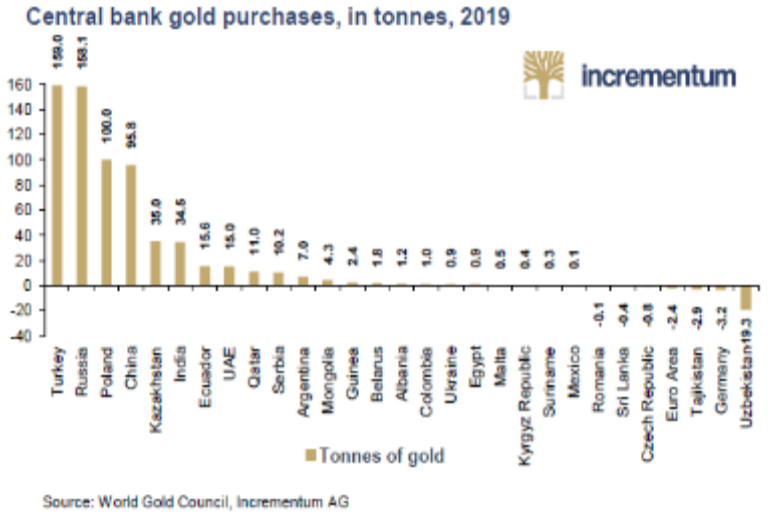
Gold and silver

The 1st and 2nd placed metals to invest in

Own what central banks are short of

- After years of selling their gold, central banks around the world have been steadily increasing their gold reserves
- As the dollar is progressively devalued and inflationary risks rise, central banks are diversifying away from the dollar
- Moreover, as the US flexes its financial muscles and uses the dollar as a tool of diplomatic punishment, countries such as Russia and China are turning away from the USD, and increasing their gold reserves
- **Owning what central banks are short of will likely prove a highly profitable endeavour**





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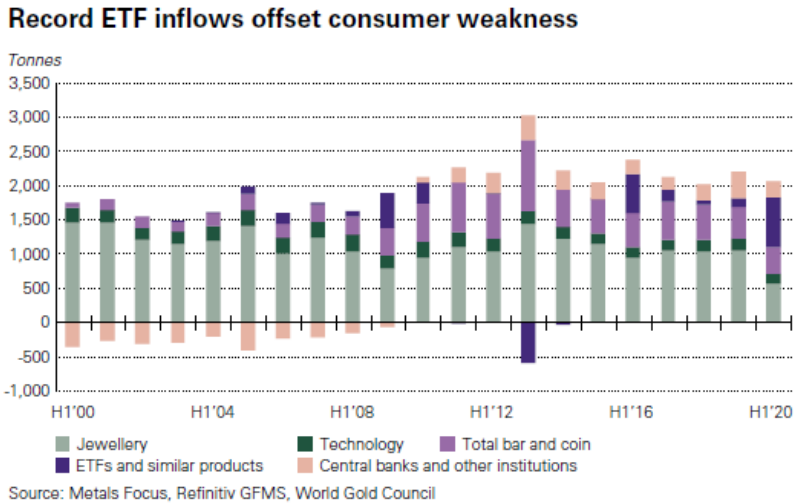
Source: Incrementum AG, Bloomberg, Macrobond and Variant Perception

Investment demand for gold soaring

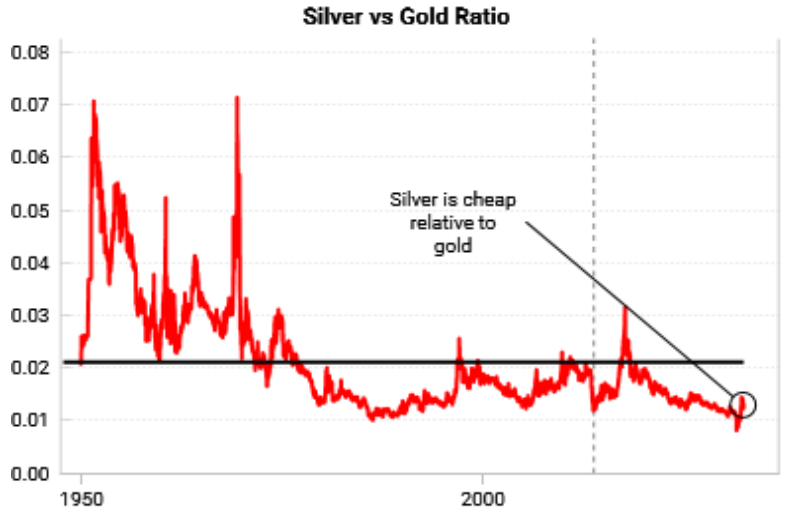
- Gold is not only a hedge for inflation, it is a hedge against uncertainty
- 2020 has seen investment demand for gold soar as the global economy grapples with the impacts and uncertainty from lockdowns
- Consumer demand, eg jewellery, has collapsed this year as recessions hit around the world
- However, demand for ETFs and other investment products has picked up the slack – accounting for an unprecedented 42% of gold demand in 1H20
- Investment demand for gold is likely to remain strong in the Ocean Regime of heightened inflation risks

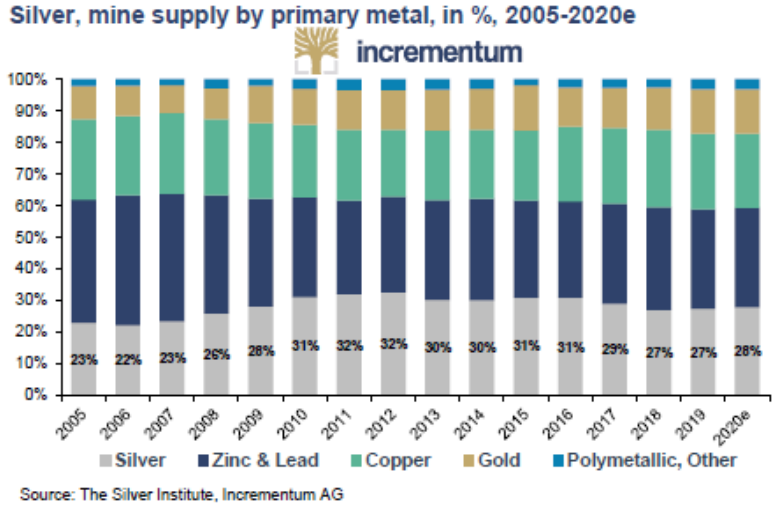


Source: World Gold Council, Bloomberg, Macrobond and Variant Perception

Don’t forget 2nd placed silver

- Silver is similar to goldminers in that it offers extra risk – but potentially greater reward – compared to gold
- Silver is cheap compared to the gold price, with one ounce of gold buying 77 ounces of silver. This was a low as 40 ounces in the early 2010s and 20 ounces in the early 1980s
- Silver is a “by-product” metal, with the majority of supply coming from mines whose main output is another metal – meaning supply is slow to respond
- **Supply constraints, relative cheapness and growing investment demand are a recipe for explosive silver growth in the coming years**





VARIANTPERCEPTION

Source: Incrementum AG, Bloomberg, Macrobond and Variant Perception

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Copper

Copper's clean sheet

The Age of Copper

- **Copper will play a pivotal role in the clean energy revolution sweeping across the world**

- Policymakers are creating permanent demand in renewable energy and EV-related (electric vehicle) infrastructure

- EVs use 4x more copper compared to a normal passenger car's internal combustion engine. Solar panels and wind turbines require 12x more copper than previous methods

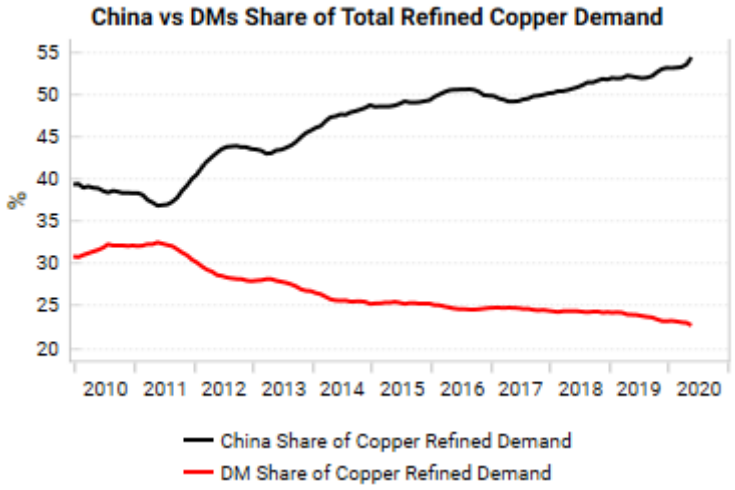
- Copper has many useful properties that make it a core input for manufacturing and electrification: high durability, high malleability, high electrical and heat conductivity, no loss of quality upon recycling

