

## US hero, rates moving to zero

Donald Trump or Joe Biden; who'll be the hero of the hour? Our major report looks at what's really at stake for America's economy and beyond. And zero interest rates in the UK? Your questions answered. Here's our selection of ING economics' top stories this week

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# US Politics Watch: A Pivotal Election

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The November election may well be a factor that has impacted US investment decisions over the past 12 months

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## US: Manufacturing muddies the waters

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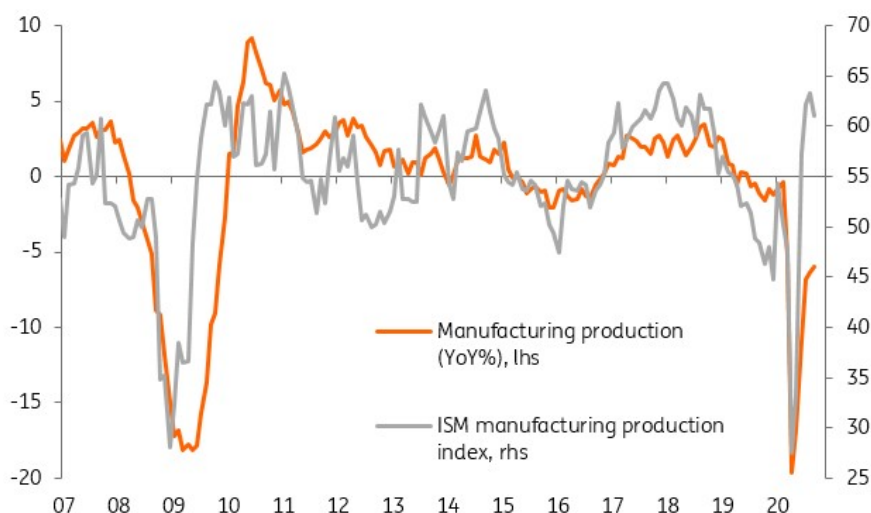


### Manufacturing miss

We had been hoping for a decent industrial production report to follow on from the knockout retail sales figures, but it hasn't happened. While manufacturing surveys continue to point to rapid growth, the Federal Reserve has calculated that US industrial production fell 0.6% month-on-month with manufacturing output falling 0.3%. The market expectations were for a 0.5% gain for IP and a 0.6% increase for manufacturing.

The disappointment stems from the auto sector – despite the robust gains in car sales we saw just over an hour ago. Auto output fell 4% MoM (vehicles down 7.3%, car parts down 1.3%) in September after falling 4.3% in August, so maybe producers may be worried that the recent sales boom is not sustainable and are wary of building up too much inventory. Outside of the auto sector manufacturing output was flat. Defence and Space was the biggest positive, rising 2.1% MoM.

## Manufacturing output underperforms the surveys



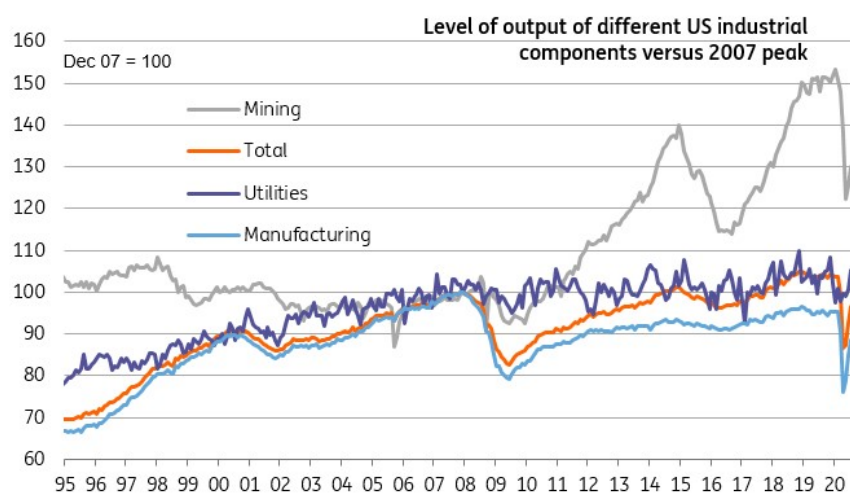
Source: Macrobond, ING

## Overall activity still robust

Utilities output fell 5.6% MoM as cooler weather returned in September – remember that August was hot with air conditioning units running overtime most of the month. Mining was up 1.7% MoM. In terms of the levels of activity, manufacturing is still 6.3% down on February, mining is down 14.4%, utilities are down 2.5%, leaving total industry output 7.1% lower than before the pandemic started to bite the economy.

The one consolation is that consumer spending is nearly 70% of the economy and manufacturing is only 10% so on balance the US is still well ahead. We continue to forecast 3Q GDP growth of 34.5% annualized due to the re-opening rebound with 4Q GDP likely to grow a more modest 4.5%.

## Levels of output for different industrial components



Source: Macrobond, ING

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# Bank of England: Six answers on negative interest rates

It's not currently our base case but negative rates are possible in the UK next year if Brexit goes badly or if Covid-19 gets worse. This would take...



Governor of the Bank of England, Andrew Bailey

## The case of more stimulus is building

With three weeks to go until the Bank of England's November meeting, there can be little doubt that the case for additional stimulus is building.

The resurgence of Covid-19 across the UK and the resulting restrictions mean the recovery is set to stall. But is all of this enough to move the needle closer to negative rates, and if it does, what would be the impact?

### 1 How likely are negative rates in November?

In short, not very.

While the Bank of England has made it crystal clear now that negative rates are 'in the toolkit',

they've opted to take time collecting and analysing data from banks on the potential impact. This operational planning phase is unlikely to be complete before the November meeting when the Bank will publish its next Monetary Policy Report.

We wouldn't totally rule out a move to zero interest rates (10bp cut) - although this is perhaps unlikely before the review is concluded. We also might see the BoE adjust the interest rate on the Term Funding Scheme, the programme that offers banks cheap funding if they increase lending to SMEs.

But clearly, the major focus will be on QE, and it now looks fairly inevitable that the MPC will top-up its asset purchase programme, perhaps by another £100bn. We think that would give policymakers scope to continue making purchases until early summer next year if the pace of purchases stays broadly similar.

## 2 How likely are negative rates in 2021?

Our base case is that the Bank will veer away from lowering rates further, although that relies on there being a Brexit trade deal, and the outlook for Covid-19 looking a little brighter from the spring - neither of which is guaranteed.

But even if the economic outlook does deteriorate further, the Bank will need to be convinced that negative rates will make a difference. And interestingly, recent MPC commentary suggests there's far from a consensus on how useful the policy would be.

