Q1 2020

QUARTERLY OUTLOOK

By #SAXOSTRATS

THE GREAT CLIMATE SHIFT

SAXO GROUP

Q1 2020

Contents:

Climate and inflation: two new priorities for markets

By Steen Jakobsen

Climate is an issue that can raise the temperature of conversation nearly anywhere. Are you a partisan in what is the oddly politically charged climate change debate or are you simply concerned about the climate based on the consensus of the scientific community? We don't really care to join the debate or try to argue the scientific evidence of the extremely complex climate system. But the long-term reality is that nature is telling us that the cost of the present 'model' of economic growth is turning negative. Not only at the margin, but probably full blown negative in terms of the costs to society and the environment, upon which all economic activity, digital or otherwise, is based. We have simply passed the equilibrium point of economic growth versus its costs: natural resource constraints and diversity in nature to start with, and for the non-deniers the additional risks from CO_2 emissions.

"For the first time since WWII we sense a shift in which climate and the environment – not growth – will become the priority of governments and their citizens"

It has become increasingly clear that our accounting systems and measures of economic growth do a lousy job of measuring the total costs of our activity when there is no accounting for longer-term resource depletion and environmental harm. On top of that we have the damage wrought by the lack of price discovery over the last decade, as central banks have done everything to keep our unsustainable economic activity levels at maximum throttle to avoid a reset. This has not only eroded the long-term potential of our economies, but also led to a terrible lack of productivity as we chase existing assets with growing mountains of cheap financing rather than investing in new ways of doing things.

How do we know the 'turning point' has been reached to change priorities?

During Q4 2019 I travelled extensively from Cape Town in South Africa to Moscow, then on to Europe through the Middle East and out to Asia and Australia. Everywhere I touched down, the front page on the local English newspaper read "Climate plan needed" – accompanied by a picture of the last local natural disaster.

The fallout from the climate is now so costly for governments across the globe that additional spending 'fiscal spending' is taken out to cover cyclones in Japan, drought in South Africa and Namibia, flooding in Indonesia and a shortage of onions in India. Over the last few days, the Australian government has pledged open-ended support to the hard-hit New South Wales region, after it was engulfed in flames with dire consequences for its flora, fauna and human life and limb, not to mention property.

For the first time since WWII we sense a shift in which climate and the environment – not growth – will become the priority of governments and certainly their citizens, as shortages of food, clean water and air become existential questions.

There will be major political fallout from this. First through the rising cost of living as food prices spike, then through a further rise in

Climate and inflation: two new priorities for markets

inequality. Make no mistake, more revolutions have been started over food prices than anything else: the French and 1905 Russian Revolutions and the Arab Spring. The 2020s will bring more.

For investors this comes at a bad time – exactly when they have both central banks and governments 'onside'. 2019 saw all assets rise – yes, all assets – as major central banks went from quantitative tightening back to quantitative easing, and many governments started expanding fiscal deficits, including China, the UK, US and Japan. Early in 2020 you can already hear the market chanting: "Fiscal expansion, fiscal expansion, MMT, MMT!"

What the market does not see or want to see is an inflation scare. Inflation is expected to continue to fall, driven by demographic shifts, falling populations and lack of productivity, but this ignores the bigger risk of supply disruption. I do realise that most of today's readers and traders would not have been born or around in the 1970s, but back then stagflation killed growth and the markets. This was driven by two major factors: an over-easy Federal Reserve and supply constraints. Does this remind you of something?

Similarly to now, the pundits at the time had written off inflation as it had not materialised through the late 1950s and most of the 1960s, but the OPEC embargo changed that. The rise in oil became the catalyst, but the real culprit was an extremely 'generous' Fed. Point?

The consensus economic forecasts for 2020 rely on a cocktail of promises: including low inflation and low rates forever, an abolishment of price discovery, a full acceptance of monopolies in technology and non-commitment to reduce inequality. The output or taste of this increasingly toxic cocktail is permanently low growth, close to zero productivity and a monetary policy with no exit path, as seen recently as the US Fed became not only lender of last resort for the repo market but also tilted toward full monetisation of the US federal deficit.

Three ways the status quo can change in 2020

Political – a change of US President would create a new impulse both politically and economically.

Credit failures – the blown out value of the market becomes an issue, the loss of control over repo by the Fed generates massive event risk in credit space with the US shale sector being most exposed.

Inflation/climate – The combination of climate sending a signal of distress – raising the cost of food, water and clean air – with an enormous underinvestment in infrastructure means the market becomes so complacent that it's the perfect storm for a wake-up moment that spikes volatility when the next disaster strikes.

The huge internet monopolies and asset markets have been so pumped up by mispriced money and central bank forcing that we are clearly in the frothy phase of the cycle, with echoes of Gordon Gekko's "Greed is good!" bouncing around the market's echo chamber. Greed might be fun – but it's not very productive. The lack of focus, lack of accountability and lack of respect for nature is about to change the dynamics of how politicians get elected, how economic growth is measured and, most importantly, how society prioritises its resources and activities.

> **"The taste of this increasingly toxic cocktail is permanently low growth, close to zero productivity and a monetary policy with no exit path"**

Climate will most likely be the long play for the 2020s and with this piece we hope to engage and start a new branch of Saxo Research, where we apply a climate and environment filter on all investments and assets impacted by this change. This Quarterly Outlook has plenty of discussion topics and investable ideas. As Julius Ceasar said as he crossed the Rubicon: Alea iacta est – "the die is cast" as we have reached the point of no return.

@Steen_jakobsen

Steen Jakobsen, Chief Economist & CIO

Steen Jakobsen first joined Saxo Bank in 2000 and has served as both Chief Economist and Chief Investment Officer since 2009. He focuses on delivering asset allocation strategies and analysis of the overall macroeconomic and political landscape as defined by fundamentals, market sentiment and technical developments in the charts.

It’s time for a greener portfolio

By Peter Garnry

The fire engulfing Australia has alarm bells ringing in every capital in the world. With millennials demanding action on climate change, we are sensing the beginning of a new period that creates great opportunities in equities. We have no strong view on climate change, but recognise that political capital is being mobilised to improve the environment. If we have learned anything since the financial crisis it is to not fight governments.

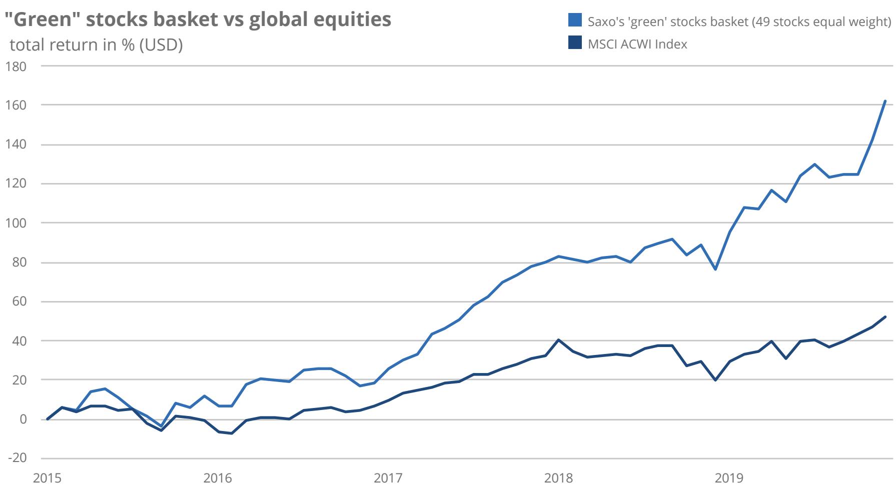
> **“We believe that these green stocks could, over time, become some of the world’s most valuable companies — even eclipsing the current technology monopolies”**

Governments will increase investments and subsidies for “green” industries, starting a new mega trend in equity markets. We believe that these green stocks could, over time, become some of the world’s most valuable companies — even eclipsing the current technology monopolies as regulation accelerates during the coming decade. Investors should consider tilting their portfolios towards green stocks so they don’t miss this long-term opportunity.

The industries and stocks to green your portfolio

Several industries will drive a less carbon-intensive future, the most obvious of which are solar, wind, fuel cells, electric vehicles, hydro, nuclear, bioplastic, recycling, water, building materials and food. Some of these industries are mature and experiencing a renaissance while others are emerging technologies that come with high risk. We have identified 49 stocks that give investors exposure to these green industries. These stocks should be seen as inspiration and not investment recommendations.

The positive catalysts for these green industries are clear. High growth, massive government support, changing consumer choices, millennials demanding change and technological advancement lowering costs of green technologies. Plus, likely more climate change turbocharging these overall drivers. But what about the risks?



SOURCE: BLOOMBERG AND SAXO BANK

It's time for a greener portfolio

Key risks in green industries and valuation

The risk factors impacting the different industries are both systemic and idiosyncratic. From a risk perspective, relative to the general equity market the hydro, nuclear, recycling and water industries are less risky as their demand profiles are more stable than the overall business cycle. Solar, wind, electric vehicles and building materials are more cyclical than the general market and would be impacted more negatively during a recession.

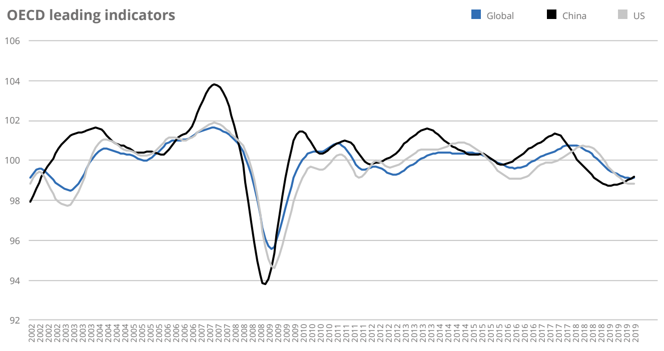
The fuel cell, bioplastic and food (in this case plant-based) industries have far more idiosyncratic risks as they are more nascent than the other industries. The fuel cell industry is heavily dependent on government subsidies as the industry rolls down the technology curve in terms of cost of production. Thus, the industry is very high risk. The bioplastic industry is a small and fragmented, and publicly listed bioplastic companies could easily lose out to larger names in the traditional chemical industry.

Except for nuclear and wind turbines, all of the industries trade at a valuation premium to the global equity market. This premium obviously reflects investors' optimism about future cash flows in those industries, though with high expectations comes higher risk if these expectations are not met.