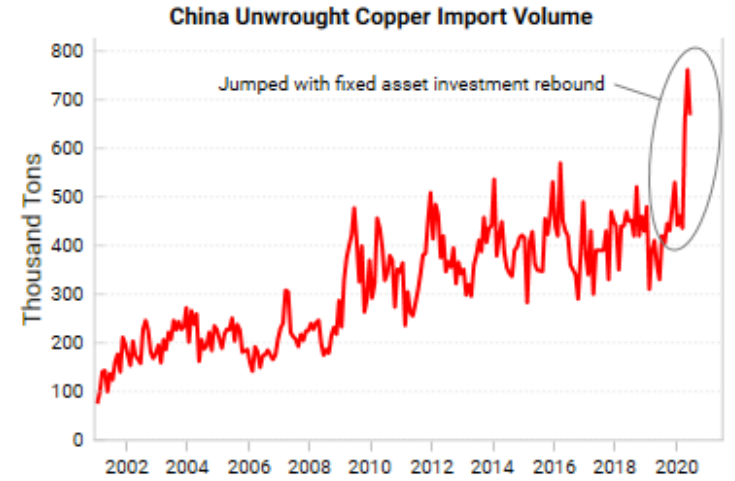
- It also has antimicrobial properties – an additional source of demand from the healthcare industry amid the pandemic

Source: Bloomberg, Macrobond, The Economist, Copper Alliance and Variant Perception

The Chinese copper whale

- China's dominance in the copper market has been growing
- **China consumes more than half of the world's copper but only owns ~5% of global copper resources**
- The push towards self-sufficiency is clear with many Chinese miners recently acquiring stakes in overseas copper deposits
- Still, China's demand for refined copper is booming. The core driver comes from policy stimulus aimed at stepping up fixed-asset investment
- Western policy is shifting towards "Chinaficiation" with massive infrastructure spending on the horizon
- **The West will join China with an ever greater appetite for copper**





Source: Bloomberg, Macrobond and Variant Perception

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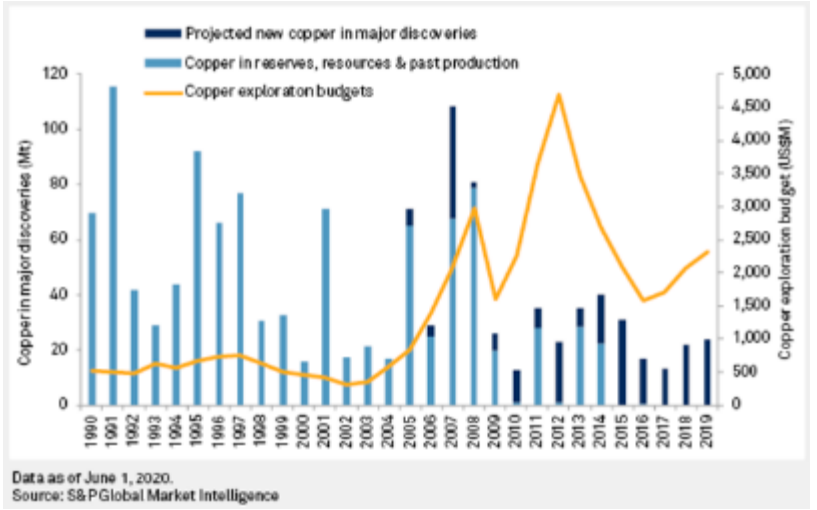
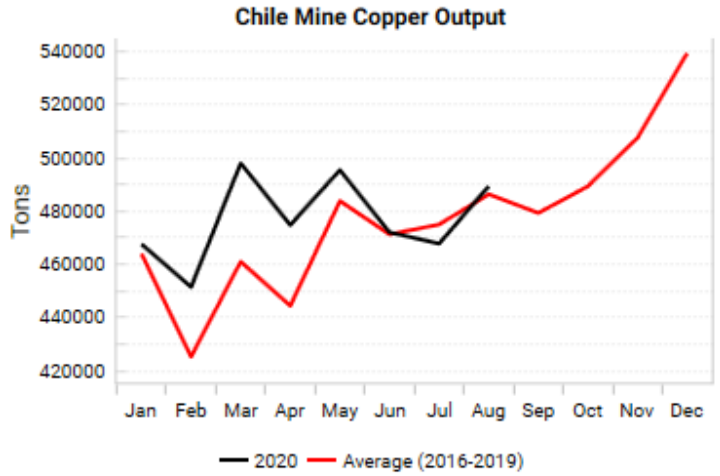
Copper risks going into a huge deficit

- If copper demand starts to accelerate, then the dearth of new projects could push the copper industry into a huge deficit
- Even for projects that are due to go live, the potential to discover new copper is limited
- Only 102 million tons of copper has been discovered in the last 10 years (992 million tons was discovered between 1990-2008 with much less investment, according to SPGMI's Reserve Replacement Report)
- There are also copper supply risks in eg Chile – the world's biggest producer – due to worker protests and strikes





Source: S&P GMI, Bloomberg, Macrobond and Variant Perception

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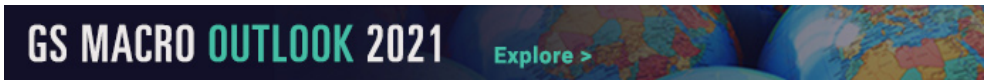
Top Ten Market Themes for 2021: A Shot in the Arm



Following on from our Global Economics Outlook, here we lay out the top macro and market themes that we expect to dominate the investment landscape going into 2021. We expect that a strong vaccine-led recovery in global growth will provide a large boost to cyclical assets, including commodities, cyclical equity sectors and emerging markets. However, the path may be tricky as the market balances spot growth weakness with a forward outlook that is more supportive.

1. **Vaccine-led Recovery to Lift Cyclical Assets**
2. **Navigating the Path**
3. **A Steeper Real Yield Curve**
4. **Europe: Two Steps forward, One Step Back**
5. **China: Forging Ahead, with Assets in Tow**
6. **A New Commodity Bull Cycle**
7. **EM Outperformance: More than Before, Less than Sometimes**
8. **Rotations: Cyclical, North Asia in Focus but Vaccine News Key to Near Term**
9. **In Search of New (and Old) Safe Havens, Hedges and Diversifiers**
10. **Risks from Corona and Beyond**

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Top Ten Market Themes for 2021: A Shot in the Arm

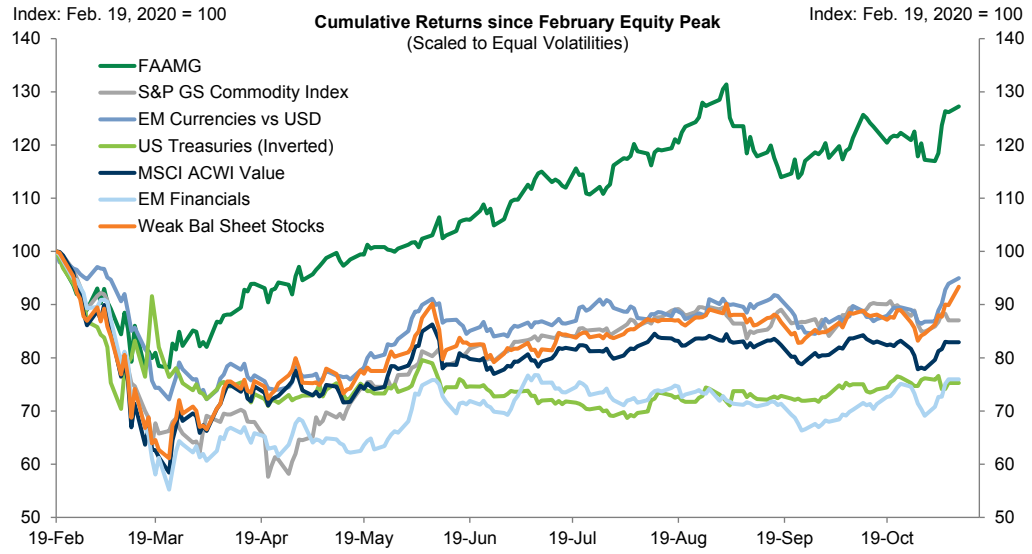
1. Vaccine-led Recovery to Lift Cyclical Assets

- Global economic recovery to broaden and deepen next year.
- Cyclical assets do not fully reflect our forecast of sustained expansion.
- A safe, effective vaccine is key to our confidence in the outlook.
- Policymakers will welcome, not prevent, easier financial conditions.