In our opinion, there is so only so much lower interest rates can achieve in the current environment. Instead, the best monetary policy can do at the moment is to facilitate the conditions necessary for fiscal policy to do the heavy lifting.

That said, negative rates could gift the BoE with a greater ability to shape markets via forward guidance in future crises. So far, the Bank has successfully managed to talk market rates below the zero lower bound without so far having to implement the policy. But to achieve a similar result in the future policymakers may find they need to have made the jump below negative for a period of time if markets are to act as an 'automatic stabiliser' (that is to price in sub-zero rates) in future times of market stress.

If the BoE were to implement negative rates in 2021, then we suspect it would be reluctant to go significantly below zero (perhaps 20-30bp). We also imagine the MPC would be keen to exit the policy fairly quickly, even if economic circumstances don't necessarily justify meaningful tightening. This would be similar to what Sweden's Riksbank did at the end of 2019.

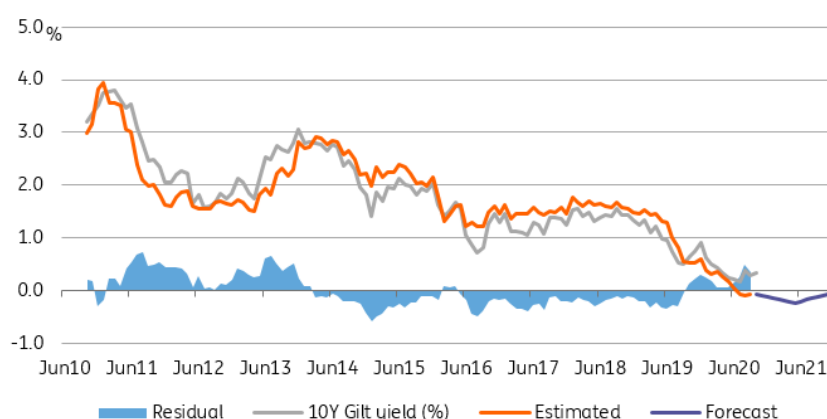
## 3 What would negative rates mean for the GBP curve?

Negative rates would not come as a great surprise to GBP rates. Indeed 1Y forward 1Y OIS has been below 0% since June of this year, showing persistent negative rate expectations.

This implies that various corners of rates (and probably other) markets already reflect negative rates. This also reduces the potential impact of the announcement. This being said, Sonia forwards are currently consistent with a Bank rate cut to -0.15% (from 0.1% currently). If and when the BOE decides to cut rates, we find it probable that Sonia forward would drop another 10bp, consistent with a trough in the Bank rate of -0.25%.



## A combination of more QE and negative rates would push gilt yields below zero



Source: Source: Bank of England, ING

### 4 What about gilt yields?

A combination of £100bn more QE (our expectation for November) combined with negative rates bottoming at -0.25% would push our 10Y gilt fair value below 0%. We expect any drop in the Bank rate would be reflected roughly equally into repo rates; that would remove the current floor under gilt yields. In addition, further removal of government debt from the market through QE would push yields closer to the repo rate. As a result, we see a trough around -0.20% for 10Y gilt fair value around the middle of next year.

There are wide confidence bands around this central tendency, however. Firstly, you've got to acknowledge that if the Bank rate reaches -0.25%, the BOE would have a hard time convincing markets that rates are at their lower bound, taking the ECB and SNB policy rates of -0.50% and -0.75% as examples. This would suggest 10Y gilt dropping temporarily below the bank rate in anticipation of more cuts. This however would depend on the pace of the recovery in 2021.

At the other end of the risk spectrum, a combination of robust recovery and credible inflation-boosting credentials could result in a materially steeper curve if the BOE implements a negative interest rate policy (NIRP). This would see gilt yields recover quickly and rise above zero faster than our fair value estimate suggests.

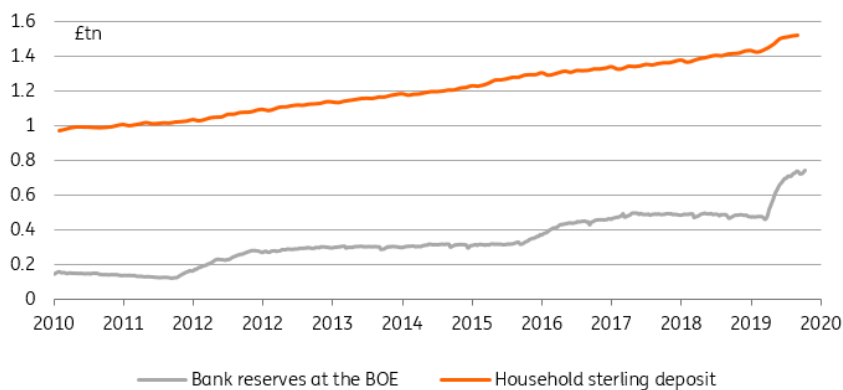
### 5 Are we likely to see tiering to support bank profitability?

The August Monetary Policy Report noted tiering as a key measure taken by the ECB and other central banks to mitigate the detrimental impact NIRP would have on bank margins. To keep a long story short, the difficulty in charging negative rates to retail deposits while lending rates drop could put pressure on their profitability. To remedy this, the ECB and other central bank exempt a portion (a tier) of bank reserves from negative interest rates.

The ramifications of tiering are manifold. Starting with the impact for banks, we find it unlikely that exempting even a large portion of bank reserves (and don't forget that the larger the exemption, the less potent the rate cut, see below) would fail to completely offset the drop in profitability for banks at the aggregate level. It is easy to see why: household sterling deposits amount to £1.5tn

whilst bank reserves at the BOE are 'only' £0.75tn.

## Reserves tiering is only a partial offset for the cost of negative rates



Source: Bank of England, ING

The impact on short-dated interest rates markets is not straightforward either. The experience of other jurisdictions suggests that a cut in the Bank rate accompanied by a tiered reserve system would be translated almost entirely to Sonia swap rates. However, the larger the reserve exemption, the less sensitive we expect Sonia would become to a fall in the BOE Bank rate. Similarly, a more generous tiering regime could also affect demand for safe short-dated bonds, such as gilts.

So what we have here is just an overview of the ramifications of negatives rates and a tiering system but it should help demonstrate that the policy amounts to mixed messages for financial markets. On the one hand tiering can be seen as allowing the BOE to cut rates even deeper below zero by easing the pressure on banks. This would allow Sonia forwards to drop significantly below spot as they have done since June. On the other, it may be understood as less of an easing step if not all GBP rates reflect the drop in the Bank rate. This would be for example the case of bond yields not dropping as far as swap rates.