Another important point about these companies is that they are operating in the physical world. Unlike, say, the software industry, where return on capital is insanely high and easily scales. These greener industries all require vast amounts of capital to operate — and as such, the low interest rate environment has helped fund growth. If interest rates rise again, this should have a negative effect on their operating conditions and especially on equity valuations.

Overweight European and EM equities

Central banks and governments have decided to throw out the old playbook of not adding stimulus in the late stage of an expansion in which the labour market is tight. Both monetary and fiscal policy is readily being deployed in 2020 across all the world's largest economies. This is not the time to be underweight equities. With the OECD's leading indicators moving from contraction to recovery back in October, the historical backdrop tells us that the best period for equities against bonds is ahead of us.



SOURCE: BLOOMBERG AND SAXO BANK

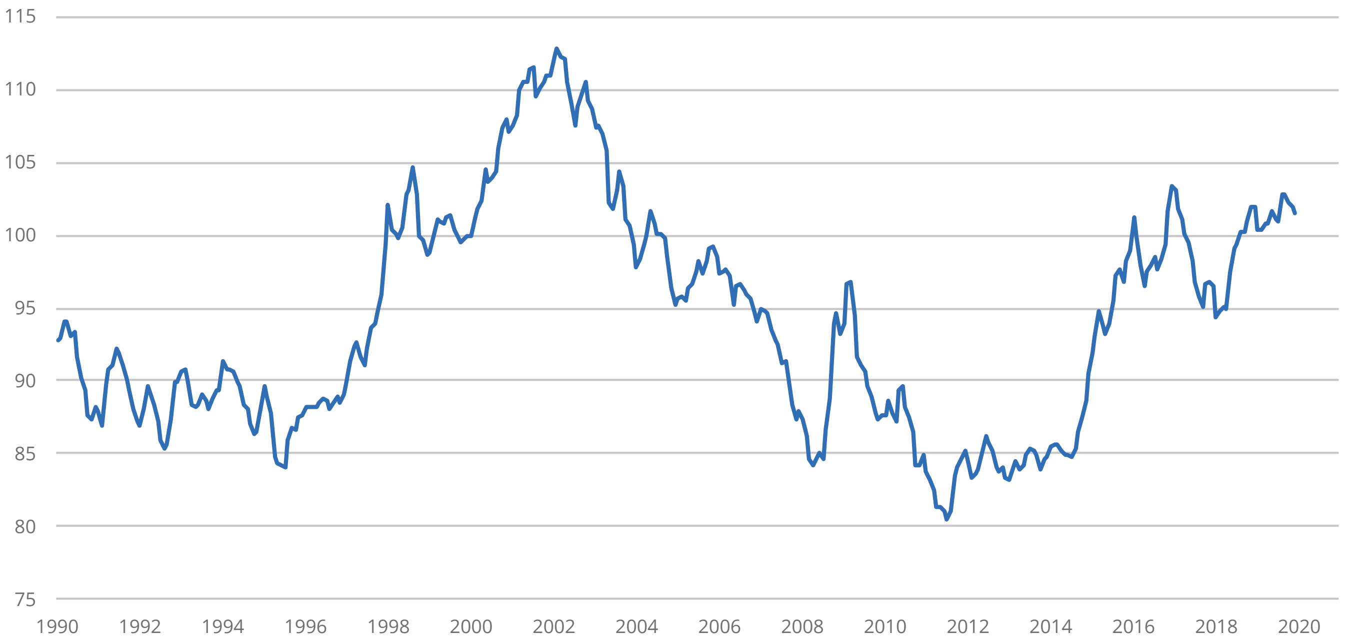
During the recovery phase emerging market equities tend to outperform developed market equities by a wide margin. European equities typically outperform the market during the late expansion and early slowdown, but this time we go against history and recommend investors to also overweight European equities. We already provided this view back in our Q4 Outlook when we looked at the USD and how it impacts equity returns. A weaker USD, which the world needs, has historically led US equities to underperform against European and emerging-market equities. Our tactical asset allocation strategy Stronghold, which clients can invest into through SaxoSelect, also increased its allocation to emerging market equities in January.

It's time for a greener portfolio

With the Fed's aggressive balance sheet expansion and the growing US fiscal deficit the USD should weaken. Indeed, it has weakened 1.3% since September measured by the Fed's US trade-weighted real broad dollar index. Another recent factor that could add to USD weakness is rising prices across many commodities.

Global recession probability peaked back in September, and with stimulus flowing through the economic pipes the recession has most likely been averted this time. This brings us to the other risk that could derail equities in 2020: inflation, which seems to be picking up again. In May 2019 we wrote a big read on 105 years of US inflation and equity returns. The conclusions are that equities tend to respond positively to short-term inflation shocks but negatively to sustained inflation rate above 3%. Higher inflation rates and inflation shocks have historically led to more equity volatility. So in 2020, we will be watching inflation closely.

US Trade Weighted Real Broad Dollar



SOURCE: BLOOMBERG AND SAXO BANK

> **"Global recession probability peaked back in September, and with stimulus flowing through the economic pipes the recession has most likely been averted this time"**

@PeterGarnry

Peter Garnry, Head of Equity Strategy

Peter Garnry joined Saxo Bank in 2010 and is the Head of Equity Strategy. In 2016 he became responsible for the Quantitative Strategies team, which focuses on how to apply computer models to financial markets. He produces trading strategies and analyses of the equity markets as well as individual company stocks, applying advanced statistics and models to beat the market.

The US dollar is a tough one to turn

By John J. Hardy

Given the Powell Fed's enormous turnaround in 2019 — in which it cut rates three times and launched a large-scale balance sheet growth to the tune of nearly $400 billion in Q4 — the US dollar is starting off 2020 in rather resilient shape. Many would have believed that the Fed's turnaround over the course of 2019 and acceleration into year-end would have resulted in a far weaker US dollar. Especially considering that it has outpaced the easing from central banks elsewhere.

Why the US dollar has not weakened perhaps speaks to the residual strength in the US economy relative to global peers. While its manufacturing sector has suffered under the weight of Trump's tariffs and a slowdown in US shale oil and gas development, the dominant services sector remained resilient and overall GDP growth averaged 2.4% for the first three quarters of 2019. Plus, Trump's aggressive trade stance saw US trade deficits narrowing sharply in the second half of 2019, a difficult process to manage in a world that needs a steady drip feed of dollars since it is the global reserve and trade currency. And finally, the market's vigorous celebration of the Fed's easier stance fed further enthusiasm for America's world-dominating tech giants.

Many of the USD-positive drivers noted above look well entrenched as 2020 gets under way, but we still look for a low ceiling to what has effectively been a flat US dollar over the last 18 months. As the year wears on, we would look for a slowing US economy, a related chopping of US interest rates, ongoing Fed monetisation of US budget deficits and, not least, the US presidential election to weigh on the US dollar's prospects. Especially if it appears a progressive Democrat like Bernie Sanders has any chance of becoming the nominee.

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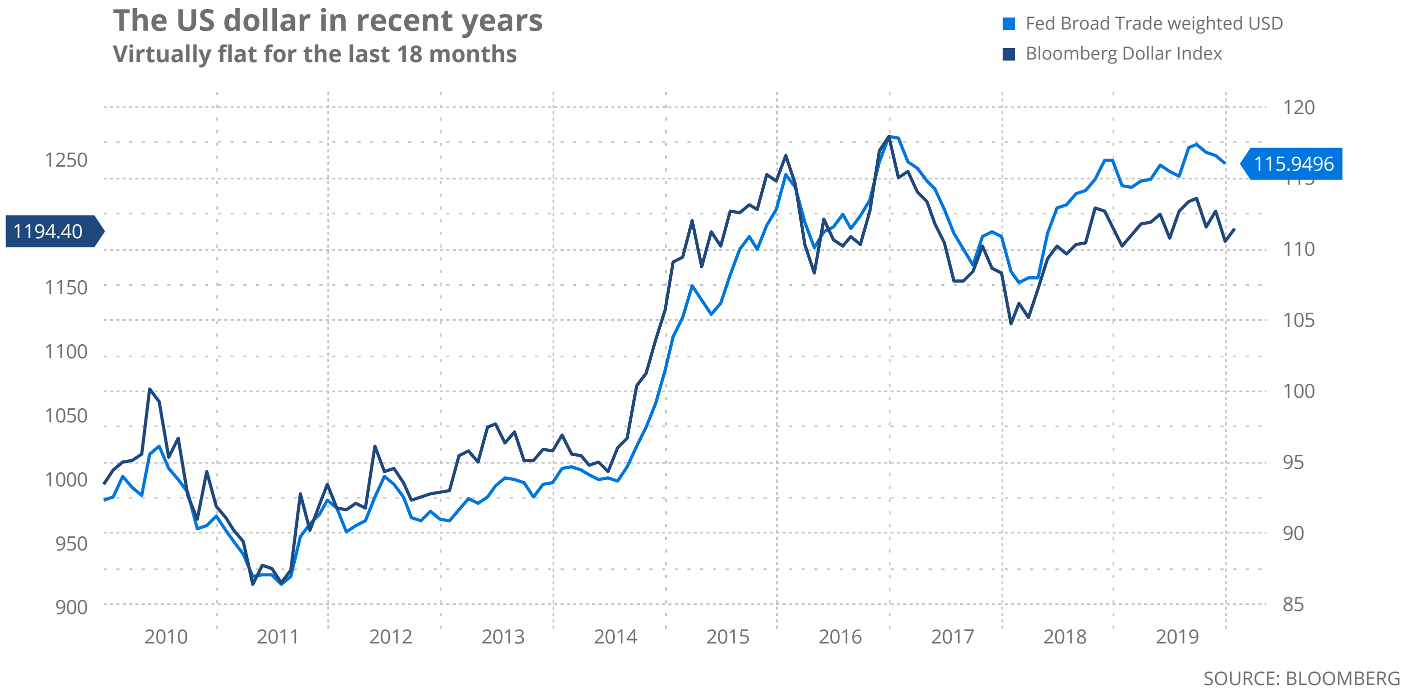
The Fed's actions to shore up liquidity in late 2019 are a result of the inability of the US financial system to absorb both the Fed's quantitative tightening since 2018 in addition to the blitz of Treasury issuance required to finance the ballooning budget deficits in the wake of Trump's tax cuts and spending increases. In a US recession scenario, these factors will accelerate further. Even without one, the provision of Fed liquidity and the risk that this eventually results in inflation and more highly negative US real rates look enough to finally turn the USD lower.