Despite an impressive rebound through the middle months of 2020, economic activity remains deeply depressed throughout most of the world. Our economists estimate that world GDP excluding China will be about 4% below pre-covid levels at the end of this year, and perhaps 6% or so below trend. Unlike most other business cycles throughout history, the world economy today is being held back by a public health crisis caused by a contagious virus. As a result, the economic and market outlook largely depend on the prospects for controlling the virus, and therefore the timeline for restoring activity in high-contact service-providing industries. Therefore, through a public vaccination campaign—and with the help of friendly monetary and fiscal policy—it should be possible to recover a large portion of lost output over the next year. Investors should position for a broader and deeper global economic expansion in 2021, which should favor risky assets in general, but the most growth-sensitive assets in particular, including commodities, cyclical equity sectors and emerging markets. This macro backdrop should also support our "down in quality" recommendations in credit and allow the volatility premium in risky assets to normalize further. Safe-haven assets such as the US Dollar and US Treasuries should continue to underperform, especially if inflation expectations pick up.

Global equity indices are on track for decent gains this year, but we do not think markets have yet priced a robust cyclical recovery. For example, while the S&P 500 is up this year, the gains have been extremely narrow: the five mega-cap "FAAMG" firms (Facebook, Apple, Amazon, Microsoft and Google, which account for about one-fifth of the index market capitalization) are up roughly 40%, while the rest of the market is still down on the year. Other conventional cyclical assets have moved sideways since the spring (Exhibit 1). Markets thus appear to have taken more credit for the large drop in real yields than for continued strong growth. Markets also appear doubtful that inflation will eventually pick up—inflation-linked bonds price the outlook for US CPI inflation 0.5-0.75% below the Fed's restated objective—and are arguably still discounting a type of "secular stagnation" across developed markets (with negative real rates priced far out DM yield curves). Our work mapping growth expectations into key assets still strongly suggests that the 6% increase in global real GDP our economists forecast for 2021 is not yet fully reflected in market pricing.

Exhibit 1: Cyclical Assets Poised for Stronger Performance



Source: Bloomberg, Goldman Sachs Global Investment Research

Regulatory approval of a safe and effective vaccine is included in our base case forecast and central to our optimistic market outlook. To end the covid crisis, we need to reach "herd immunity"—the point at which the susceptible portion of the population becomes small enough that new infections no longer grow into outbreaks. Vaccination provides a faster and safer path to herd immunity than infections, and therefore has been a top priority for policymakers and the medical community since the coronavirus appeared. We should learn much more about the vaccine outlook over the next few months, and the early indications from the Pfizer/BioNTech trial are at the more promising end of expectations in terms of vaccine efficacy. More complete Phase 3 trial results should be forthcoming from both Pfizer and Moderna through the next month, and results from several other firms (including AstraZeneca and Johnson & Johnson) should follow over the coming 1-3 months. If these trials result in a vaccine with relatively high efficacy, as preliminary Pfizer results suggest, it should be possible to inoculate large parts of the world's population over the next 12-18 months.

Cyclical assets should also benefit from a friendly policy mix—even if large fiscal easing in the US appears less likely after the elections. Major central banks (other than the PBoC) will likely keep policy rates at their practical minimums for at least a couple more years, and investors can expect active support for bond markets from quantitative easing (QE). Moreover, policy backstops put in place in 2020—e.g., the Fed's corporate credit facilities and the EU Recovery Fund—should also help limit the fallout from any temporary lockdowns. In most other countries (including China) policy should generally remain supportive of a continued recovery, even if it turns moderately less easy over the course of the year. Rapid growth and very easy macro policy should be a potent mix for cyclical assets next year.

We are optimistic about the global economic outlook for 2021, but are not necessarily expecting a smooth path. There will be a gap between the approval of vaccines and

reaching "herd immunity" that will need to be bridged with public health measures and ongoing policy support—so the (largely unhedgeable) risks to the economy and markets from the coronavirus will be with us for at least several more months. And the more upfront credit markets take for an effective vaccine, the more balanced the risks are further out. The remaining sections discuss our views on how best to navigate these issues and others in the year ahead.

2. Navigating the Path

- Market may look through weakness if medium-term (vaccine) news is solid ...
- ... but that creates a worse asymmetry for assets further out.
- Despite a robust 2021, near-term risks from lockdowns and the "wait" for fiscal support.
- So still some vulnerability to "spot" risks in the next few months.

The prospect of an effective vaccine that underpins our baseline economic forecasts is clearly bullish for the medium-term market outlook. With the US election out of the way and the potential for a worldwide vaccination campaign ahead, there are good reasons for risky assets and government bond yields to move higher. Investors are likely to closely scrutinize further vaccine trial results, but the Pfizer vaccine efficacy data appear to be coming in well ahead of expectations.

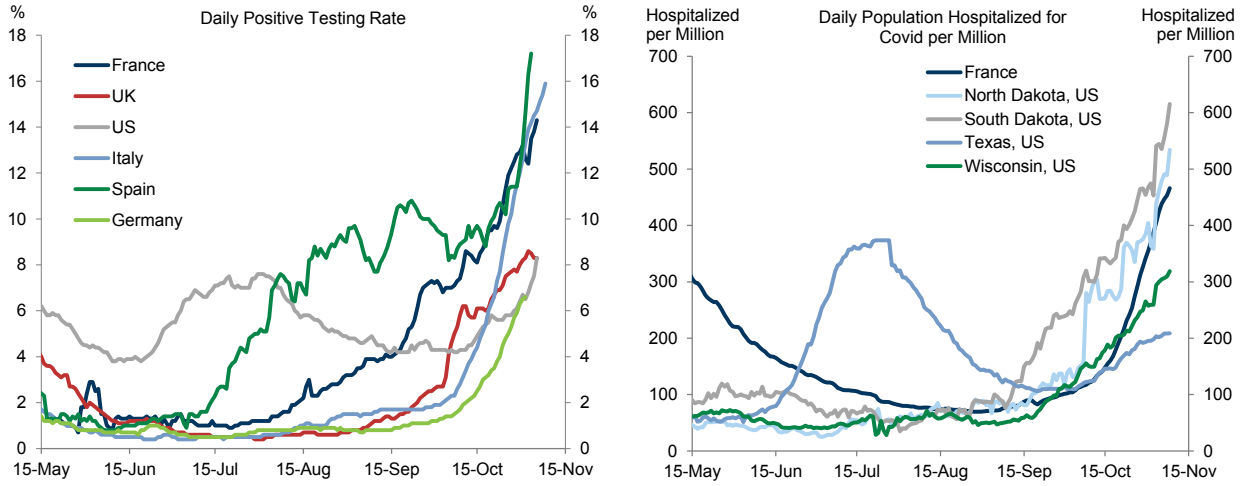
Under simplifying assumptions, reaching "herd immunity" requires immunity in the population (through infection or vaccination) equal to 1-1/R0, where R0 is the disease basic reproduction number.[1] If R0 were 2.5, for example (as suggested by some studies), reaching herd immunity would conservatively require immunity in 60% of the population, although that threshold may be lower because of population heterogeneity (some people are more likely to spread infections than others). If, hypothetically, 10% of the population has gained immunity through infection and will not initially get vaccinated (although in practice this group could choose to), a vaccination campaign would need to inoculate 50% of the population. This could be achieved, for example, by vaccinating 67% of the population with a 75% effective vaccine, but with a 90% effective vaccine (as indicated by the early Pfizer data) that could be achieved by vaccinating only 55% of the population. So it is not surprising that markets, and cyclical assets in particular, are responding so strongly to the Pfizer trial results. But the more credit that asset markets take upfront for this outcome, and the more growth upside they price, the worse is the asymmetry further out into 2021. At that point, markets will also still have to wrestle with the knotty questions of efficacy in elderly populations, plus production and distribution on a large scale. So while we are confident about the destination—significant further upside in cyclical assets—the path is complicated by the deceleration in our growth forecasts in the current quarter and the market pricing of a more upbeat forward outlook.

Chief among those risks is that of broader and deeper lockdowns, including in the US,

[1] In reality, the herd immunity threshold is not a fixed number, but a function of effective transmission rates, which are determined by the degree of social distancing and mask wearing, temperatures, immunity in sub-populations, and other factors.

which may temper optimism about the cyclical recovery—at least until a safe and effective vaccine has been confirmed. European governments have so far introduced milder restrictions on public activity compared with earlier this year: schools, factories, and some shops will remain open, for example. In some other countries that experienced "second waves" (e.g., Australia and Ireland), restrictions were tightened before case growth peaked. European countries may similarly have to tighten or lengthen planned lockdowns to stabilize the public health situation. Lockdowns in some US states also appear possible. The US national positive covid test rate is comparable to that of Western European countries, and several states are seeing daily hospitalization rates similar to in continental Europe (Exhibit 2). Downgrades to US growth expectations on the back of new covid restrictions would likely restrain pro-cyclical trades, especially longs in breakeven inflation and nominal rate payers. Recent market shifts mean that some upcoming weakness has now been priced in Europe and energy markets, but less clearly elsewhere.