### 6 What would be the impact on sterling?

While BoE negative rates would be, unsurprisingly, negative for GBP, what will matter more are the circumstances under which they come about. As we've already mentioned, a 'no deal' Brexit could be a trigger for negative rates. But in this scenario, we'd expect the Brexit factor to be more negative for GBP than the direct effect of negative rates.

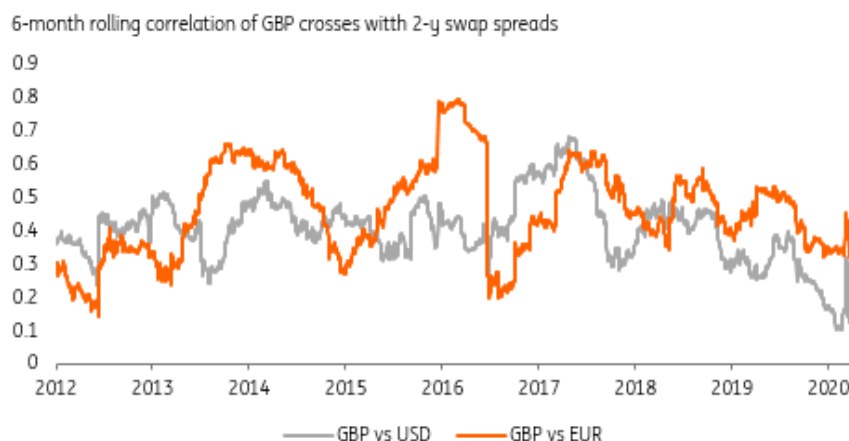
### Negative rates a negative for GBP, but...

Negative rates are already being partly priced in by the market, meaning that such BoE action would not come as a complete surprise. In addition, there are question marks about how low the BoE would go and to what extent the level of tiering (see above) would reduce the impact of rates cuts on the GBP swap market, and thus on sterling.

As EUR/GBP is more sensitive to interest rate differentials than GBP/USD (in the chart below, note

the GBP/USD sensitivity is at multi-year low), all things being equal, BoE rate cuts would be more detrimental for GBP vs EUR than vs USD. Our EUR/GBP financial fair value model suggests that an unexpected BoE rate cut (ie, a rate cut which is not priced in, with its effect not being reduced by tiering) of 25bp would push EUR/GBP higher by around 1.5%-2.0%.

## GBP/USD more sensitive to interest rate differential than EUR/GBP



Source: ING

## The trigger behind rate cuts matters more for the currency

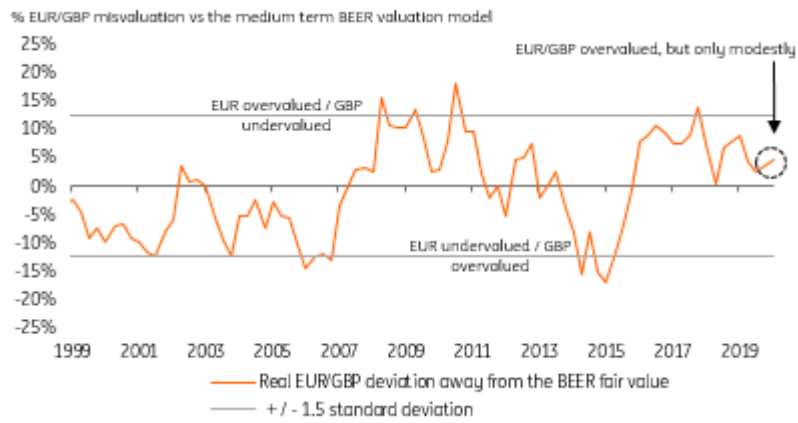
Under a 'no deal' Brexit, the subsequent confidence shock, the de-rating of the medium-term UK growth and trade outlooks, as well as question marks about future UK productivity growth, would all weigh on the medium-to-long term sterling fair values and lead to a sharply lower GBP.

As you can see in the chart below, EUR/GBP does not trade meaningfully above its medium-term BEER fair value, suggesting further scope for a decline

We expect EUR/GBP to test the parity in the case of no-deal Brexit, which would represent a depreciation in excess of 10% versus current levels. Clearly, that would far outweigh the impact of an unexpected 25bp rate cut, which as we said earlier we think would see a 1.5-2.0% GBP fall vs EUR.

In other words, the negative rate effect would be of secondary importance for GBP than the shock of Brexit

## GBP does not look stretched vs EUR



Source: ING

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Podcast | 15 October 2020

## Listen: Europe's second wave sends recovery into reverse

New lockdown measures to stem the spread of the virus in Europe are threatening to plunge the region back into recession after a brief respite over the...



In its World Economic Outlook this week, the IMF predicted a "long, uneven and highly uncertain" path out of the Covid-19 crisis. For the euro area specifically, the fund predicted a contraction of 8.3% this year, the worst performance since the Great Depression and much worse than the 4.3% contraction expected for the US. [In this podcast](#), ING's Senior Eurozone Economist Bert Colijn tells Senior Editor Rebecca Byrne what he's expecting, as new restrictions come into force across the region.

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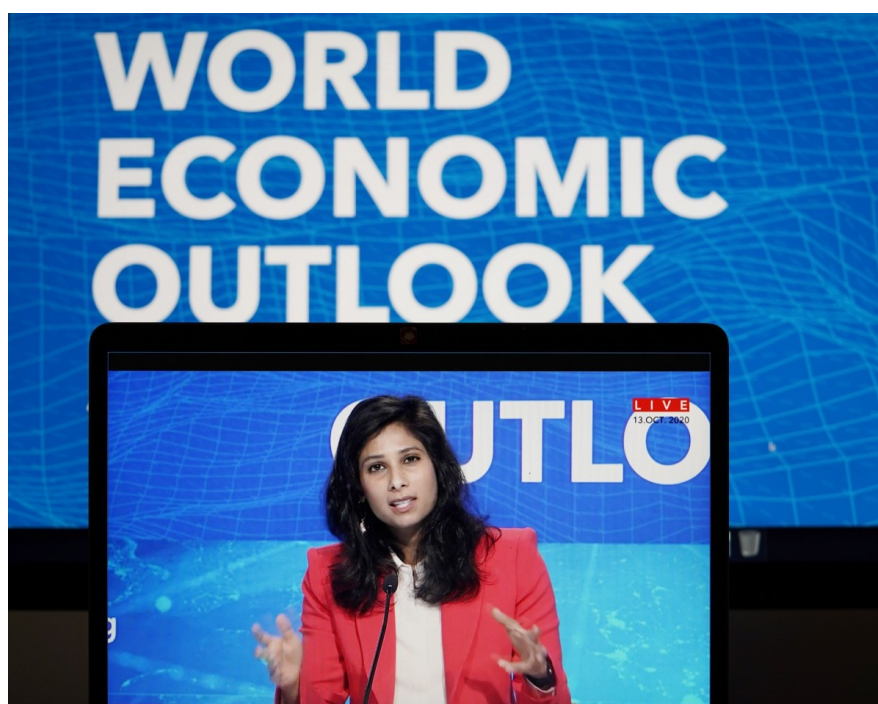
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# IMF World Economic Outlook: Looking beyond the pandemic for emerging markets

The IMF's latest flagship report provides insightful analysis as the global economy climbs out of a deep recession. Relative to their June forecast,...