The US dollar is a tough one to turn



The above chart shows the US dollar through the end of 2019 according to both the Fed's broad, trade-weighted measure and the Bloomberg dollar index. Both show that the US dollar has done little over the last eighteen months, a timeframe that has included a final run-up and then crash in US treasury yields and a mirror-image dramatic semi-crash and then epic bull sprint in US equity markets. Outcomes are all about weighted probabilities, but we suspect 2020 either could see more of the same back and forth for the US dollar or, more likely, an eventual large inflection point lower for the global nominal measure of GDP as the Fed – and maybe even the US Treasury – is set to flood the world with US dollars.

Elsewhere, we see the strong CNY at the beginning of the year as window dressing ahead of the US-China trade deal signed in mid-January. China may be playing a holding game on FX policy until it knows who its negotiating partner will be on trade on the other side of the US presidential election and we would suggest that the "phase one" trade deal is likely a phase one détente before hostilities resume down the road and the two largest economies continue to disengage.

The broader situation across currencies is challenging as we start the year at near record complacency levels. Investors are celebrating the policy punchbowl and reaching for yield and the riskiest currencies and equities, rather than looking around at what is still a fairly sluggish growth outlook. We can all easily label it as crazy and unsustainable – but we're not entirely sure what provides the pivot for this market and brings a return of reality. Will it be the Fed refusing to play ball with the moral hazard of monetising Trump deficits and underwriting the speculative frenzy, a new trade war, a Bernie Sanders presidency or markets simply collapsing under their own weight after a further parabolic run-up? We dare not say, but have a hard time believing the go-go environment as 2020 gets underway extends much past the end of Q1.

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The US dollar is a tough one to turn

The changing climate for currencies from here

It is difficult to overlay individual currencies with climate change policy and environmental factors in an outlook, with one important exception this time around: the EU and the euro. EU policymakers have been the most aggressive in declaring a war on climate change and the intent to link pan-EU stimulus to the climate change agenda.

This is the easiest political route to stimulus that is financed by all member states. The ECB, under its new, more politically charged leadership (President Christine Lagarde) has also explicitly stated it is looking for ways to support the climate agenda. In the short term, this may boost EU growth through new investment, but may also raise inflation. Interestingly, the possibility of a "carbon border tax" has been raised as part of the **EU green deal**, in which imports might be taxed on the carbon consumed in the production of a good. This is a whole new approach to protectionism relative to the Trump administration.

While the EU economy might reap few rewards in the short term from stagflationary and possibly protectionist climate policy, the longer-term rewards will supposedly be reaped in increasing immunity to external fossil fuel reliance. It's a risky gambit for the new EU leadership as we wait and watch whether Italy and CEE countries will play ball with these priorities.

How climate change and the policy environment affect currencies in coming years will depend on factors such as food security and the energy-intensity and energy-mix of GDP. This is particularly true of vulnerable emerging market economies, where rapidly rising food and/or energy import costs can more quickly impact growth. India is a case in point in terms of vulnerability to rising food prices and as an importer of the vast majority of its energy needs.

Economies like the EU and Japan are quite well positioned on the surface, as they are among the most advanced developed economies, but with low energy-intensive GDP. The irony for both of those blocs, however, is that they are highly export dependent and big energy importers. The US is a food exporter and the shale revolution means it is almost self-reliant in energy – arguably a fortress economy safe from the risk of rising energy prices. Worst positioned of major economies in theory is China, which is less food- and energy-resource secure and is also rather export intensive, though much of its external investment in recent years has been aimed at reducing vulnerabilities.

Forewarned is forearmed: climate change and climate change policy will be felt the most in commodities, which have mostly been bumping along at multi-year lows in recent years. How and where commodity costs rise will become a major factor in currency movements from here.

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John Hardy joined Saxo Bank in 2002 and has been Head of FX Strategy since October 2007. He focuses on delivering strategies and analyses in the currency market as defined by fundamentals, changes in macroeconomic themes and technical developments.

Commodities in the crosshairs of climate and inflation

By Ole Hansen

Global commodities face a potentially volatile 2020, given the combination of growth concerns, geopolitical tensions, climate change and inflationary pressures. While global growth — and with that demand for key cyclical commodities — remains weak, we see the supply side also facing multiple challenges due to social unrest and climate change.

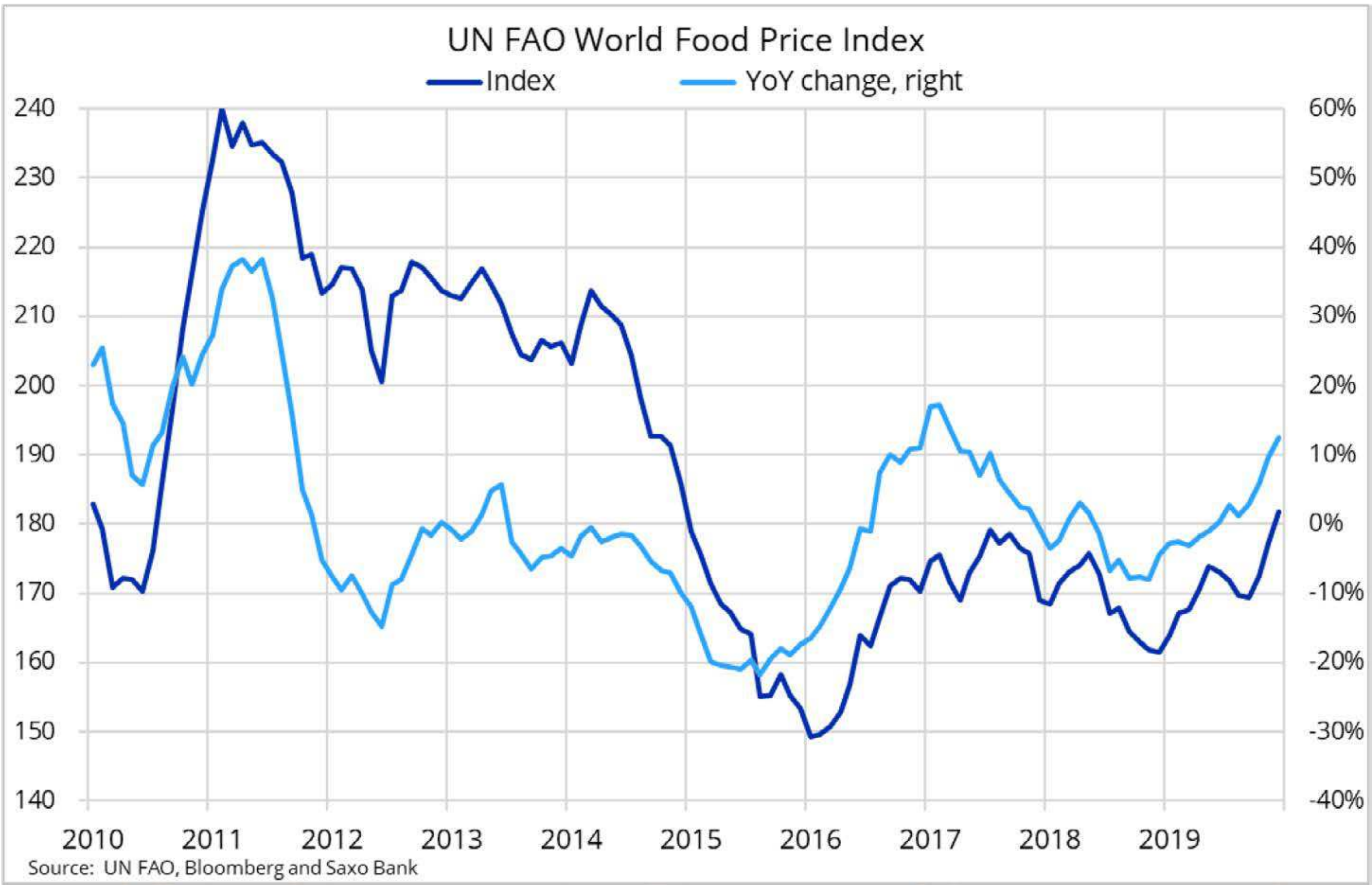
Climate change became top of mind in 2019 and we expect this focus will only continue to strengthen as the real impact is felt across the world. Whether these developments will be viewed as a temporary blip 50 years from now is irrelevant. The trend towards a warming atmosphere is likely to see weather become more volatile and unpredictable, thereby creating a challenge to global food supply chains. Already warm regions are getting hotter, while wet regions are getting wetter. 2019 was the year where several weather events ensured these developments received increased attention.

Increased weather volatility is likely to manifest itself through intense droughts, floods, heatwaves and wildfires, leading to an increase in the rate of soil loss and land degradation. At sea the change may also have a significant impact on fish and shellfish habitats and could disrupt fragile ecosystems.

We have witnessed several years of ample supply with stable-to-lowering prices. In fact, the last period of tightness among the key crops was back in early 2010 when soaring wheat prices helped trigger the Arab Spring. While global demand and supply have both risen during the past decade, the global supply chain will be left vulnerable to a sudden weather-related drop in yields.

“The trend towards a warming atmosphere is likely to see weather become more volatile and unpredictable, thereby creating a challenge to global food supply chains”

Commodities in the crosshairs of climate and inflation



The World Food Price Index, published monthly by the UN FAO, rose 12.5% year-on-year in December to reach a five-year high — but still sits significantly below its 2011 peak. The index, which tracks a total of 73 food commodities across five major commodity groups, saw prices rise fastest in vegetable oils (+20%) and meat (+17%).

Ample supply and weak price action have resulted in negative returns on most exchange-traded funds with broad-based exposure to key agricultural commodities. The table below highlights three of the biggest ETFs with a diversified agriculture exposure. The chart on all three shows that the decade-long downtrend is now being challenged. Of the major commodities we see sugar, coffee, cocoa and wheat being some of the most exposed to global weather scares.

Name	Ticker	No of markets	Market cap (M USD)	1 year	Ann. 3 yr	Ann. 5 yr
Invesco DB Agric	DBA:arcx	11	352	-5.8	-6.3	-7.6
WisdomTree Agric (UCITS)	AIGA:xlon	9	195	-4.0	-8.9	-8.5
Elements Rogers Agric	RJA:arcx	19	110	-3.2	-4.7	-5.5

SOURCE: BLOOMBERG AND SAXO BANK

NOTE: REGIONAL RESTRICTIONS MAY APPLY

Commodities in the crosshairs of climate and inflation

Following years of rangebound trading, we see gold further building on last year's strong 18.5% gain. This as the technical and fundamental outlook continues to improve. However, after racing higher at the beginning of January, we may see the metal spend most of the first quarter consolidating above $1500/oz before moving higher to peak at around $1625/oz later in the year. The short-term consolidation also takes into consideration the elevated level of hedge fund positions. These have become quite extended near record levels and, in the short term, could act as a drag on price.