Exhibit 2: Infections and Hospitalizations Rising



Source: The Covid Tracking Project, ECDC, Our World in Data

Next, the fiscal impulse in the US is likely to be smaller relative to a "blue wave" scenario and there is also risk of slippage. While the Senate run-off races in Georgia could still produce a united government after January, most likely meaningful fiscal support in the US will require compromise between incoming President Biden and the Republican Senate. Our economists expect a $1 trillion stimulus package (potentially enacted before the inauguration on January 20), although this is less than half of what we might have seen under a Democratic sweep, and should provide a small positive fiscal impulse to US growth in coming quarters. There are risks in both directions, however. On the one hand, while equity markets appear to be taking credit already for the fact that higher corporate taxes are unlikely to be enacted, it is possible that a fiscal package could take longer to hammer out or provide a much smaller boost. On the other hand, prediction markets ascribe around 1 in 4 odds of the Democrats winning both races in Georgia, and taking control of the Senate on January 5. If the Democrats do win those races, higher taxes and higher fiscal spending will be back on the agenda, with the associated rotations in markets.

The more general challenge over the next couple of months is that near-term cyclical momentum is forecast to be weaker (substantially so in Europe), even as the market may be processing news that the medium-term outlook is improving. A key question is how much the market will be willing to look through the first to price the second. With the potential for a large fiscal stimulus less likely, the market is even more dependent on positive vaccine news to support a cyclical repricing. The news from Pfizer certainly supports an aggressive repricing, but if there are setbacks or worse news on the virus, such as mutations, then attention may shift back to near-term cyclical risks. With lower likelihood of substantial upward pressure on rates from a large fiscal impulse, that may mean that yield-seeking once again becomes a dominant theme among investors—favoring spread products in both DM and EM, receivers in steep EM curves and dividend-yielding and "long duration" stocks.

3. A Steeper Real Yield Curve

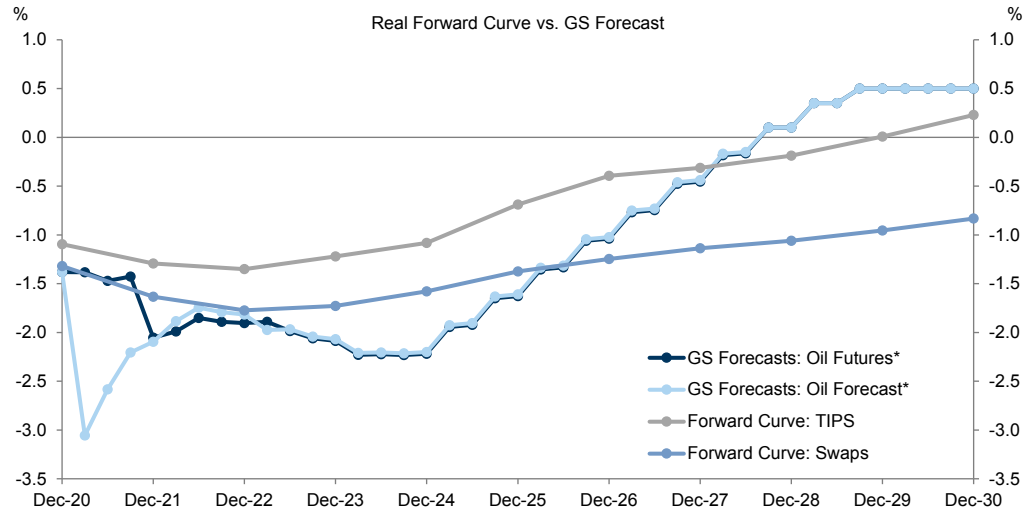
- We expect a steeper nominal yield curve in the US.
- And a much steeper real yield curve as breakeven inflation rises further …
- … which should fuel further USD weakness.
- Negative rates still unlikely, but weak inflation should limit upside for yields outside US.

Government bond yields collapsed at the onset of the coronavirus recession as central banks cut policy rates to their lower bounds and launched new QE programs. As the economic recovery consolidates next year, we expect to see more differentiation across the curve, with policymakers committing to keeping front-end rates low, but higher expectations for real growth and inflation driving long-end rates higher. This should be especially true in the US due to the Federal Reserve's new Average Inflation Targeting (AIT) framework, which commits the central bank to holding off on rate hikes until inflation has reached its target and is on track to overshoot it. We forecast that 10-year US Treasury yields will reach 1.30% by the end of next year, but 2-year yields will increase to just 0.25%—implying a steepening of about 30bp from current levels.

But developments in inflation-linked markets could be even more important next year—both for active risk taking and for cross-asset signals. Exhibit 3 compares the real forward curve with the path for real short-term rates implied by our economists' forecasts—i.e., the implied shape of the forward curve if markets immediately priced in the GS baseline view (calculated by subtracting annualized headline CPI inflation forecasts from a projection of the funds rate). We do not expect markets to price in these levels (in part due to various risk premia), but they indicate our directional views for the real yield curve. Taken literally, our forecasts would imply a 5-year real rate of about -2.1% (-1.9% excluding our above-forwards oil price forecast), compared with market pricing of -1.2%, and a 5-year/5-year forward real rate of about -0.15%, compared with market pricing of about -0.30%. In other words, we expect a steeper real yield curve, especially if our bullish oil price forecasts prove correct (see Theme 6 below). Currency markets will likely take signals from front-end real yields, with more deeply negative real yields coinciding with Dollar weakness against most crosses (including gold). Although higher long-end rates could put upward pressure on the Dollar

against certain crosses, the Dollar index has historically been negatively correlated with the slope of the US real curve.

Exhibit 3: Our Forecasts Would Imply Steeper Real Curve



*Funds rate minus annualized CPI inflation; after 2024, funds rate converges to 2.5% at a rate of two 25bp hikes per year.

Source: Goldman Sachs Global Investment Research

Outside the US, a key question will be whether any central banks move policy rates into (or more deeply into) negative territory. This would open up much wider distributions for long-end rates and have major implications for G10 currencies. We cannot rule out this possibility, partly because a few central banks, including the BoE, continue to say the option could be considered. But experience over the past year suggests the bar for negative rates is very high: despite a deep recession in 2020, no central bank with negative rates cut more deeply negative; no central bank with positive rates entered negative territory; and the Riksbank, which only exited negative rates in December 2019, decided not to cut back below zero. With negative rates off the table in practice, non-US DM bond yields should also move higher next year. We forecast that Bund yields will reach -0.40%, implying a lower-than-average "beta" to changes in US Treasury yields, reflecting expectations of stubbornly-low inflation in the Euro area and ongoing ECB bond purchases. That said, paying 30-year EUR swap rates can offer an attractive way to express greater optimism on global growth given very depressed expectations.

We encounter frequent concern that higher nominal and real rates could pose a problem for risky assets. Although a much sharper move than we anticipate could be disruptive for equities and credit, we think these fears are generally overstated. Our forecasts are for a relatively modest increase in yields and are driven by a further upgrade to the US outlook. Historically, cyclically-driven yield increases are generally not a sustained headwind for risk markets. With a firmly dovish Fed, the mix of growth and rates that we forecast remains a very favorable one. So we think the significance of rate shifts for other assets may be felt more in "rotations" than at the headline level (see Theme 8).

4. Europe: Two Steps Forward, One Step Back

- Policy actions in 2020 mean European assets offer better asymmetry than in the past.
- Long-end payers and the Euro could be compelling "reflation" trades.
- But lockdowns mean Europe should underperform over the near term.
- For now, pro-cyclical trades are better expressed in other regions.

Until fairly recently, Europe appeared be weathering the covid crisis better than feared. Although GDP contracted very sharply in Q2 (-12%qoq), it came back strongly in Q3 (+13%), helped by a stable public health outlook. The Euro area also avoided the banking system and sovereign credit stress that followed the GFC through decisive policy action, which included, at the supranational level, the ECB's Pandemic Emergency Purchase Program (PEPP) and the EU's Recovery Fund (or Recovery and Resilience Facility, RRF). We consider the latter a major institutional upgrade for the European Union—in effect, a step towards fiscal federalism—that may help facilitate Euro internationalization over time. Over the medium term, we expect European equities to benefit from the global rally and EUR/$ to participate in a broad Dollar decline.