Source: Shutterstock

International Monetary Fund (IMF) chief economist Gita Gopinath speaks at a virtual press briefing in Washington D.C.

In its latest World Economic Outlook, the IMF predicts the global economy to experience a 4.4% contraction in 2020 (+0.8ppt vs its June estimates) and a partial rebound to 5.2% growth in 2021 (-0.2ppt).

The improved outlook for 2020 stems from better-than-expected growth in advanced economies (2020 growth forecast of -5.8% vs -8.1% in June) and China (+1.9% vs +1.0%) as well as signs of a more rapid recovery in 3Q20 as lockdowns were relaxed. In contrast, the outlook for emerging market and developing economies (ex-China) has deteriorated (-5.7% vs -5.0%). Notwithstanding,

we find a large divergence with some pockets of resilience while others have seen substantially worsening prospects.

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*We take a look at near-term growth outlook for emerging markets and hone in on the IMF's medium-term projections on growth, inflation, the balance of payments and government finances*

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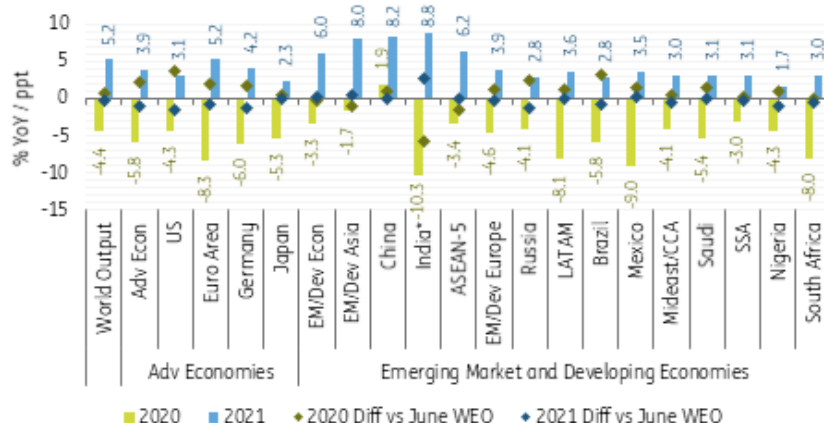
Overwhelmed health care systems, greater dependence on external finance, including remittances and lack of tourism in certain key hotspots are just some of the reasons behind this precarious situation. Higher population growth and low starting levels of income mean even modest contractions will take a very heavy toll on living standards, especially for the poor, increasing regional divergences and income differences between advanced and emerging and developing economies (excluding China).

- **Asia** (-1.7% in 2020; +8.0% in 2021) faces a more modest recession and is best positioned for the recovery, with China projected to grow by about 10% over 2020–21 (+1.9% in 2020; +8.2% in 2021). However, India's growth forecast has been cut again (-10.3%; -5.8ppt vs June) followed by an 8.8% rebound in 2020.
- **Latin America** (-8.1%; +3.6%) faces the deepest recession this year (despite an 1.3ppt upward revision vs June), dragged down by Peru (-13.9%), Argentina (-11.8%), Ecuador (-11.0%) and Mexico (-9.0%) although fiscal stimulus will contain Brazil's contraction (-5.8%). In 2021, the region is set for a modest recovery.
- In between those two extremes are **Emerging Europe** (-4.6%; +3.9%), **Middle East & Central Asia** (-4.1%; +3.0%) and **Sub-Saharan Africa** (-3.0%; +3.1%). Notably in the latter two, we find some pockets of growth in 2020 (Egypt, Ivory Coast, Kenya and Ghana). In contrast, South Africa's is set to face the steepest decline (-8.0%; +3.0%).

Downside risks continue to come from the pandemic, trade policy and geopolitical uncertainty, among others. The fund also urged governments not to prematurely withdraw support. In contrast, faster and more widespread Covid-19 testing, treatments, vaccines, and additional policy stimulus pose upside risks.

Here, we take a look at near-term growth outlook for emerging markets and hone in on the IMF's medium-term projections on growth, inflation, the balance of payments and government finances.

## IMF WEO 2020-21 GDP growth projections across country groups and regions (% YoY)



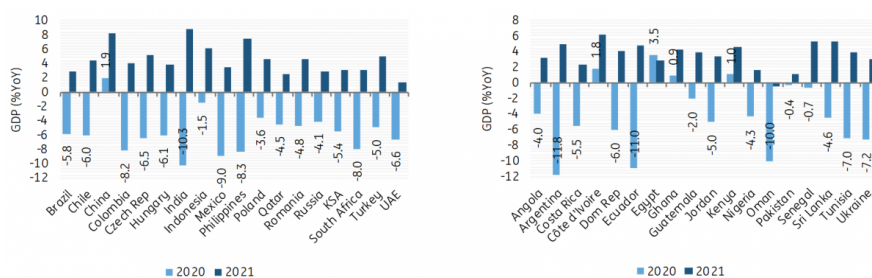
Source: IMF World Economic Outlook (October 2020), ING - \* Fiscal year basis for India

### ✓ Growth: An uneven recovery

All together (including China), output in emerging market and developing economies is set to decline by 3.3% this year (-0.2ppt vs June WEO update), followed by a 6.0% recovery in 2021 (+0.2ppt).

Looking beyond, growth is forecasted to decline from a 5.6% average in 2000-19 to 4.7% by 2025 as the structural slowdown in China seen before the pandemic is expected to continue, commodity prices remain subdued (Brent projected to average US\$51/bbl in 2021-25) and external demand prospects remain weak.