Geopolitical events such as the early-January US-Iran standoff supported gold but only for relatively short period of time. In order for the yellow metal to climb further, one or more of our below expectations need to be met:

- The US Federal Reserve is likely to continue to cut rates while embarking on another round of quantitative easing.
- Rising inflation, through higher input cost from food and energy driving real bond yields lower. This reduces the opportunity cost associated with holding a non-coupon and non-interest paying asset.
- Continued buying by central banks looking to diversify and, for some, to reduce the dependency on the dollar (so called de-dollarisation).
- The dollar is potentially on its final leg of strength before turning lower.
- Event risks such as renewed US-China trade concerns and the November US elections.

Brent crude oil is likely to remain stuck in the $60s through the first half of 2020, before moving higher in the second. The December 6 OPEC+ decision to maintain and deepen production cuts through the first quarter is likely to offset any potential growth concerns or renewed US-China trade worries.

> **“The December 6 OPEC+ decision to maintain and deepen production cuts through the first quarter is likely to offset any potential growth concerns or renewed US-China trade worries”**

The mid-September drone attack on the world's biggest processing plant in Saudi Arabia, the conflict in war-torn Libya and the early-January standoff between US and Iran all show just how vulnerable the global supply chain can be. However, with ample availability of strategic reserves in the US, China, Saudi Arabia and IEA countries the fallout from a disruption should be limited and relatively short-lived.

We see Brent crude oil at $75/b by year-end, as inflation picks up and the dollar weakens. Any short-term weakness, perhaps from speculators exciting speculative long positions, is likely to be limited. With continued threats to supply from the Middle East and Libya, the market is unlikely to reduce by much.

Ole Hansen, Head of Commodity Strategy

Ole Hansen joined Saxo Bank in 2008 and has been Head of Commodity Strategy since 2010. He focuses on delivering strategies and analyses of the global commodity markets defined by fundamentals, market sentiment and technical developments.

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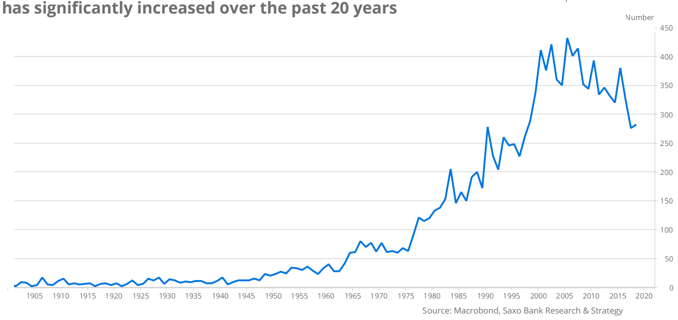
Europe is getting ready for green QE

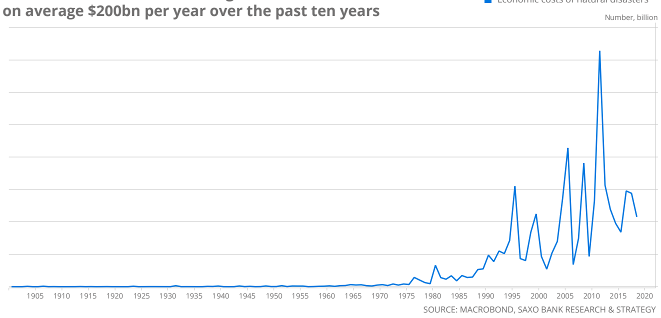
By Christopher Dembik

Are Australia's fires our global wake-up call? This is a legitimate question considering the devastating impact of the natural disaster happening in Australia. As we enter a new decade, there is no debate that there are more and more frequent natural disasters in the world. Based on statistics released by "Our World in data", there have been 335 natural disasters per year over the past 20 years, which is twice as frequent as 1985 to 1995. At the same time, the economic cost is quickly increasing. It reached $200 billion per year on average over the past ten years, which is four times more than in the 1980s.

The number of reported disaster events has significantly increased over the past 20 years



The economic cost is increasing to reach on average $200bn per year over the past ten years



Change is coming from society and that is ultimately influencing politicians' choices. The need for climate adaptations is reshaping the political landscape in Europe. Austria's new government — a Conservative-Green coalition — is the first of many to come, and we would not be surprised if a Green-CDU/CSU coalition rises to power in Germany following the 2021 election. We think that Germany turning green will be the main political gamechanger in the coming years.

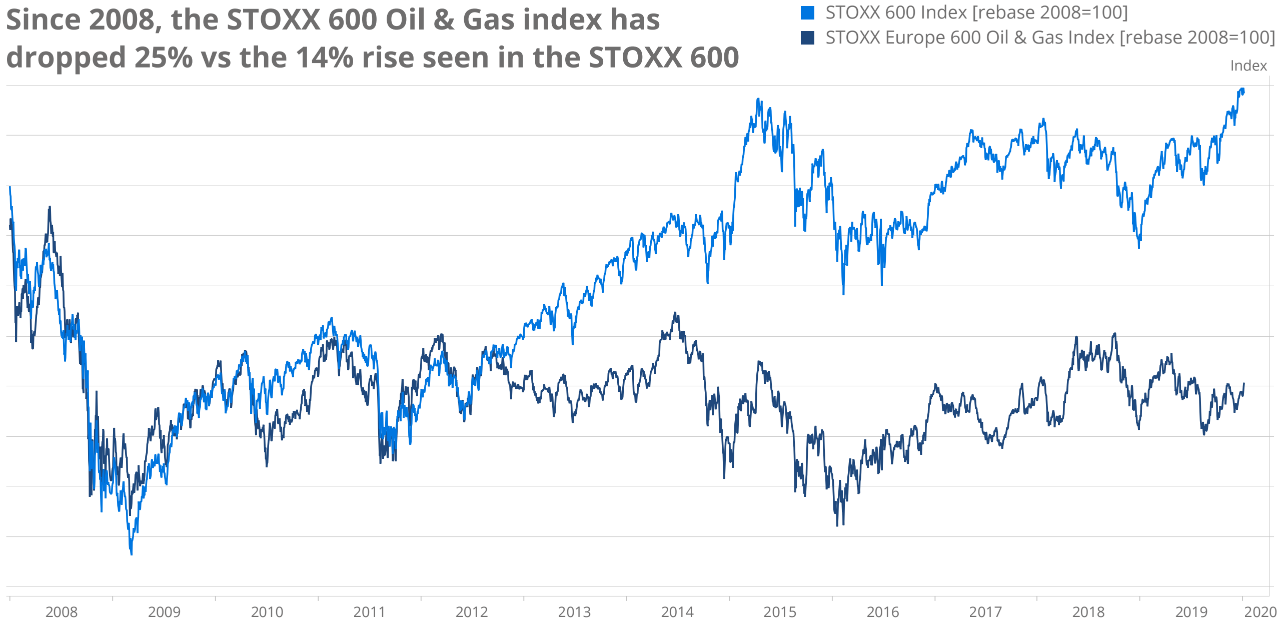
Climate consciousness is fueling public acceptance for more active fiscal and monetary policy. The speed of adjustment remains uncertain, but it has already influenced investors' behavior. Over the course of the current economic cycle, fossil fuels sectors have significantly suffered. Looking at Europe, since 2008, the Europe STOXX 600 Oil & Gas index has dropped 25% versus the 14% rise seen in the STOXX 600.

> "We think that Germany turning green will be the main political gamechanger in the coming years"

The slump is even bigger in the United States. Over the same period, the Dow Jones Coal Index decreased by 95% while the benchmark index skyrocketed by 120%. Of course, not all of this evolution can be only attributed to the rise of green capitalism — but it has certainly played a key role.

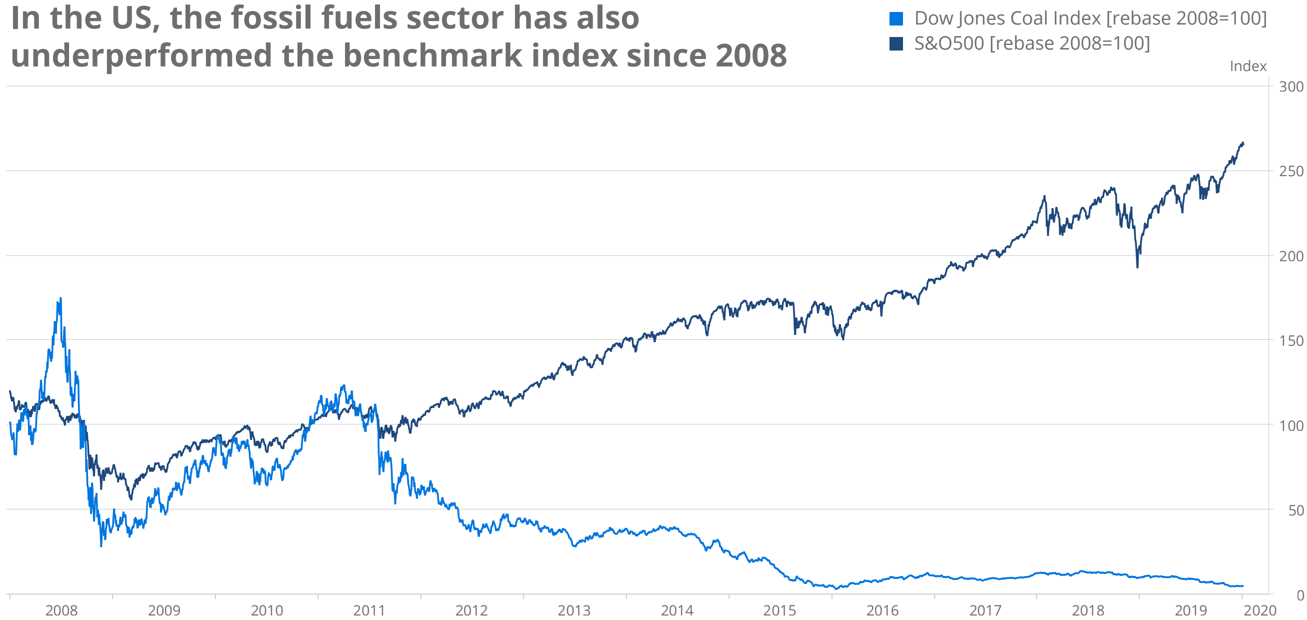
Europe is getting ready for green QE

Since 2008, the STOXX 600 Oil & Gas index has dropped 25% vs the 14% rise seen in the STOXX 600



SOURCE: MACROBOND, SAXO BANK RESEARCH & STRATEGY

In the US, the fossil fuels sector has also underperformed the benchmark index since 2008



SOURCE: MACROBOND, SAXO BANK RESEARCH & STRATEGY

In our view, the next step will be the implementation of a massive monetary and fiscal climate package, but that is more likely in 2021 than 2020. Over the past months, most central banks have pointed out the importance of climate change, such as the Bank of England which has warned of “a climate Minsky moment”.