However, the near-term European growth outlook has darkened due to a resurgent covid outbreak. France, Germany and the UK have announced partial nationwide lockdowns for November, and our economists expect Italy and Spain to follow suit. As a result, they now expect Euro area GDP to contract by 2%qoq (not annualized) in Q4 and expand by just +0.5% in Q1 2021. As discussed in Theme 2, other economies, including the US, also face lockdown risk this winter. But for now we expect the US outcome to be slightly less damaging to the economy, reflecting the state-led approach, warmer average temperatures, and perhaps lower tolerance for lockdowns for a given level of infections. Lockdown risk has clearly been reflected to a degree in recent European asset performance, but the full extent of the weakness in our forecasts probably has not. At least until covid case growth peaks—and that point may come earlier than expected if the recent stabilization in the UK and Spain extends—we think that investors should position for European underperformance, for example, EM equities relative to Europe, Euro underperformance relative to other Dollar crosses, and European inflation compensation underperformance compared with the US (Exhibit 4).

Exhibit 4: European Inflation Markets to Lag Behind

Source: Goldman Sachs Global Investment Research

Beyond the winter lockdowns, the outlook for a European economic and asset market recovery looks more promising, but still far from assured. Compared with this time last year, Europe is much better prepared for a pullback in activity, so lockdowns should not spiral into something much worse. Policy actions during the acute phase of the covid crisis have stabilized European sovereign bond markets and thereby reduced tail risks for other European assets. The fact that the ECB looks unlikely to cut rates more deeply negative also limits downside for nominal bond yields and the exchange rate. Partly for these reasons, some European assets could offer attractive upside in a broad global recovery—e.g., 30yr EUR payers or longs in European satellite currencies vs USD (e.g., NOK or PLN). But unlocking the upside in European assets requires higher domestic and global growth, and markets will likely question that upside until local outbreaks ease. Moreover, political risks, debt sustainability concerns and regional fragmentation issues have not been entirely settled. Upcoming national elections in 2021 (Germany and the Netherlands) and 2022 (France and, possibly, Italy after the election of the President) will likely keep a spotlight on Europe's institutional fragilities.

5. China: Forging Ahead, with Assets in Tow

- After a long cycle of underperformance, China growth to stay ahead in recovery.
- China assets under-credited for that shift.
- CNY (and North Asia FX) strength can extend further ...
- ... as renewed trade surpluses warrant more appreciation.

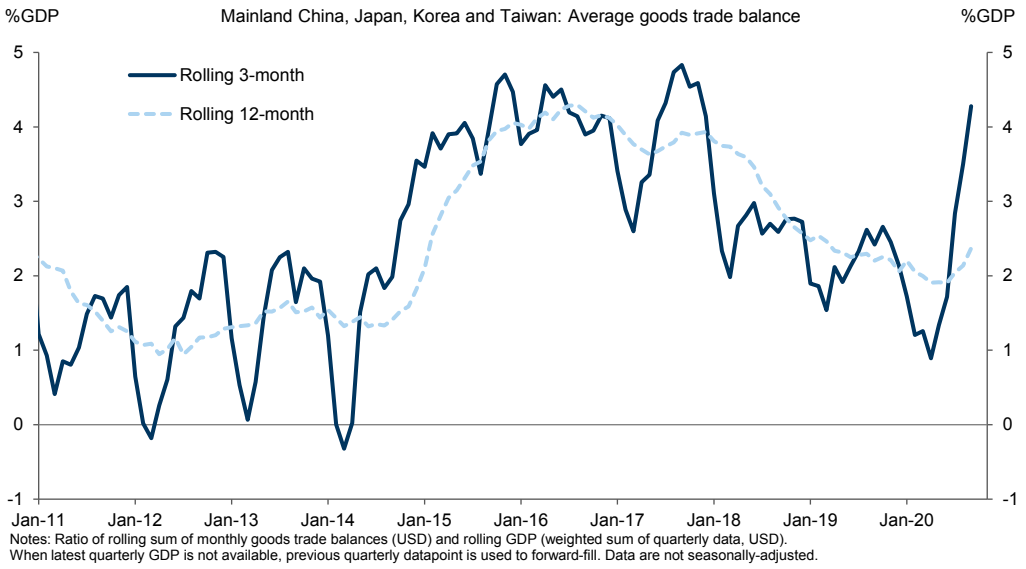
China's economy has spent several years negotiating a bumpy slowdown, especially following the fading of the post-GFC boom. This has also led to a long cycle of underperformance in asset markets, most clearly after the bursting of the A-share bubble in 2015 and the CNY devaluation in that summer. But the remarkable early

recovery from the covid-19 pandemic has meant that the level of GDP in China is already above pre-pandemic levels (something not likely to be achieved in the US and Euro area until next year at best). And, looking into 2021, even with some degree of tapering in the pace of credit growth and policy support, our China team's growth expectations of 7.5% real and 10%+ nominal sets us up for a period of solid outperformance that we think is still underappreciated by asset markets, notwithstanding recent rallies.

Alongside the growth outperformance, China is also the only major economy where interest rates have normalized back to pre-covid levels. Chinese government bonds are now included in major benchmark indices as part of efforts to internationalize the Renminbi, offer attractive yields of between 2.5% and 3%, and have a low correlation with other EM local rates. Apart from the consistent portfolio inflows that this is already bringing about, the case for further CNY appreciation—our new 12m forecasts for USD/CNY stand at 6.30—also rests on a friendlier trade policy outlook from an incoming Biden administration and growing undervaluation, which is helped by a sharp improvement in the external trade balance that is likely to persist into 2021. Moreover, as we have discussed, the declining correlation between CNY and CGB (Chinese Government Bond) returns suggests that combining exposures offers better volatility-adjusted carry relative to either simple FX forward positions or longer-end bonds on their own. More broadly, CNY and China-linked assets may be especially attractive as we traverse a tough winter given demonstrable outperformance in covid management, at least until there is definitive news about an effective vaccine.

The sharp improvement in trade balances and current accounts is a development that is being repeated across North Asia—including South Korea, Japan and Taiwan (Exhibit 5). All these markets have achieved a high degree of virus control, and face currency appreciation pressure. And indeed, CNY and these Asian currencies may need to accept more significant appreciations, in implicit exchange for a ratcheting down of tariff and quota pressure that escalated under the Trump administration. The reported suspension of the counter-cyclical factor in the CNY fixing suggests at least some openness to this outcome. But the risk is, of course, that without more significant appreciation, trade tensions and tensions between China and other parts of the world still reeling from the aftershocks of covid-19 may re-emerge in different forms, creating headwinds for Chinese assets in the medium term.

Exhibit 5: Sharp improvement in trade balances across North Asia (Mainland China, Japan, Korea, Taiwan) likely to beget further currency appreciation



Notes: Ratio of rolling sum of monthly goods trade balances (USD) and rolling GDP (weighted sum of quarterly data, USD).
When latest quarterly GDP is not available, previous quarterly datapoint is used to forward-fill. Data are not seasonally-adjusted.

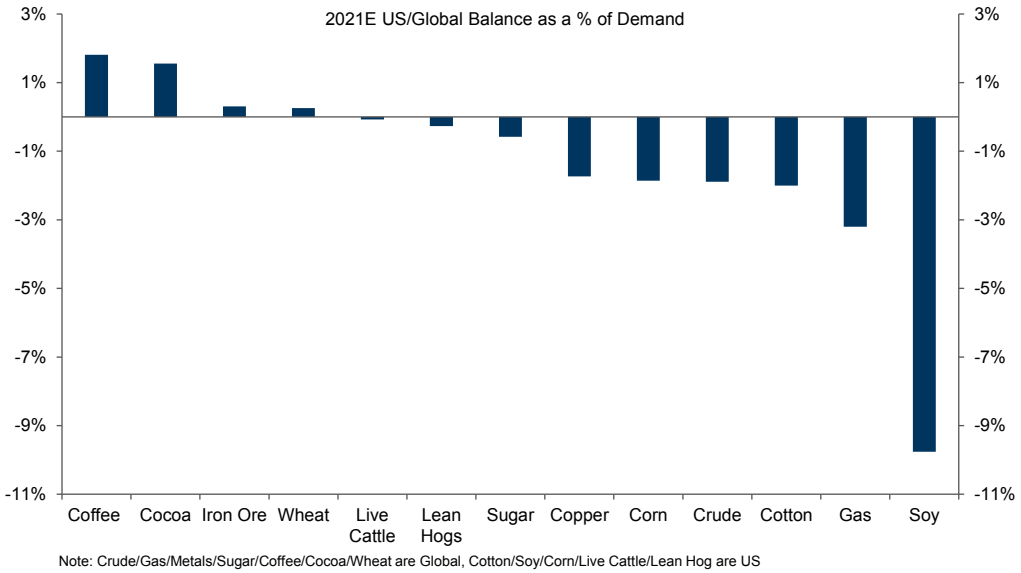
Source: Haver Analytics, Goldman Sachs Global Investment Research

6. A New Commodity Bull Cycle

- Structural underinvestment plus demand boosts from a vaccine-led recovery.
- High oil inventories mean that upside may emerge more clearly after the winter ...
- ... with non-energy commodities (metals and ags) facing more near-term upside.
- Commodity equities, credit, FX—inferior translators of the commodity view.