## GDP growth in 2020-21 (% YoY) for major and frontier EM



Source: IMF World Economic Outlook (October 2020), ING

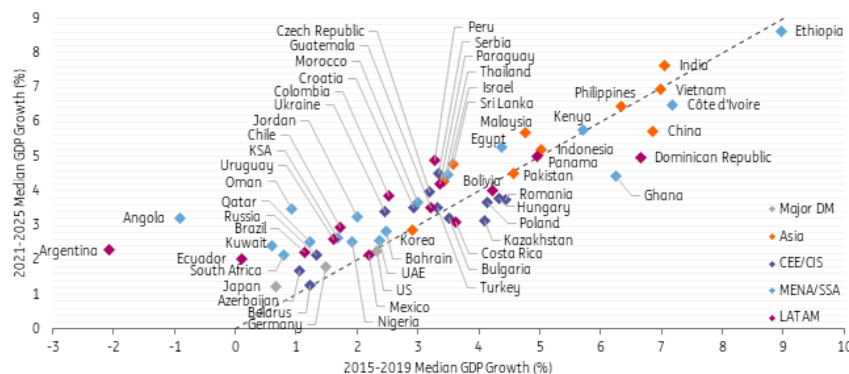
However, compared to median growth in the five years before the pandemic (2015-19), the IMF's projection for the five years ahead (2021-25) reflects some optimism with most economies set to embark on a higher growth path (see chart below). Asia stands out as the growth engine which is unlikely to change despite China's structural slowdown (median growth is set to fall from 6.8% to 5.7%). Meanwhile, growth in most CEE economies is likely to be slower than pre-pandemic (except for Croatia, Czech Republic and Serbia).

Argentina and Angola which faced recessions in the years preceding Covid-19 are seeing the largest improvements. Ghana and the Dominican Republic are set to slow most but from high



levels. Among the major economies, hopes are that Brazil, Russia and South Africa can unleash themselves from structural impediments, with median growth seen around 2% in 2021-25 (vs c.1% in 2015-19).

## Median GDP growth in 2015-2019 vs 2021-2025 (% YoY)



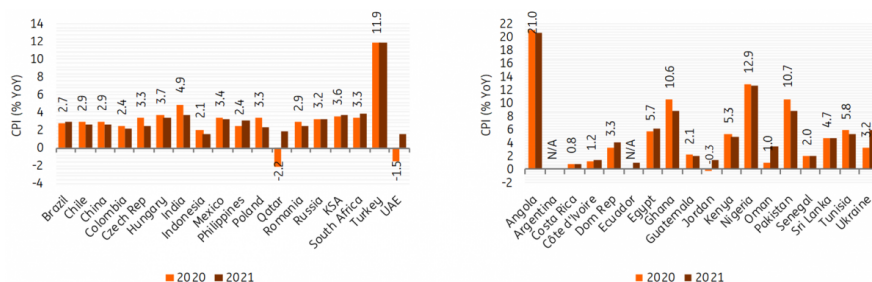
Source: IMF World Economic Outlook (October 2020), ING

## ✓ Inflation: Lower for longer with monetary policies remaining supportive

The IMF expects inflation to decline from 5.0% in 2020 to 4.7% next year and moderating to 4% by 2025. With inflation set to remain low, major central banks anticipated to maintain their current policy setting until 2025 and improved monetary policy credibility, this provides a still supportive setting for EM central banks.

Based on Bloomberg consensus, policy rates are expected to remain stable in Asia and declining in Africa while some CEE/CIS and LATAM central banks could turn to modest rate hikes.

## CPI in 2020-21 (% YoY) for major and frontier EM



Source: IMF World Economic Outlook (October 2020), ING

In the chart below, we note that inflation pressure is relatively contained for most EMs, with some upward pressure in CEE (vs pre-pandemic levels) and inflation historically higher in the larger LATAM economies (averaging 3.0-3.5% pre and post-pandemic).

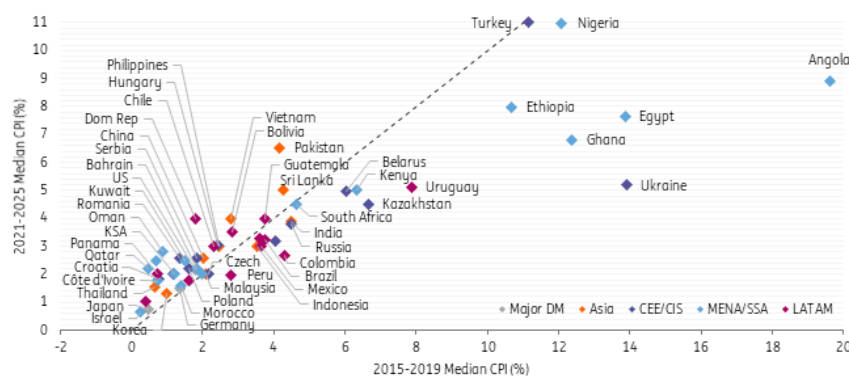
*Angola, Ukraine, Egypt and Ghana stand out for a much more*

*benign inflation path going forward, having already been successful in bringing down inflation from excessive levels pre-pandemic*

On a country level, Pakistan, the Dominican Republic and Oman see some uptick in projected median inflation in 2021-25 compared to 2015-19 (by around 2.0-2.5ppt). However, double-digit inflation remains a policy constraint for Nigeria and Turkey. Meanwhile, Angola, Ukraine, Egypt and Ghana stand out for a much more benign inflation path going forward, having already been successful in bringing down inflation from excessive levels pre-pandemic.

Inflation is lowest in more developed economies with strong fundamentals (e.g. Israel and Korea) or in those with pegs to the euro dollar (e.g. Croatia, Ivory Coast, Morocco, Panama and some MENA countries).

### Median CPI in 2015-2019 vs 2021-2025 (% YoY)



Source: IMF World Economic Outlook (October 2020), ING

### ✓ Current account balance: Structural deterioration in commodity exporters

The impact on current account balances from the crisis has been more ambiguous as countries faced a collapse in exports and imports at the same time. Current account balances have deteriorated notably for countries dependent commodity exports (e.g. Russia and GCC) and tourism (e.g. Croatia and Jamaica) but improved for many others (e.g. Brazil, Indonesia, Poland, South Africa and Ukraine).



## ✓ Fiscal balance and government debt: Debt sustainability concerns persist

The pandemic has wrecked fiscal accounts globally, driven by weaker growth and large deficits (lower tax and commodity revenues and higher spending to support the economy) which will lead to a substantial jump in debt burden this year.