The ECB is also embracing this issue. We believe the review of the framework that is about to start will be the best opportunity to include climate change. In her most recent letter to the EP, ECB Lagarde clearly stated her intentions: “the intended review of the ECB’s monetary policy strategy...will constitute an opportunity to reflect on how to address sustainability considerations within our monetary policy framework”.

Europe is getting ready for green QE

There is already an emerging debate on whether climate change should be part of the ECB's mandate. If we rely on the Treaty, the primary objective is defined as price stability. However, it also mentions that "without prejudice to the objective of price stability, the European System of Central Banks shall also support the general economic policies in the Union with a view to contributing to the achievements of the objectives of the Union". Among these objectives, it is specifically stated that Union policy prioritises a high-quality environment (Article 3 (3) of the Treaty on the European Union). Based on a strict interpretation of the Treaty, the ECB can play a role to protect the environment — for instance by launching a green QE — as long as it does not enter into conflict with the primary objective of price stability. Considering the level of realised inflation and the level of expected inflation in the euro area, it is very unlikely that the risk of potentially conflicting goals will be raised anytime soon.

However, green QE from the ECB is not going to save the planet and decarbonise the economy by itself. The ECB has mostly three options to launch green QE:

1. Favouring green bonds as part of the revived QE programme. But there is just not enough issuance out there yet.

2. Applying a punitive "haircut" to bank collateral assorted to high carbon intensity activities. But this will further weaken the European banking sector.

3. Targeting transition bonds for dirty companies that try to become greener. But this raises concerns among climate activists.

Contrary to what has happened over the past 10 years, central banks cannot be the only player in town to fight climate change. Governments will need to step in —and the current evolution of the yield curve is creating a very attractive environment for fiscal stimulus oriented to fund green projects.

> **"Based on a strict interpretation of the Treaty, the ECB can play a role to protect the environment"**

Christopher Dembik, Head of Macro Analysis

Christopher Dembik joined Saxo Bank in 2014 and has been the Head of Macro Analysis since 2016. He focuses on delivering analysis of monetary policies and macroeconomic developments globally as defined by fundamentals, market sentiment and technical analysis.

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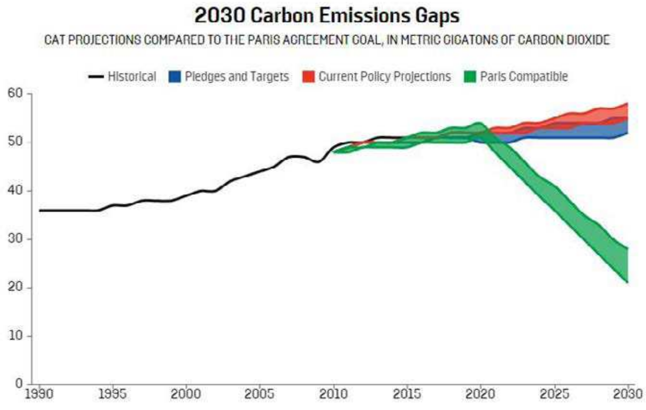
Climate indifference has peaked

By Eleanor Creagh

In a world mired by enduring challenges there has undoubtedly been significant progress so far this century. Globalisation, free markets and technological advances have generated unprecedented wealth and opportunity for some, lifting millions out of extreme poverty and engendering welfare improvements seen across many important indicators such as child mortality and access to basic education.

However, public debate is plagued with populist agendas, crises in economic activities, climate anxiety and rising inequality, which are supplanting free-market capitalism and expanding democracy as key themes. As the third decade of the millennium begins we are on the cusp of an inflection point where the economic and environmental losses and social impact of maintaining the status quo are unsustainable. As policymakers, prudential supervisors, investors and the corporate community alike recognise that their future is inextricably linked to a sustainable economic operating model, growth at any cost will no longer be viable. This will shape the future policy agenda and reallocation of global capital with increasing immediacy.

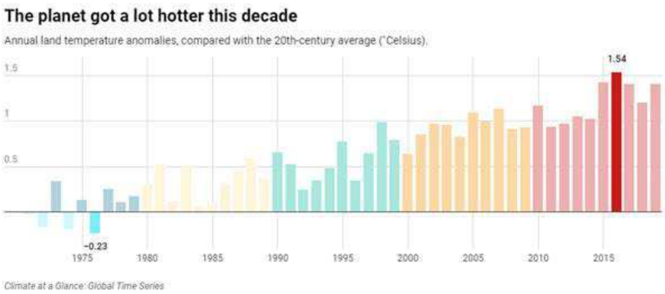


SOURCE: CLIMATE ACTION TRACKER

> **Despite years of debate, global greenhouse gas emissions are reaching record levels and show no sign of reversing**

Honing in on the key focus of this report, the climate, it is our view that the prior decade, which has been the hottest in history, marked peak indifference on climate change. Despite years of debate, global greenhouse gas emissions are reaching record levels and show no sign of reversing.

Rising temperatures have not only melted Arctic ice far quicker than predicted and bleached coral reefs, but also exacerbated the intensity and frequency of deadly droughts, hurricanes, heat waves, and wildfires.