The volatility in commodity markets in recent weeks is a reminder of the damage that lockdowns can do to commodity—especially oil—demand. But what is far less visible is the fact that structural under-investment in commodity-producing sectors over many years has meant that even the faltering recovery so far is generating a deficit in major commodity markets with inventories drawing. Given that inventories are drawing this early in the cycle, we see a new bull cycle for commodities emerging in 2021 as demand recoveries meet restrained supply (Exhibit 6). Because inventories of oil remain high, upside in energy prices will likely come after winter. However, non-energy commodities, including metals, face immediate upside as balances have tightened ahead of expectations, driven by large Chinese demand and adverse weather shocks. We expect copper prices to end 2021 at $7500/mt compared with current spot levels of approximately $6900/mt.

Exhibit 6: Commodity markets are moving into deficit early in the business cycle



Source: John Hopkins, Goldman Sachs Global Investment Research

Zooming in on oil, the recent price falls are already equivalent to European consumption falling to May levels, when stricter lockdowns were just ending. This is an aggressive repricing given that the new European lockdowns are less restrictive and will potentially "bend the curve" again in a few weeks. However, virus uncertainty, the potential for lockdown headlines to spread to the US and the aftermath of the election all point to further price volatility through November, and even some potential near-term downside. And if these current low oil prices are sustained, they will further impact supply, setting the stage for a material rally above current forwards when the vaccine-led recovery in demand faces supply under-investment and a diminished shale reaction function—we expect Brent oil prices to end 2021 at $65/bbl, an increase of more than 50% from current spot levels of around $40/bbl.

From a market perspective, a commodity bull market of this magnitude should translate into upside for commodity equities, credits and currencies. However, for a variety of reasons these have been less efficient translators of the commodity view of late. ESG (Environmental, Social and Governance) considerations have increasingly diverted capital away from energy stocks; there have been growing question marks around the ability of HY US energy credits to generate robust cash flows even in an increasing oil price environment; and across EMs and DMs, the beta of currencies to oil prices has fallen as governments have put in place intervention mechanisms to dull the sensitivity of currencies to oil price volatility. So commodities themselves may be the most efficient expressions of our bullish commodity forecasts, and leveraging recent work on ESG commodity investing, our commodities team argue for a long position in the enhanced S&P GSCI along with a CO2 offset position by going long EU Allowance credits.

That said, for macro investors it is notable that a number of commodity currencies have lagged commodity prices quite materially over the last few months (the Chilean Peso

versus copper and the Russian Ruble and Norwegian Krone versus oil), and so provide attractive entry points. A positive terms of trade shock could also provide welcome relief to some EM economies (such as Brazil) which have used their policy bullets aggressively already.

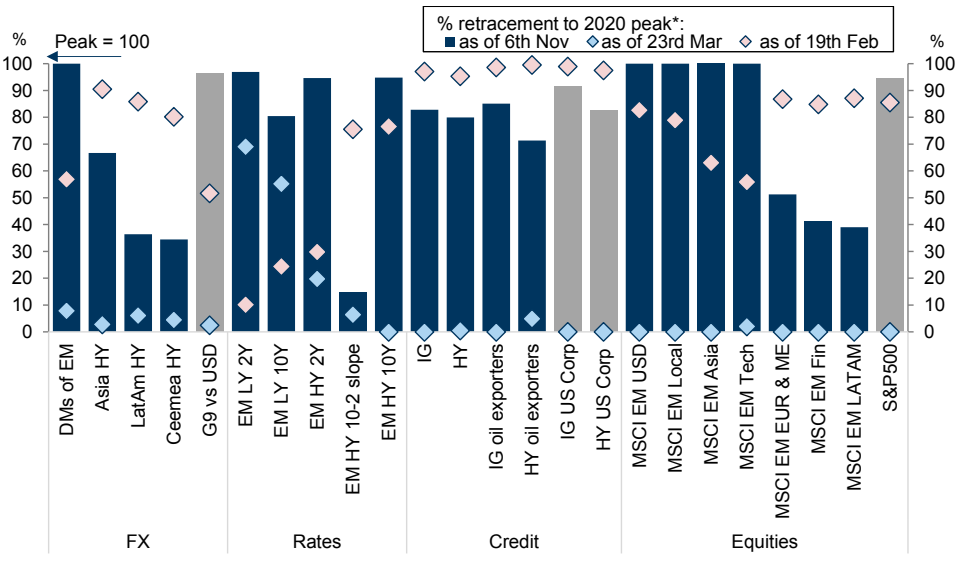
7. EM Outperformance: More than Before, Less than Sometimes

- EM asset recovery means value is mostly in cyclical and commodity exposures.
- EM high-yielders embed premium in steep local curves as much as in FX ...
- ... as do EM bank stocks and EM HY credit spreads.
- Potential for forces—cyclicality, commodities, valuation, China—to come together, so scope for broader outperformance for the first time in years.

Emerging markets have been hit hard by the covid pandemic, but even as the scar tissue from the lost growth and impaired fiscal trajectories will persist for several years, there has also been a remarkable resilience across EM asset markets. EM IG credit spreads have compressed most of the way back to pre-covid levels at the same time as absorbing a surge in issuance, EM local rates quickly undid their selloffs and policy rates have moved to new lows, EM equities have moved through pre-covid highs led by Asian tech stocks, and, while EM FX has underperformed, at least in part that reflects a preference from EM policymakers.

So as investors look into 2021, pockets of value are more tightly defined than may be expected after such a significant shock, and are concentrated in the most cyclical and commodity-exposed parts of the EM universe: the (not-so) high-yielding currencies in LatAm and CEEMEA, LatAm stocks, but also EM bank equities, and high-yield sovereign credits (Exhibit 7). Our recent deep dive into expected losses across EM sovereigns suggests that, while we are likely to see more defaults over the next 12 months, we are likely past the peak of widespread distressed pricing EM HY credits—so the vaccine-led recovery in growth and commodity prices that we expect should allow further spread compression. It should also allow EM banks to reflect their typical beta to the recovery, and probably most intriguingly allow an unlocking of the value in EM HY currencies (such as MXN, ZAR, RUB and BRL), which increasingly represent cheap cyclical options. A vaccine-led cyclical recovery is almost a sine qua non for these assets to flourish; but there are also opportunities that are less full-throated cyclical exposures. Equities and FX in NJA low-yielders (such as the Kospi and the KRW) should benefit from a better cyclical backdrop, and are less vulnerable to vaccine disappointments. And while the premia across EM local rates markets have compressed meaningfully already, steep curves across EM high-yielders (government bonds in South Africa, India and Brazil) still offer an opportunity to earn carry as long as inflation stays low and the cyclical recovery is not entirely derailed.

Exhibit 7: Strong EM asset recovery after the covid shock has left only the most cyclical exposures behind
The % retracement to the 2020 peak* in each asset class at each given date



Notes: *Peak = 100 implies higher FX spot levels, lower local rates yields, flatter slopes, tighter credit spreads, higher equity levels. Ceemea HY FX excludes TRY.

Source: Goldman Sachs, Bloomberg, Goldman Sachs Global Investment Research

Over the past few years, EM outperformance has occurred in fits and starts, but has seldom been sustained. As a result, investors are well-attuned to ask "what could go wrong in EM this year?" And there are certainly candidates—from the general to the specific: vaccine distribution is likely to be challenging and the fiscal deterioration from this crisis will leave long-lasting scars; currency volatility in Turkey has risen again and wide parallel market spreads in Argentina mean that sharp devaluations are possible in both places; further exchange rate adjustment may also occur in Nigeria; and the risk of debt distress has increased in Iraq, Sri Lanka, Gabon and Angola.

But while there are always risks when it comes to EM assets, 2021 could be the year when it may be equally important to ask "what could go right for EM?" Across global markets, EM assets embed most tangibly a combination of cyclicality, commodity exposure, China sensitivity and pockets of deep value, all of which could be in favor through the course of the year, as discussed above. If this heady cocktail comes together all at once—something that hasn't really occurred since the 2000s—EM outperformance may finally move beyond occasional short-lived bursts and become something more sustained through the year. Having some exposure to the notion of such sustained outperformance, either through more ambitious targets in some core EM longs or some out-of-the-money options, may make more sense than in other years.

8. Rotations: Cyclical, North Asia in Focus but Vaccine News Key to Near Term

- Cyclicals to outperform defensives in central case, but the path may be bumpy.
- North Asian markets have a favorable mix of exposures.
- Macro forecast shifts generally more beneficial to "value" than "growth"…
- … but a clear rotation may need a sharper rise in real yields.