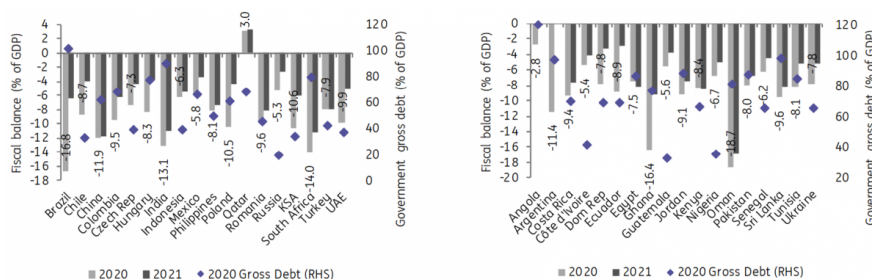
Advanced economies on balance are forecasted to run a 14.2% of GDP fiscal deficit this year, with general government gross debt rising by 20ppt to 124% of GDP. Thereafter, deficits will come down to 3.3% of GDP by 2025 with the debt/GDP remaining stable.

*The pandemic has wrecked fiscal accounts globally, driven by weaker growth and large deficits (lower tax and commodity revenues and higher spending to support the economy) which will lead to a substantial jump in debt burden this year*

EM economies will run a fiscal deficit of 10.4% of GDP in 2020 with debt/GDP rising by 9ppt to 61%. While deficits remain high in 2021 (8.8% of GDP), the growth rebound will limit the rise in debt/GDP next year (to 64.0%) while low-interest rates and a likely extension of the G20's debt service suspension initiative are supportive tailwinds for now.

However, with deficits only coming down to a still-high 6.1% of GDP in 2025, the aggregated EM debt burden will continue to rise towards 70% in the medium-term. By that time, we also note that the amount of Eurobond debt redemptions of sovereigns rated single B or lower is set to peak at around US\$30bn, a steep increase from the US\$11bn net year. Thus, renewed calls for private creditors to participate in providing relief and the IMF's message to governments to restructure earlier rather than later where debt is unsustainable are not surprising. In the coming years, we, therefore, believe that [debt sustainability concerns](#) and [downgrade fears](#) will remain with us.

## Fiscal balance in 2020-21 and government gross debt in 2020 (% of GDP) for major and frontier EM



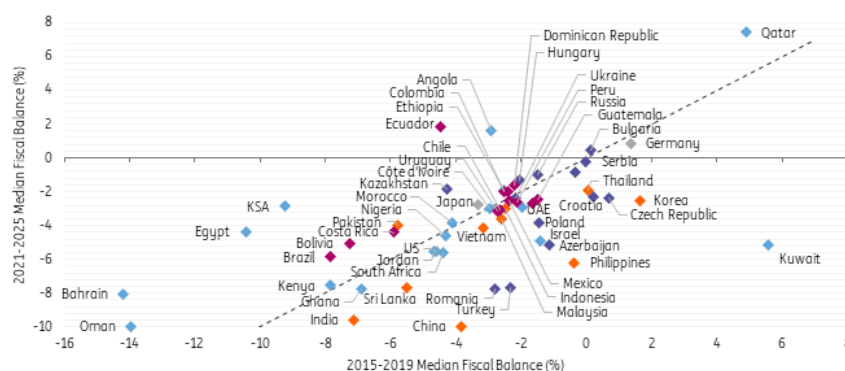
Source: IMF World Economic Outlook (October 2020), ING

The charts below reveal a large divergence in the medium-term debt outlook for EM sovereigns, with extremes found in the MENA region. Most GCC economies are likely to see an improvement to

their fiscal balances vs the five years before the pandemic, but the deficits remain very wide for Bahrain and Oman which already have high gross debt levels (128% and 82% of GDP, respectively, in 2020). In contrast, Kuwait's deterioration is staggering, but the starting point has been strong (19.3%).

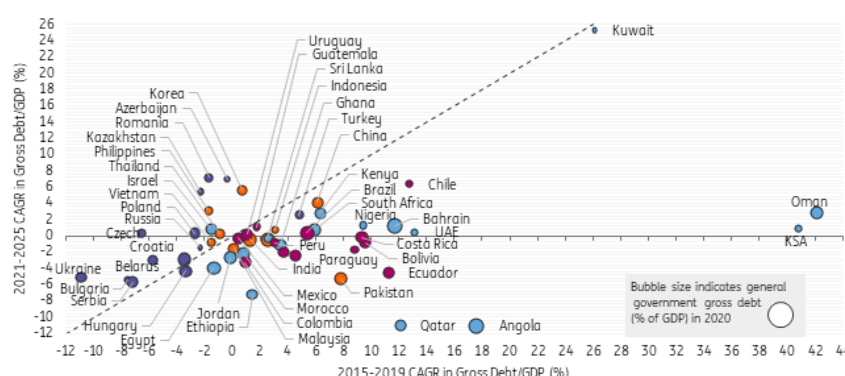
- Among larger sovereigns, the IMF expects the highest increase in general government gross debt/GDP between 2020-25 in Romania (+21ppt to 65% in 2025), South Korea (+17ppt to 65%), China (+16ppt to 78%), Chile (+15ppt to 48%), the Philippines (+10ppt to 59%), Turkey (+9ppt to 50%) and South Africa (+6ppt to 85%).
- In frontier and other EM, we see the biggest jump in Kuwait (+71ppt to 90% of GDP in 2025), Oman (+18ppt to 99%), Kenya (+12ppt to 79%) and Bahrain (+9ppt to 137%).
- In contrast, Angola (-53ppt to 67%), Qatar (-30ppt to 38%), Pakistan (-18ppt to 69%), Serbia (-15ppt to 45%), Hungary (-14ppt to 63%), Ukraine (-14ppt to 52%), Ecuador (-13ppt to 56%), Ethiopia (-13ppt to 56%), Croatia (-12ppt to 76%) and Egypt (-10ppt to 77%) will see the strongest improvements over the same time horizon.

### Median fiscal balance in 2015-2019 vs 2021-2025 (% of GDP)



Source: IMF World Economic Outlook (October 2020), ING

### CAGR of government gross debt/GDP in 2015-2019 vs 2021-2025 (% YoY)



Source: IMF World Economic Outlook (October 2020), ING

## Government gross debt in 2020 (% of GDP) and change in gross debt through 2020-25 (ppt) for major and frontier EM



Source: IMF World Economic Outlook (October 2020), ING

## Appendix: List of selected countries included in assessment and charts

Asia	CEE/CIS	MENA/SSA	LATAM
China	Azerbaijan	Angola	Argentina
India	Belarus	Bahrain	Bolivia
Indonesia	Bulgaria	Côte d'Ivoire	Brazil
Korea	Croatia	Egypt	Chile
Malaysia	Czech Republic	Ethiopia	Colombia
Pakistan	Hungary	Ghana	Costa Rica
Philippines	Kazakhstan	Israel	Dominican Republic
Sri Lanka	Poland	Jordan	Ecuador
Thailand	Romania	Kenya	Guatemala
Vietnam	Russia	Kuwait	Mexico
	Serbia	Marocco	Panama
	Turkey	Nigeria	Paraguay
	Ukraine	Oman	Peru
		Qatar	Uruguay
		Saudi Arabia (KSA)	
		South Africa	
		United Arab Emirates (UAE)	

## Energy transition scenarios: Covid-19 effect on global warming short-lived

Thanks to the pandemic, we have recently seen the biggest drop in fossil fuel demand, but this is not enough to meet the Paris climate goals, leaving...