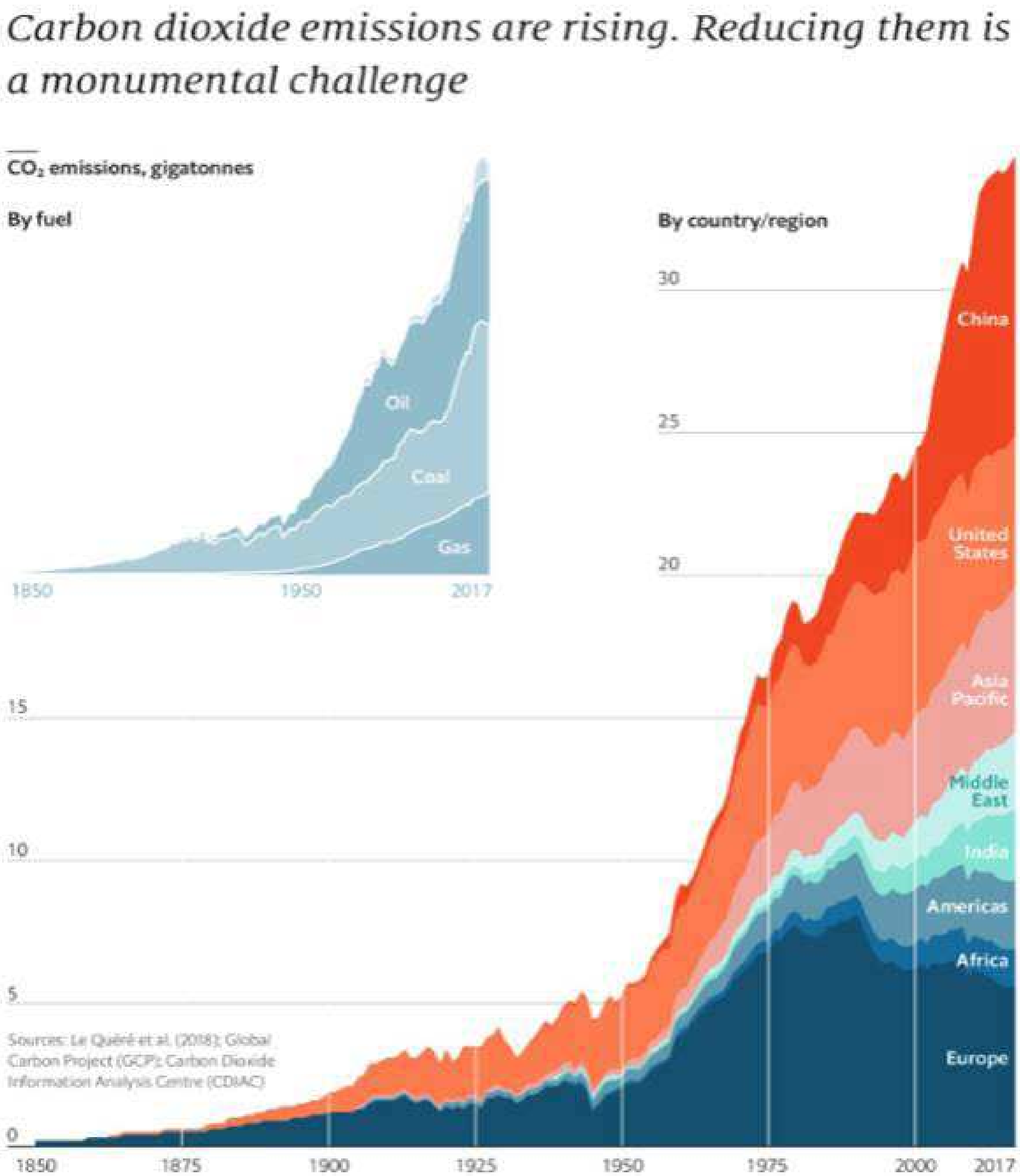


SOURCE: NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION

Climate indifference has peaked

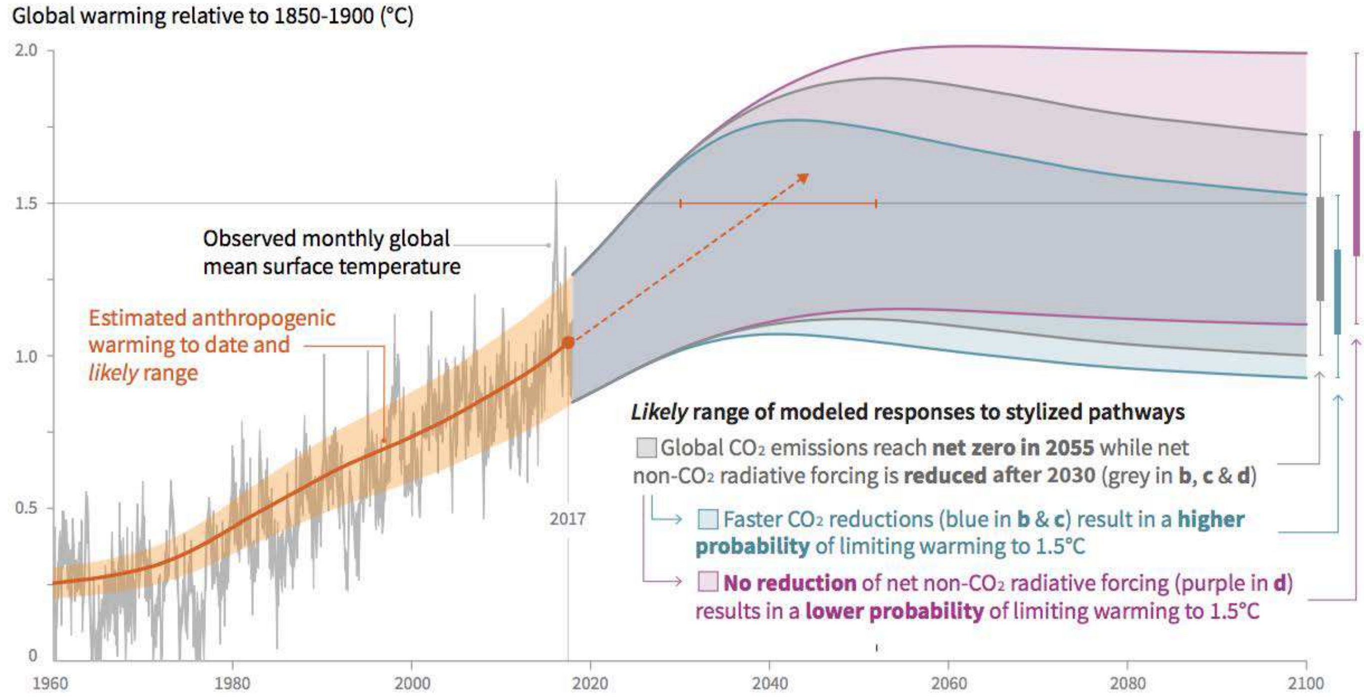
The devastating loss of life and nature demonstrates the significant cost of inaction on climate change. It provides a stark reminder that we are teetering on the edge of a tipping point, where the changes to our planet far outpace any nation's ability to adapt to them.

Although there are wide margins of error in forecasting the potential impact and many uncertainties remain, the greatest challenge of the 21st century could well be the decarbonising overhaul of the global economy.



SOURCE: THE ECONOMIST

Climate indifference has peaked



SOURCE: IPCC 2018 (INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE)

Where we stand

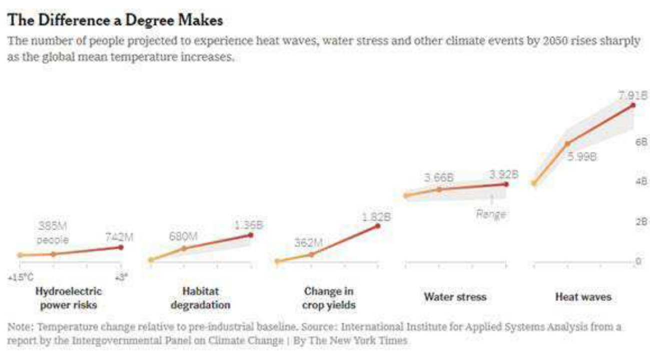
Global warming has seen average air temperatures rise by more than 1°C since records began in 1850, and each of the last four decades has been warmer than the previous one. Sea levels globally have risen 20cm since 1880 at a rapidly accelerating rate, increasing the risk of flooding. Weather patterns, meanwhile, have been altered — hindering food security.

The failure to halt emissions growth over the last 10 years could limit the world's ability to shift to a pathway consistent with 1.5°C or even 2°C of global warming, the upper end of the Paris Agreement's goal (Intergovernmental Panel on Climate Change). According to Climate Action tracker, as of December 2019 under current pledges, the world will warm by 2.8°C by the end of the century — close to twice the limit agreed in Paris. In terms of real policy action, see temperatures could rise by 4°C .

Accelerated warming has huge implications for our planet's oceans, land and atmosphere. For example, scientists at Climate Central estimate that 275 million homes could be submerged at 3°C global warming, with Asian cities most affected. Many land and seaborne species would face mass extinctions.

Aside from the devastating loss of biodiversity in the natural world, this threatens vital marine and land ecosystems upon which billions of people rely for food and employment. According to the scientific report released by WWF warming of 2°C would be untenable for 25% of species in Madagascar, which would cause their extinction by the 2080s.

Beyond 3°C, scientists estimate the frequency of high temperature events will at least double compared to present day and extreme precipitation will become not only more intense but also more frequent, making disaster induced displacement a growing risk factor.

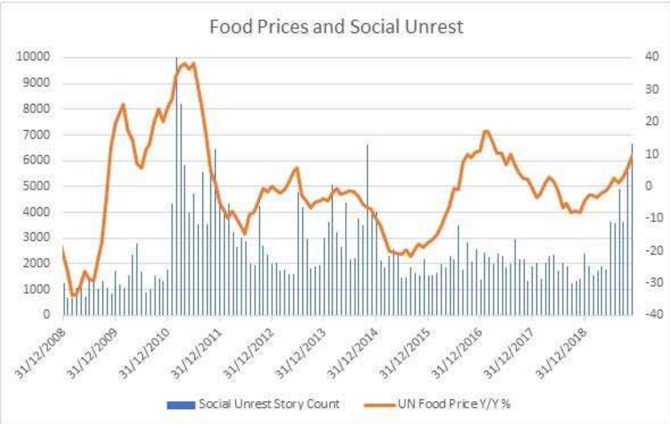


SOURCE: NEW YORK TIMES

Climate indifference has peaked

Those already facing poverty will be hardest hit, thus exacerbating inequality

27 of the world's 28 poorest countries are in sub-Saharan Africa where a combination of dependence on agriculture, environmental deterioration, and population growth are deadly. Here, the primary cause of migration is often climate induced. Weak institutions are unable to adapt to climate changes and when people have nothing to eat, they are willing to pick up a gun to survive.



SOURCE: BLOOMBERG AND SAXO

The cascading effects resulting from constraints like food and water security concerns or homes and livelihoods lost to natural disasters will result in serious ramifications that are too great to ignore. The world has agreed immediate action is necessary, and as the costs of apathy mount implementation is more crucial than ever.

Investment: Peak indifference = action

Climate action could be one of the most transformative and disruptive challenges faced by the global economy. For investors in global capital markets, aside from the obvious negative implications to any industry reliant on fossil fuels, the impact will be far reaching affecting industries from finance to REITs and transportation. The green transformation will also drive many positive advances as the need for adaptation spurs the adoption of policy solutions aimed at funding clean energy projects, water security, sustainable infrastructure developments and green technological innovations such as emissions capture and energy storage breakthroughs. These new climate industries not only provide jobs and economic gains but also generate a positive impact by providing cleaner air, preserving delicate ecosystems and improving human health. The climate crisis is defining a future generation, and as the cohort of millennial and Gen-Z investors grows financial performance will no longer be the only investment goal, increasing demand for positive impact investments that align with broader sustainable objectives.

Creating a sustainable finance ecosystem requires a huge reallocation of capital. Investors and corporates who do not gear their portfolios towards more sustainable business models risk facing large losses in the coming decades: regulatory changes could leave many current operating models unviable. Over a third of global capital already has some form of ESG mandate, putting many companies and countries on the wrong side of that mandate on the backfoot. If companies fail to adjust, they will cease to exist.

Green themes

CLEAN ENERGY
- Wind
- Solar
- Hydro
- Biofuels

BUILDINGS
- Energy efficient/Green buildings
- Solar
- Smart cities
- Flood prevention

ELECTRIC VEHICLES
- EV manufacture & Finance
- Energy storage

TECHNOLOGY
- Robotics/Biotech
- Carbon capture/measurement
- Extreme weather/Emissions monitoring
- Smart grid (decarbonize & decentralize)

WASTE MANAGEMENT
- Emissions capture
- Recycling
- Sustainable packaging/Plastics
- Energyfromwaste (EfW)

TRANSPORT
- Electric public transport
- Mass transit
- High speed trains
- Greenways/Pedestrian infrastructure

MITIGATION
- Reforestation
- Water security/Desalination
- Extreme weather infrastructure
- Flood/fire insurance

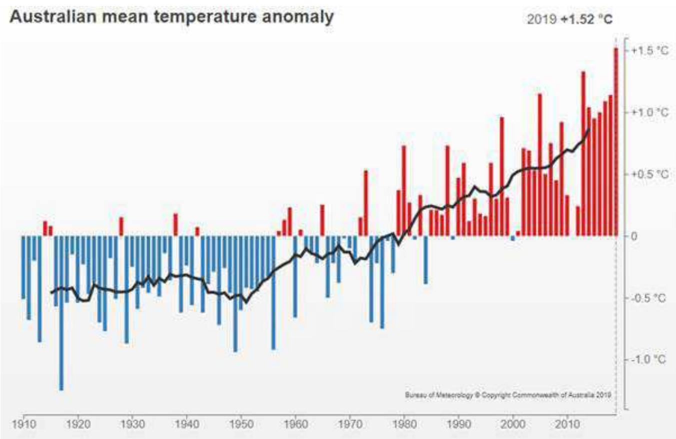
AGRICULTURE
- Meat alternatives
- Lab grown meat/fish
- Climate resilient crops
- Smart farms/Agricultural productivity

SOURCE: BLOOMBERG AND SAXO

Climate indifference has peaked

A closer look at Australia: ground zero for climate change impact

Australia, the world's driest inhabited continent and home to fragile ecosystems like the Great Barrier Reef, is ground zero for climate change and particularly vulnerable as our planets temperature rises. Australia's climate alone has heated by more than 1°C since 1910. In fact, 2019 was the hottest and driest year on records dating back to 1910, according to the Bureau of Meteorology. From extreme heatwaves to heavy rain, severe droughts to deadly wildfires, a decade of unprecedented warming has seen the frequency and cost these extreme weather events increase.