Beyond the EM/DM split, the macro shifts implied by our forecasts imply that the focus

on other rotations is unlikely to let up. Differences in cyclicality, sensitivity to interest rates, commodity exposures and valuations are key to judging which rotations we think are most likely to occur.

With our US growth view still above what we believe the market is pricing, the outperformance of cyclical sectors of the equity market over defensives is ultimately likely to run further. The combination of better growth and higher nominal yields is generally supportive for that trend. While our central forecast still points firmly to cyclical outperformance over the medium term, the tensions in timing between vaccine news, fiscal stimulus and near-term growth weakness (see Theme 2) still need to be navigated. Our current forecast of some slowing in growth momentum before renewed acceleration in 2021 would normally lead us to expect that cyclical outperformance would follow a more back-loaded path. But positive vaccine news in the coming months could allow the market to look through that weakness to a greater extent than usual. And with volatility declining after the election, we think the upside tail here is once again being underpriced.

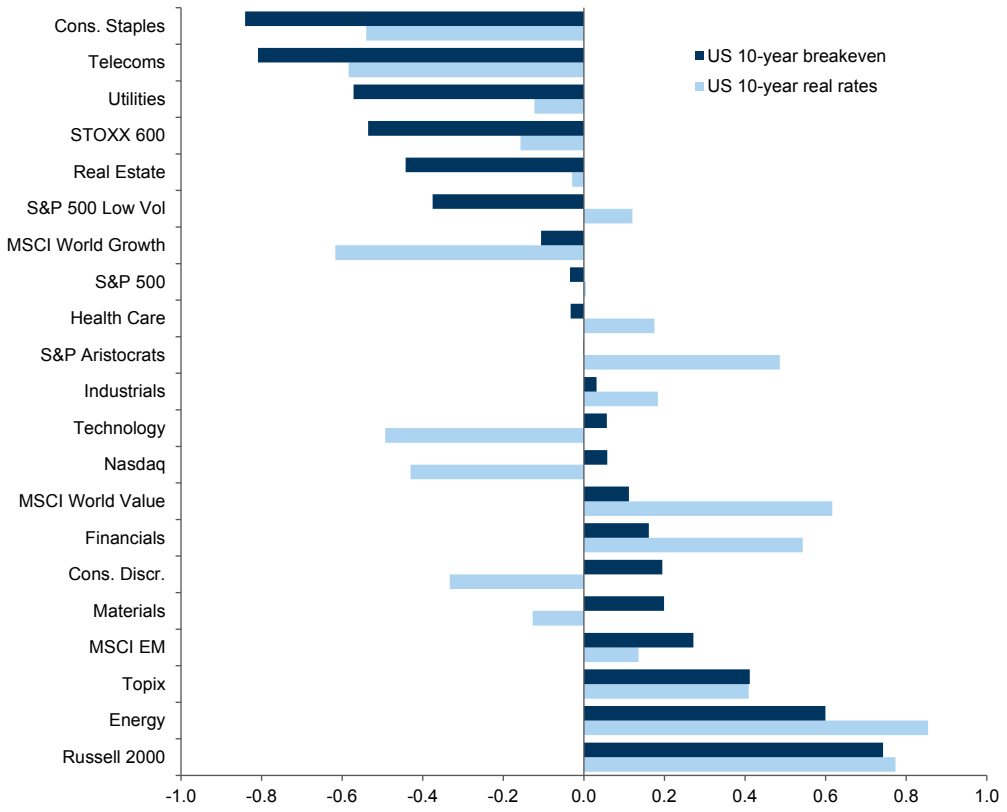
At the regional level, we have also highlighted the growing appeal of some non-US markets that could see a boost from an improved cyclical picture but face lower risks from winter virus problems. With Europe potentially facing cyclical headwinds in the next few months, the North Asian markets of Japan, China and Korea still stand out among major markets as potentially facing a relatively favorable mix.

The equity market's favorite focus—on the split between "growth" and "value" and its various proxies—is more complicated on a macro basis, partly because both categories are more mixed in terms of their macro exposures. Valuation measures between the two groups are clearly historically stretched; and the macro shifts from the vaccine also generally favor more traditional cyclicals than long-duration tech stocks. Our more bullish commodity backdrop would also favor "value" indices, where commodity assets overwhelmingly reside, while rising nominal yields could ultimately provide a tailwind for banks. And a Democratic Senate (still possible if not the most likely outcome) could revive the market's expectations of a stronger fiscal expansion. But there are still real headwinds to that shift, particularly in the near term. The "divided government" scenario is arguably the most Nasdaq-friendly of the possible election outcomes and the market has moved firmly back in that direction in the last week. Headwinds from potential winter virus issues—and more of an impetus to "stay-at-home" activities—also push towards a continuation of the growth outperformance trend. To shift investors away from growth stocks in a persistent way, a sustained move higher in real rates and an end to the current dynamic where cyclical optimism translates into lower real rates may be needed. We expect moves in both directions over the next year, but quite gentle ones. The increased sensitivity of equity indices to real yields may also help to make attempts to price a large shift in real rates self-defeating. So while we see scope for "value" outperformance around a vaccine-driven growth upgrade, it may take longer for a more persistent shift here to emerge.

Similar considerations inform our relative credit views. The "divided government" outcome, which is likely to keep yields more anchored in the near term and removes some growth upside relative to a "Democratic sweep outcome", has renewed appetite

to search for yield. This has strengthened the appetite for credit as an asset class and our own view of its relative merits. Policy support remains a key advantage and, partly for that reason, we retain our preference for IG over MBS, MBS over Treasuries and cash over synthetics. The combination of anchored yields and a further normalization in the vol premium should allow this search for yield to extend. This dynamic should reinforce our "down in quality" theme (HY over IG), particularly if our move bullish commodity view plays out, and our preference for 30-year over 10-year IG. As with equities, the cyclical picture is complicated by the balancing act between vaccine news and near-term virus risks and more modest fiscal support. Absent positive vaccine news, we think cyclically exposed credit sectors could prove more vulnerable until further out in the forecast horizon. The good news is that we think that both the funding and liquidity/microstructure risks that were such a powerful part of the downdraft in March are unlikely to be revisited to the same degree, even if the outlook deteriorates. With that experience still fresh, policymakers are likely to be proactive in stepping in to prevent those problems from emerging. Against that backdrop, we would put more emphasis on valuation (e.g., AAA CLO vs. AAA CMBS or BBBs vs. A-rated credit and BB corporate credits).

Exhibit 8: Yield shifts could drive rotations, but real yields critical for growth/value shift
Correlation of 12m relative returns vs. MSCI with changes in US yields since 2018



Source: Datastream, Goldman Sachs Global Investment Research

9. In Search of New (and Old) Safe Havens, Hedges and Diversifiers

- Government bonds less effective as diversifying assets.
- FX offers alternatives, at a cost, as do 'DMs of EM' rates.
- Equity risk replacement or reallocation may help.
- At higher yields, long-dated Treasuries could quickly regain hedging value.

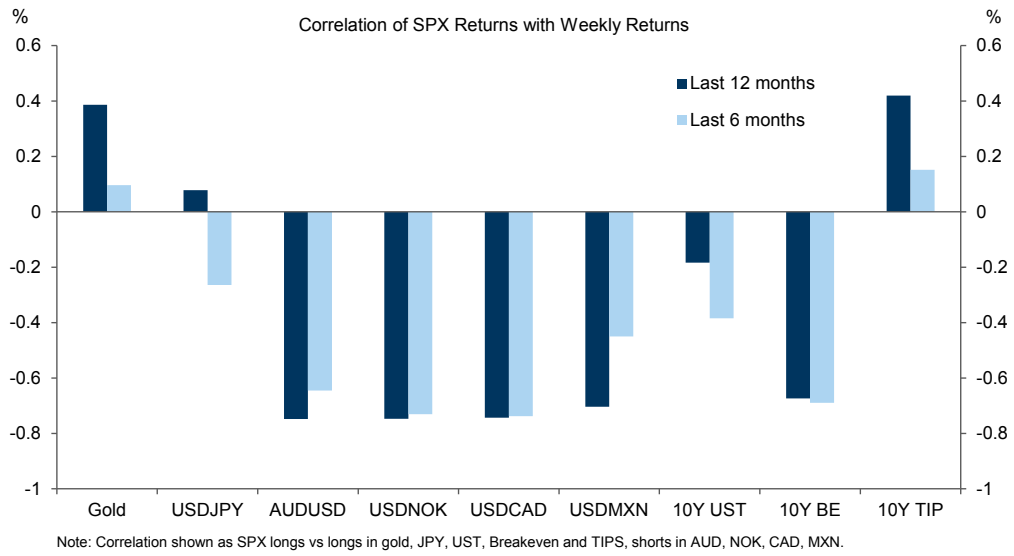
Hedging and diversification remain major challenges for many investors. For most of the last two decades, as growth and financial shocks have dominated markets, government bonds have offered both positive returns and a fairly reliable negative correlation with equities. During March's equity rout, those benefits were on strong display again. But with large parts of DM yield curves close to the Effective Lower Bound, the path since then has been more complex. Not only have expected returns fallen further, but the prospect for gains if equities were to fall again faces natural limits on nominal yields, even for longer-duration bonds. For similar reasons, the correlation structure between bonds and equities has also changed. The negative correlation between nominal government bond returns and equities has fallen. And with market inflation expectations still positively correlated to cyclical and risky assets, relatively anchored nominal yields mean that real US Treasury yields have become negatively correlated to equity markets to an unprecedented degree. Although these dynamics may begin to change over the course of the next 6-12 months, that shift may be gradual.