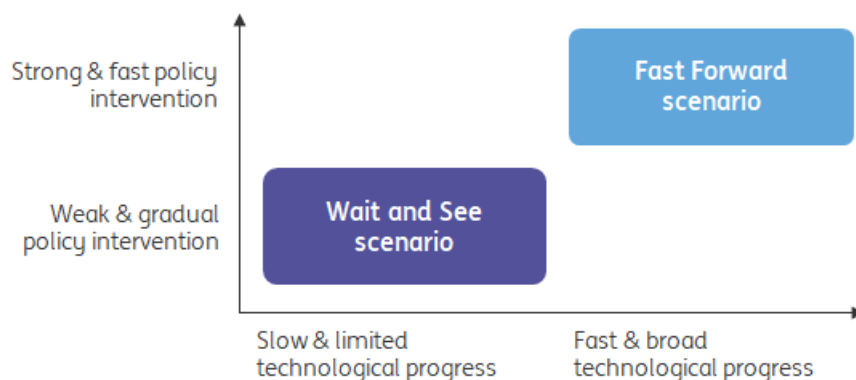
Source: Shutterstock

This is just one of the many conclusions from ING's scenario planning project on the global energy transition.

Scenario planning revealed that policy and technology are the main uncertainties for the global energy transition and the phasing-out of fossil fuels. They are not independent: policy drives the feasibility of technological advances.

**We focus on two scenarios to explore the wide range of future outcomes for fossil fuel demand**

Energy transition scenarios based on technology and policy trends



Source: ING Research

Source: ING

The **“fast-forward”** scenario represents a world of rapid change towards a more sustainable world in which technology and policy reinforce each other to phase out fossil fuels and limit global warming to 2°C.

The alternative to this is the **“wait-and-see”** scenario. This would see the majority of businesses continue to operate as normal, boosting emissions and global warming. If the world continues on its pre-Covid energy pathway, the physical risks of climate change are high and global warming could reach 3-5 degrees by the end of the century.

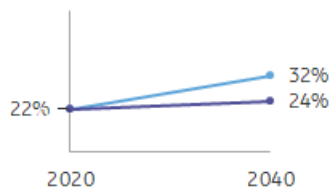
The speed at which energy-intensive sectors become greener by investing in green technologies set these two worlds apart.



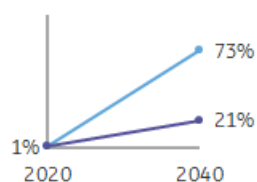
### Energy intensive sectors get greener faster in the Fast Forward scenario

Main technology trend per sector in the Fast Forward and Wait and See scenarios

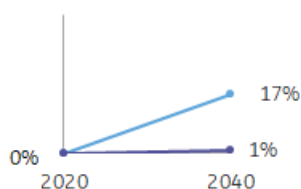
**Manufacturing: more electrification**  
Share of electricity in energy mix



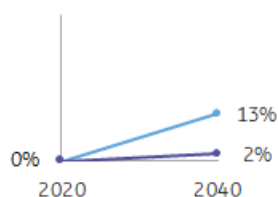
**Cars: more electric vehicles**  
Share of electric vehicles in global car fleet



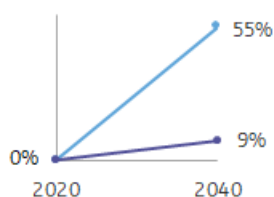
**Trucks: more electric trucks**  
Share of electric trucks in global truck fleet



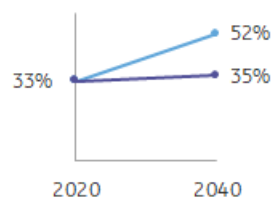
**Shipping: more LNG vessels**  
Share of LNG vessels in global shipping fleet



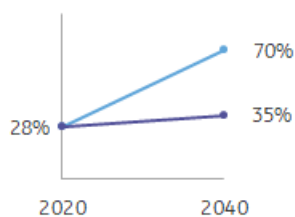
**Aviation: more bio- and synthetic fuels**  
Share of bio- and synthetic fuels in aeroplane fleet



**Real estate: more electrification**  
Share of electricity in energy mix real estate



**Power sector: more renewables**  
Share of renewables in global power mix



— Fast Forward scenario  
— Wait and See scenario

Source: ING Research

Source: ING

## Major differences when considering the impact of the scenarios across sectors

Some key insights include:

- **Light-duty vehicles:** Electric cars could set oil demand 75% lower by 2040 in the Fast Forward world where every new car sold in 2035 is an electric vehicle, compared to just one

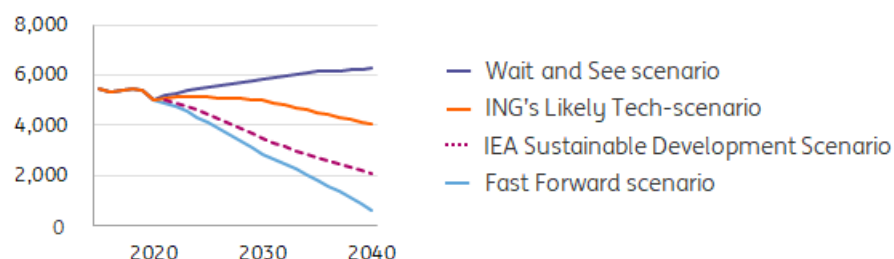
- out of four in the “Wait and See” scenario.
- **Trucks:** electric and hydrogen trucks and the use of biofuels could set oil demand 35% lower, but trucks struggle to accommodate the energy transition as 72% of trucks still run on diesel, even in the “Fast Forward” world.
  - **Shipping:** LNG could set oil demand 18% lower but this sector remains oil-heavy. There are few technologies available that can phase out oil in shipping, meaning that 82% of ships will still be run on oil by 2040 in the Fast Forward scenario.
  - **Aviation** Oil demand for aviation continues to rise strongly towards 2040 in both scenarios. This has also to do with the fact that aviation came to a standstill after the outbreak of the Covid-19 pandemic. The use of bio- and synthetic fuels increases in both scenarios, but differing trends in energy efficiency set the scenarios apart.
  - **Manufacturing:** energy demand is up +49% under the “Wait and See” scenario with green investments on hold. However electrification and the use of biofuels set fossil fuel demand lower in the “Fast Forward” world – and the greening of manufacturing assets become a core focus as the sector embraces green technologies such as hydrogen and electrolyzers.
  - **Real estate:** energy demand in real estate increases in both scenarios as it is hard to increase the pace of energy efficiency in existing buildings and so many people at the bottom of the pyramid gain access to electricity. Reduced use of biomass and gas and increased use of electricity for heating and district heating set the scenarios apart.
  - **Power sector:** electricity demand rises strongly in both scenarios as electrification is a key strategy to reduce fossil fuel demand in manufacturing, transportation and real estate. Renewables combined with technologies and grids to store electricity make the difference. Nuclear power is not a zero-carbon solution that the market provides on itself.