SOURCE: BUREAU OF METEOROLOGY

Giving the rest of a world a glimpse at what the climate crisis may bring in the coming decade, these record-breaking temperatures and dry spells have fuelled an unprecedented bushfire crisis that has so far laid bare over 10million hectares of land. Destroying homes and livelihoods, and wiping out an estimated 1.25 billion native animals, "hastening extinction" for some species according to Professor Chris Dickman, University of Sydney. A tipping point that incites remedial action to minimise climate related risks, as prevention becomes less costly than the cure.

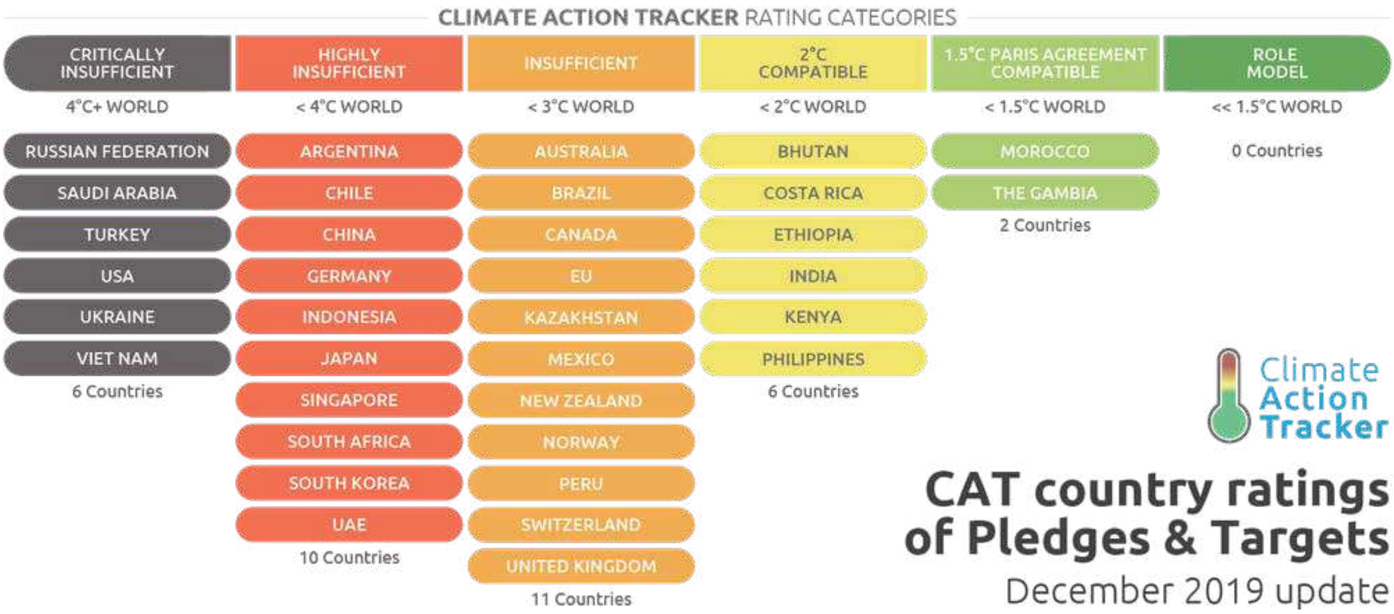
The ongoing bushfire crisis will present a headwind for the economy in the near term, which is already experiencing a period of soft economic growth. The full impact is hard to gauge and will be moving target as continued hot dry weather presents the risk of the fires intensifying further, but will no doubt cost the economy billions of dollars, with the bulk of the damage felt in Q1 2020. The damaging disruption to tourism, regional trade, construction activity, agricultural productivity and retail, against the backdrop of an already cautious consumer, will not only hit those areas most affected, but also major East Coast cities engulfed by thick smoke. Tourism is Australia's 4th largest export and could suffer a lasting blow as devastating images of burning animals and cities shrouded in smoke, leaving the air quality worse than Delhi, Mumbai and Beijing, flood international newsfeeds.

All this comes at a time when the underlying economy is already weak. Consumer's confidence in the economic outlook, which was already supressed, has been mired further by the ongoing crisis hitting lows not seen since 1994 on some measures. The outlook for consumption is not only pressured by poor confidence inhibiting the consumers propensity to spend, but also by ongoing concerns surrounding job security, stagnant wage growth and excessive household debt levels.

Several quarters of below trend economic growth, along with weak consumer spending , poor business conditions and a private sector in recession presents a deteriorating outlook for the labour market and employment growth. This whilst unemployment remains well above the RBA's full employment estimate, inhibiting wage and inflationary pressures from materialising.

"A sustainable finance ecosystem requires a huge reallocation of capital"

Before bushfires presented a headwind for confidence and economic activity, we expected the RBA to cut the cash rate again in February and once more later in 2020. Whilst not a direct factor, the present disruption only reinforces our view and adds to the board's impetus to deliver another 25bp cut in February, particularly whilst the government leave the heavy lifting to the central bank. This will see both the AUD and Aussie bond yields shackled by the domestic outlook, with reflationary bounces short lived and strength sold into. We believe it is too early to maintain an outright bullish bias on AUD, despite an ongoing recovery in risk assets and receding geopolitical risks.



A UN report finds that to even come close to the goal of limiting global warming to 1.5°C over the next decade, nations must halve emissions by 2030. According to Climate Action Tracker, after removing highly unpredictable LULUCF changes to focus solely on energy and industry emissions Australia's Paris target translates to a 14-16% decrease from 2005 levels by 2030. But under current policies, Australian emissions are headed for an increase of 8% above 2005 levels by 2030. Climate policy is actually worsening as coal fired power generation is greenlighted with little regard for the coal phase out obligations of the Paris Agreement in OECD countries by 2030. And that is before accounting for the fossil fuel intense exports that Australia ships elsewhere.

But we are fast approaching an inflection point, as climate change starts to constrain economic growth where the cost of inaction outweighs the cost of action.

In Australia, the current governments denial of the world's leading advice on climate change puts them on a collision course with both society and investors. The present crisis is defining a new generation of Australians, research from The Australia Institute has found that 2/3s of Australians believe the country is facing a climate emergency and that the Government should mobilise all of society to tackle the issue, like they did during the World Wars.

If the 2020s are the decade of cleaner, greener change then investors and policymakers must allocate toward sustainable business models or face large losses. Climate change presents challenges that are complex and unprecedented, but mitigation efforts will require systemic changes, providing multiple opportunities for investors.

Eleanor Creagh, Market Strategist

Eleanor Creagh joined Saxo Bank in 2018 and serves as the bank's Australian Market Strategist, responsible for creating, implementing and monitoring equity strategies and research for traders and investors, as well as developing quantitative models and customised mathematical frameworks for institutional clients. Eleanor holds a double major in Finance and Economics from the University of Sydney.

@Eleanor_Creagh

Asia is sinking, flooding, burning & freezing – all at the same time

By Kay Van-Petersen

It seems like each year volatility in temperatures, seasons and weather — as well as natural disasters — becomes more extreme.

> **Climate disasters tend to act like volatility in the markets, whereby volatility begets more volatility. One disaster raises the probability and potential magnitude of another type of disaster**

We have had all-time high temperatures being recorded in Australia, where fires continue to rage.

- Over 25 million acres have burnt (that's bigger than countries such as South Korea, Hungary, Austria or Norway).
- An estimated 1 billion animals have been killed (the Koala Bear is now functionally extinct).
- The damage total is A$100bn (5% of Australia's A$1.9 trillion GDP).

What is even more appalling – apart from poor government response & complete disconnection to the severity of the situation by PM Scott Morrison, a known climate change sceptic — is that rains are not expected until late Feb, so things will likely get worse before they get better.

In Delhi, India – a city normally associated with its baking heat – freezing temperatures were recorded in Dec that were the coldest in over a century. Climate disasters tend to act like volatility in the markets, whereby volatility begets more volatility. One disaster raises the probability and potential magnitude of another type of disaster, because nature is interlinked. For instance, fires lead to flooding due to destroyed vegetation.

Meanwhile, the mega-cities of major countries are now at risk of sinking & flooding.

As a case in point, the capital of Indonesia is Jakarta, whose greater metropolitan area has a population of 30 million. Jakarta is one of the world's fasting sinking cities, dropping over 10cm (4in)

Asia is sinking, flooding, burning & freezing – all at the same time

a year. That is about the width of an adult male's palm.

The irony that faces the sinking city, that is regularly hit by tropical cyclones as well as sea storms, is that it has a lack of clean drinking water. Given its thirteen polluted rivers, for decades the city has been pumping ground water with virtually no meaningful replenishment of the natural underground basins. This is all due to a population explosion, lack of green space and poor infrastructure. And it is leading to a collapse in the pressure of the ground that is holding up the city.

Some studies suggest that in just ten years, northern Jakarta could be permanently flooded: including the airport. An estimated $40 billion sea wall is being built along Jakarta bay, with the objective of alleviating the flooding pressures and allowing lower water levels so the city's rivers can drain more efficiently. When around 40% of the city lies below sea levels, this is the equivalent of insisting on staying in a burning house while occasionally dousing the flames with a cup of water.

On a proactive note, the government announced in April 2019 that a new capital would be built elsewhere in Indonesia at an estimated cost of $34 billion. Sometimes it's better to start afresh and design a city that is built for the sustainability of the future.

Getting exposure on the sustainability/impact investing theme

There are traditional allocations to the renewables sector which you can access directly through our Saxo Investor. There are also lifestyle consumer choice themes. Tesla [TSLA], for example, is seen by its fans as a disruptor in the renewable and storage energy space from traditional fossil fuel engines and CO2 emitters.

> **“More and more consumers will want to use their spending capital to vote for companies that practice sustainability”**

Beyond Meat [BYND] focuses on the plant-based protein theme by creating foods that taste just as good as traditional animal protein, yet sourced from plants. This is a powerful investment theme in social impact/lifestyle change that is going to be Godzilla in size and likely run for decades.

There are going to be at least two key structural driving forces.

The first will be demand driven. More and more consumers will want to use their spending capital to vote for companies that practice sustainability. For instance, probably about 5% of the US's 330 million people are currently vegetarians, but that ratio that is likely to grow. Companies and entrepreneurs that are proactive in regard to consumer sustainability lifestyle choices will thrive and move ahead.

The second will be supply driven. Governments are coming to fully understand that we are likely past the tipping point where the cost to do nothing in regards to sustainable growth is much greater than the cost of addressing it now. To put it another way, governments need to tip over from being reactive to proactive on the climate crisis.