With the prospect of lower (and more negatively skewed) returns and reduced correlation benefits, investors have been searching for ways to mitigate the loss of diversification. There are no easy answers. One option is to look at other assets to fulfill a similar purpose. Assets such as gold, which are closely linked to real yields, have also seen their correlation with equities shift from negative to positive. FX has proved to be a more promising area. The Yen has fared relatively better, and screens as one of the cheapest of the major safe havens, though shifts in the behavior of global rates has made its correlation with risk assets less reliable too. Other FX crosses—particularly the commodity currencies and parts of higher-yielding EM versus either USD or JPY—have maintained high correlations with equities over the last year and, while shorts here generally have a carry cost, it is low relative to history. Since we expect these assets to be beneficiaries of many of the same forces that could benefit equities, however, their hedging value comes mostly where downside is generally cheaper than in equity markets.

Another option is to replace equity risk itself. Longer-dated calls provide one way of limiting downside exposure (at a cost), while substituting dividend swaps may help to lower the duration of equity portfolios. With quite high levels of volatility and skew, put-selling may also benefit portfolios as an equity replacement. Increased exposure to non-US equity markets (see Theme 8) may also have diversification benefits in the current environment, given differing regional sensitivity to covid risks and to long-duration equities. Although we think that equities offer better upside in our central forecast than credit, assets such as cash credit and MBS in the US and corporate credit in Europe—which have direct central bank support—do have greater downside protection in an environment where hedging is difficult.

Ultimately, it may be that bond markets themselves will offer better options over time. We have highlighted the so-called "DMs of EM" rate markets as a way to pick up somewhat higher yield and greater distance to the Effective Lower Bound along with reliable correlations to cyclical forces. And, of course, if the market begins to entertain the possibility of negative rates in a broader range of places, then the Effective Lower Bound could itself provide more room for bonds to rally than it currently appears. We still think this is unlikely, but not impossible (see Theme 3). We also remain confident that inflation markets would reprice lower downside shocks, though our more positive views there argue against outright shorts. If, however, US Treasury yields and breakeven inflation pick up from here, as our forecasts imply, the value of both assets as downside hedges may improve relatively quickly. In particular, if we are right that longer-dated US bonds will move further from the lower bound over the next year, then Treasuries themselves may quickly become the most obvious hedge against risk assets again. This is one reason why we think a very large move in yields may be hard to sustain. But it may be that if the best "old hedges" reprice a little they will be the best "new hedges" too.

Exhibit 9: Recent correlations with equities highest for cyclical FX, breakevens



Note: Correlation shown as SPX longs vs longs in gold, JPY, UST, Breakeven and TIPS, shorts in AUD, NOK, CAD, MXN.

Source: Goldman Sachs Global Investment Research

10. Risks from Corona and Beyond

- Health outcomes still the biggest risk.
- Persistent lockdowns could amplify risks of corporate and fiscal "scarring"…
- … and might see renewed focus on European and EM sovereign tails.
- Uncertainties over fiscal path and Senate outcome remain.
- A stronger recovery could reintroduce rate and releveraging risk.

The biggest risk to asset markets—and our own central forecast—still comes from health outcomes. A sharper deterioration than we expect in virus case growth in Europe

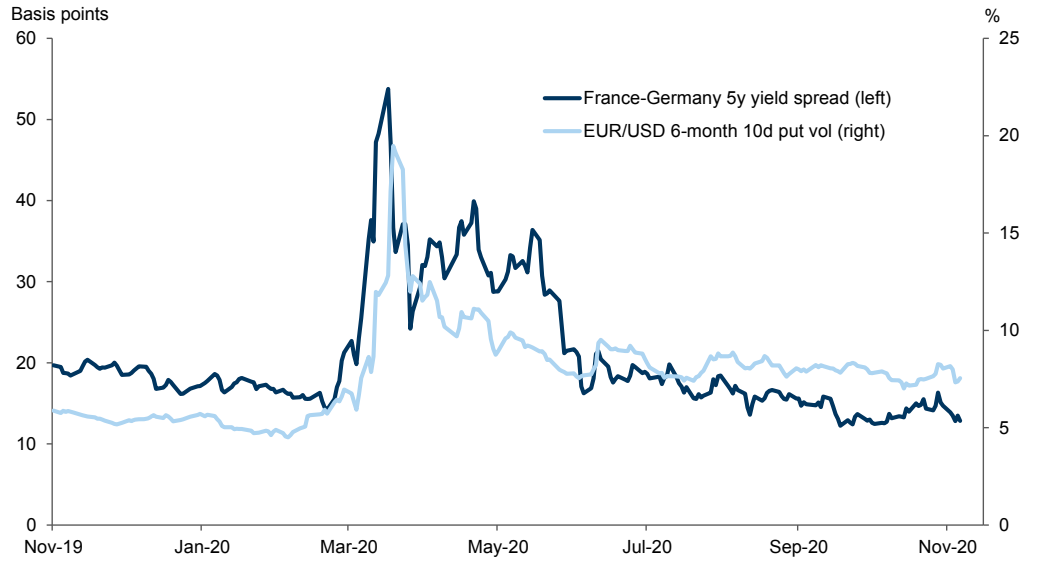
and the US—and the prospect of a long period of new restrictions on activity—could clearly weigh on markets in the winter months. And disappointing (or delayed) outcomes from Phase 3 trial results from the leading vaccine candidates would make it harder for the market to look through that weakness, as discussed above.

Several other key risks would likely be amplified in those scenarios. The impact of the crisis on corporate sector balance sheets has so far been surprisingly benign, helped by the aggressive policy response. But the risk of persistent "scarring" from corporate bankruptcies and defaults would rise if an extended second wave or persistent lockdowns occurred. In Europe, renewed growth weakness could also reopen the thorny issues of fiscal capacity in the weaker economies and put fresh focus on sovereign backstops. So far, the market has remained quite confident that the combination of an expanded ECB PEPP commitment and the Recovery Fund will be sufficient despite increased near-term cyclical risk. But a longer period of weakness than we expect, and its impact on public finances, might see the market worry again about some of the systemic risks that are now only barely priced into sovereign credit and EUR/$ options markets. Anticipation of fresh ECB action in December may keep a lid on those pressures, but the risks could rise beyond that point if the outlook does not improve as much as expected. In a similar vein, extended growth weakness will refocus attention on the fiscal deterioration across EM sovereign balance sheets, the sustainability of aggressive policy responses and the scale of external funding requirements, especially if official sector support is not as forthcoming as this past year.

Several important political and policy uncertainties remain unresolved. We already highlighted the risks in both directions around the US fiscal outlook because of the Georgia Senate elections and uncertainties over the scope and timing of a fiscal package before that point (see Theme 2). The prospect of further increases in geopolitical tensions—both in the months between now and Inauguration and beyond—is also a potential risk, even if the specific risks from tariff conflicts may now be lower.

A stronger recovery next year may also bring its own risks. In credit markets, a more powerful growth impulse and further gains in equity markets over the next year could bring "releveraging" risk more firmly into focus as we move into 2021. Asset market valuations are another potential constraint. While we are not in the camp that sees equity market valuations as broadly stretched, given the current ultra-low real yield environment, valuations in large parts of equity and credit markets do not build in a large cushion against disappointments in growth or a sharper shift in real yields than we expect. If the market continues to embed positive early vaccine news into asset valuations, the risks to the outlook will look more symmetric going forward. So it will be important to keep a close eye on when those developments may be fully priced. We think a "divided government" scenario reduces these risks relative to the higher growth outcomes likely under a "Democratic sweep", but does not remove them.

Exhibit 10: Market has remained relaxed about deep Euro system risk



Source: Goldman Sachs Global Investment Research

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Reg AC

We, Zach Pandl, Kamakshya Trivedi, Lotfi Karoui, Damien Courvalin, Christian Mueller-Glissmann, CFA, Dominic Wilson, George Cole, Kenneth Ho, Praveen Korapaty, Amanda Lynam, CPA, Caesar Maasry and Danny Suwanapruti, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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