### Our scenario outcomes show a highly uncertain future for fossil fuels

Global demand of fossil fuels up to 2040

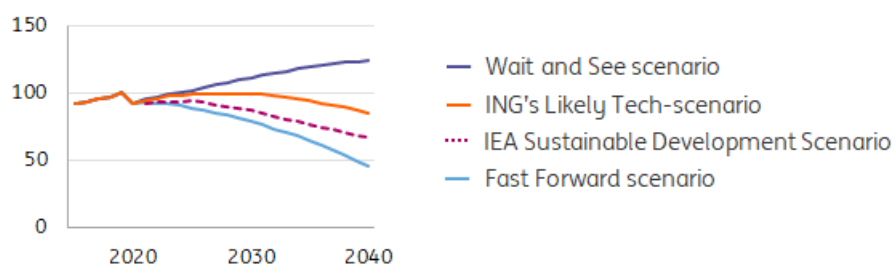
#### Coal

Million ton coal equivalent per year



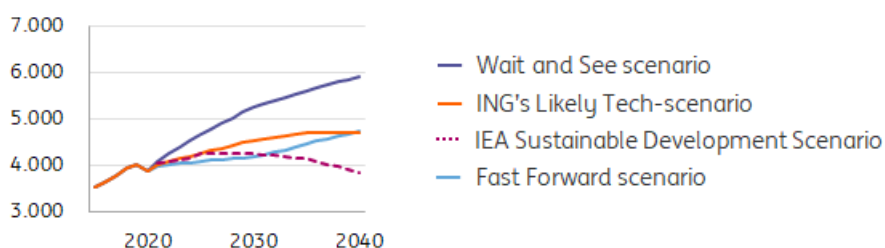
#### Oil

Million barrels per day



#### Gas

Billion cubic meters (bcm) per year



Source: ING Research

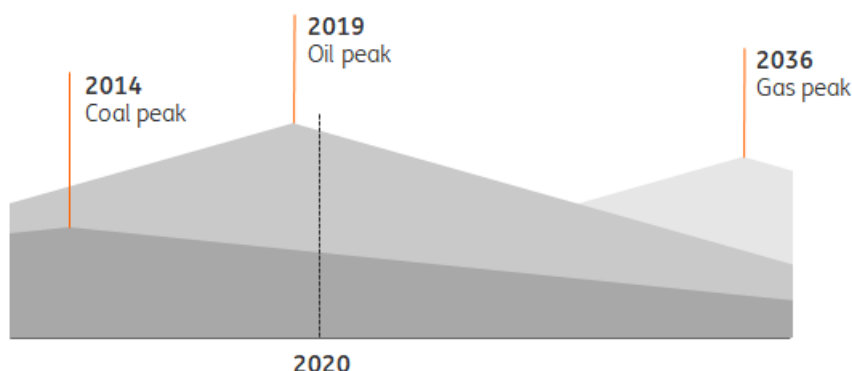
Source: ING

While the 'fast-forward' and 'wait-and-see' scenarios indicate the boundaries of the wide range of possible future outcomes for fossil fuel demand, they do not indicate what is the plausible outcome.

ING's "likely-tech" scenario does just that and indicates that coal has already peaked, oil won't reach its pre-coronavirus level and gas is likely to peak around 2036. This plausible scenario is however not enough to set the world on the path towards the Paris Agreement goals.

## We believe coal and oil have peaked and gas will peak by 2035

Schematic overview of global fossil fuel use



Source: ING Research

Source: ING

## Covid-19 is like a drop in the ocean

Despite Covid-19 causing the biggest drop in fossil fuel demand in history, it makes little difference in the world's efforts to progress towards the Paris Agreement goals.

First, the size of the global economy is only reduced temporarily. By 2040 the economy is expected to be two thirds bigger. Second, although Covid-19 is likely to have a long-lasting impact on preferences, like business trips by aeroplane, its impact on total sector demand is relatively small. Third, Covid-19 has not yet led to greener policies and it could cause a delay in this field. Lastly, many companies are currently in survival mode and have cut back on green investments. Overall, the coronavirus dip is like a drop in the ocean, sustained progress needs to come from technology and policy.

### Technology needs viable business cases...

With enough policy in place, technological advances can lower fossil fuels enough to limit global warming. Although electric vehicles and renewables have the largest potential to phase out fossil fuels, every technology is needed and every sector has to contribute. As such it requires immense investments, mostly by companies and to a lesser degree by governments. For those corporate investments to take place, viable business cases for clean technologies are needed soon.

### ...but it remains uncertain if policy will be enough

If we take the Paris Agreement goals seriously, we must assume policymakers all over the world are willing to change course drastically within a couple of years. We will either end up in a world with a lot of policy, making fossil fuels unattractive and green technologies attractive. The energy transition will be in full swing and climate change is limited. Or we are likely to end up in a world with little policy and many of the needed technologies not being commercially viable. In this world, the chances of runaway climate change are high, increasingly enforced by tipping points.

### Carbon pricing provides guidance for corporate decision-makers

Uncertainty about the future outcome leaves corporate decision-makers in the dark. Should they invest in mitigation strategies to prevent global warming, or should they invest in adaptation

strategies to protect the business from climate risks? If the chances of effective mitigation strategies diminish, it becomes rational to invest in adaptation measures to cope with, rather than prevent, climate risks. A shift in focus from mitigation to adaptation might put the energy transition at risk: a self-fulfilling prophecy as companies hesitate or only make 'no regret' investments. Stronger and coordinated climate policy measures across the globe, notably on carbon pricing, clear the clouds on the future path of the energy transition and provide more viable business cases. That's a prerequisite to unlock corporate investments once companies have put behind their Covid-19 worries. Regained confidence in governments, confident policymakers and global coordination would be necessary to bring about real change to the future of energy. Heat waves, forest fires, floods and loss of biodiversity seem more likely to be the burning issues to achieve this than Covid-19 currently is.

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