They need to spur innovation, R&D as well as investments through subsidies, grants & tax breaks.

@KVP_Macro

Kay Van-Petersen, Global Macro Strategist

Kay Van-Petersen joined Saxo Bank in 2014 as a Global Macro Strategist, based in Singapore. He focuses on delivering strategies and analyses across asset classes based on monetary and fiscal policies, global geopolitical landscapes as well as other macroeconomic fundamentals. He also takes into account market sentiment, technical and momentum factors, and corporate bonds with attractive risk and return.

Breaking down evidence of global warming

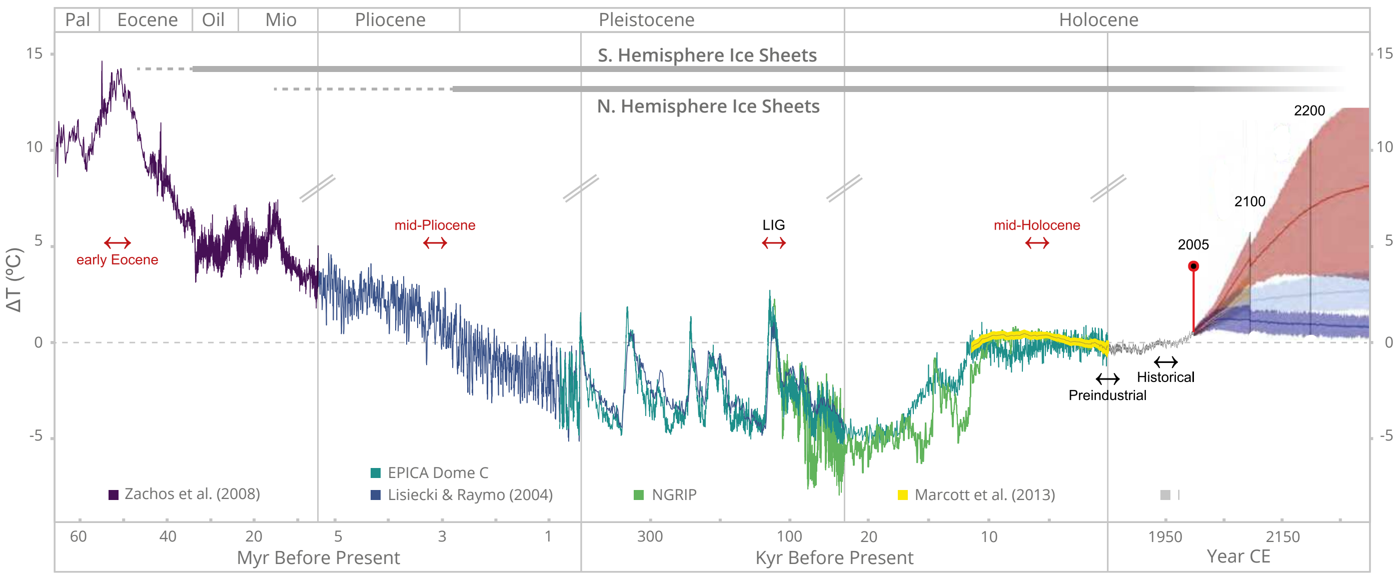
By Anders Nysteen

The United Nation's body for assessing science related to climate change – the Intergovernmental Panel on Climate Change (IPCC) – estimated in 2018 that human activities have caused a global temperature rise of around 1.0°C above pre-industrial levels [IPCC].

Plenty of other research groups are seeking to understand the drivers of global temperature rises by applying various climate models and simulations. The estimates of anthropogenic climate change rely on a comparison with an artificially generated model assuming the conditions of the earth without human activity. As this parallel scenario will never be realised, these climate models seek to find the best qualified guess for the parallel scenario by looking at the fundamental drivers of climate change in the past prior to human existence. As this is a difficult task, a broad variety of climate models with associated uncertainties are presented every year, all contributing to the broader climate discussion.

We do not seek to take any stance in the climate debate, but an understanding of temperature drivers is a solid basis for having a qualified view. This is also from an economic point of view, as climate change can have major geographical impacts that require a shift in agricultural production, demographical reallocations etc.

Figure 1 – Temperature trends for the past 65 million years:



SOURCE: GLOBAL MEAN ANNUAL TEMPERATURES, CHART FROM BURKE ET AL., HTTPS://WWW.PNAS.ORG/CONTENT/115/52/13288. THE LAST PART OF THE TIMELINE IS A PREDICTION BY THE SOURCE AUTHORS AND SHOULD BE IGNORED IN THIS CONTEXT.

Breaking down evidence of global warming

The temperature of the Earth fluctuates a great deal and on a number of timescales (see Figure 1). The larger trends have been a long-term cooling from tens of millions of years before the present era in which the CO_2 concentration in the atmosphere declined, and a more recent period of heating since the last Ice Age. Periodic variations in the temperature occur in cycles of 10k-100k years, driven by changes in the orbit of the Earth. These timescales are much longer compared to the changes during the past 150 years, when the global temperature has been in a rising trend. This is shown in the Berkeley Earth surface temperature project in Figures 2.

A simple climate model presented by Carbon Brief breaks down global warming since the industrial revolution into contributions from different factors as indicated in Figure 2. In a simplified overview, the major factors that will affect the Earth's climate are:

"We do not seek to take any stance in the climate debate, but an understanding of the temperature drivers is a solid basis for having a qualified view"

- Greenhouse gasses, such as carbon dioxide and methane. These absorb infrared radiation emitted from Earth's surface and re-radiate it back to Earth's surface, driving a net rise in warming.

- Ozone, which is a short-lived greenhouse gas that also traps outgoing heat — although ozone reactions in the upper atmosphere result in a net cooling.

- Aerosols, which are tiny particles such as dust or even pollutants from human activity that float in the atmosphere. They drive a net cooling effect by forming clouds that reflect sunlight.

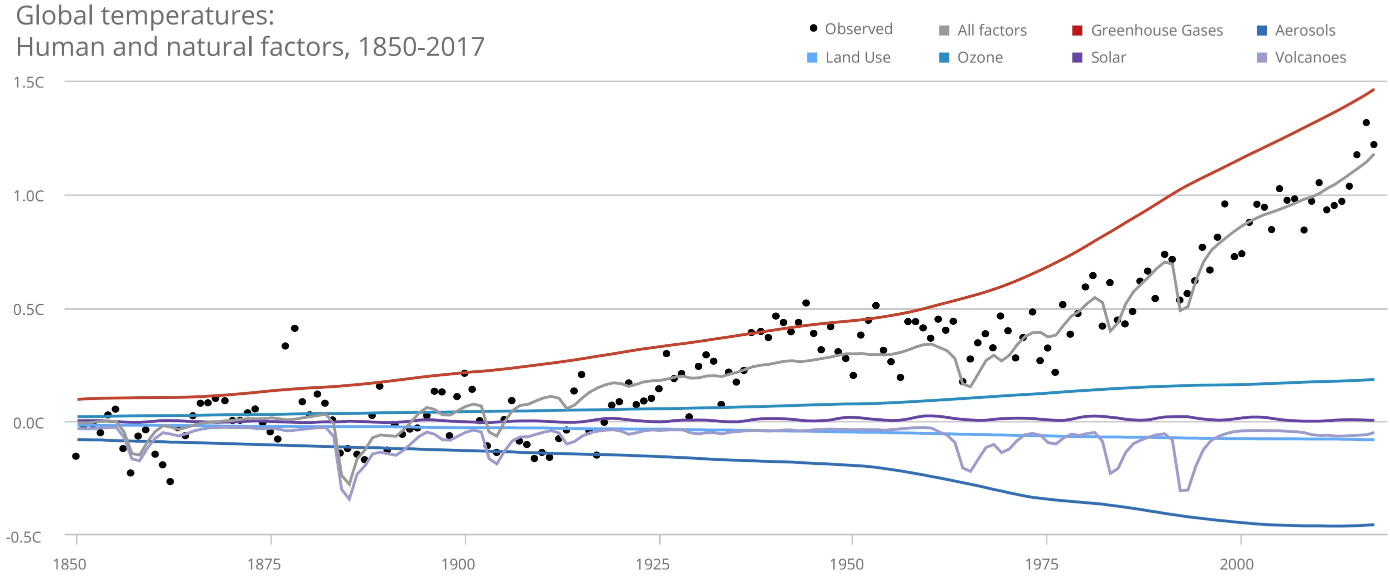
- The type of vegetation on land. This affects the absorption of sunlight, as dense forests absorb more sunlight than fields with a more reflective surface.

- Sunspots. These are storms on the surface on the Sun with huge magnetic activity, and they may affect the climate of the Earth. However, no upward trends in these activities has been measured since 1978.

- Volcanoes, which erupt particles (effectively aerosols as above) into the atmosphere that block sunlight and thus in general have a net short-term cooling effect.

Breaking down evidence of global warming

Figure 2:
Global temperatures:
Human and natural factors, 1850-2017



SOURCE: CARBON BRIEF

According to Carbon Brief, the human-generated impacts such as the increased greenhouse effect from CO2 and other emissions have had a major influence on rising global temperatures relative to any natural effects. This agrees with the research by IPCC, stating that human-generated emissions over the past 150 years most likely will persist for centuries and result in long-term changes in the climate system. If the present trend persists, IPCC estimates that the global temperature will rise another 0.5°C within the next 10-30 years, and the risk of a climate-related damage for natural and human systems is likely to be higher at this point than at present levels. [IPCC]

“Human-generated emissions over the past 150 years most likely will persist for centuries and result in long-term changes in the climate system”

The broad variety of climate models propose many different future scenarios. Some of them contain extreme tail-risk scenarios with a very low probability of realisation. But if they are realised, they can have major social and economic impacts: causing major flooding, scarcity of food supply etc. In the end, none of these models may contain the actual scenario which is going to be realised, but it is worth keeping up to date with the newest research – even the low-probability scenarios – as risks gather that climate change makes a larger and accelerating impact on our future.

[IPCC: IPCC, 2018: Summary for Policymakers, Global Warming of 1.5°C]

Anders Nysteen, Quantitative Analyst

Anders Nysteen joined Saxo Bank in 2016 in the Quantitative Strategies group, and his primary focus is on developing mathematical trading strategies and asset allocation models Anders has a degree in Physics and Nanotechnology from the Technical University of Denmark and holds a Ph D in Quantum Photonics

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