

# THE WORLD ECONOMY

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## World Overview

For the past three years the world economy has grown relatively strongly and last year saw the fastest pace of growth since 2011. Our analysis shows that this growth was broad-based and more synchronised than previously in the advanced economies (see Box A). While we have an incomplete picture of economic activity in the first quarter of 2018, indications are that the world economy carried over considerable momentum from 2017 and

we continue to expect relatively strong global growth in 2018 and 2019.

The widespread broad pattern of stronger growth is a positive factor that is expected to endure. We continue to expect growth to be a little stronger in 2018 than in 2017, but do not expect to see growth reaching much over 4 per cent. This is partly a consequence of the

Table I. Forecast summary

Percentage change

	Real GDP <sup>(a)</sup>												World trade <sup>(b)</sup>
	World	OECD	China	EU-28	Euro Area	USA	Japan	Germany	France	Italy	UK	Canada	
2008-13	3.3	0.8	9.1	0.0	-0.3	0.8	0.2	0.7	0.3	-1.5	0.3	1.4	3.2
2014	3.6	2.2	7.3	1.8	1.4	2.6	0.3	1.9	1.0	0.2	3.1	2.9	3.9
2015	3.4	2.5	6.9	2.2	2.0	2.9	1.4	1.5	1.0	0.8	2.3	1.0	2.7
2016	3.2	1.8	6.7	1.9	1.8	1.5	0.9	1.9	1.1	1.0	1.9	1.4	2.6
2017	3.7	2.6	6.9	2.5	2.5	2.3	1.7	2.5	2.0	1.5	1.8	3.0	4.8
2018	3.9	2.4	6.6	2.2	2.3	2.7	1.2	2.4	1.9	1.4	1.4	2.6	5.3
2019	3.8	2.3	6.3	1.9	1.9	2.6	0.9	1.9	1.9	1.3	1.7	2.3	5.1
2020-24	3.6	1.9	5.7	1.5	1.4	2.2	0.9	1.2	1.5	1.2	1.7	1.7	4.0

	Private consumption deflator						Interest rates <sup>(c)</sup>						Oil (\$ per barrel) <sup>(d)</sup>
	OECD	Euro Area	USA	Japan	Germany	France	Italy	UK	Canada	USA	Japan	Euro Area	
2008-13	1.8	1.5	1.7	-0.7	1.3	1.1	1.9	2.5	1.3	0.6	0.2	1.5	95.5
2014	1.6	0.5	1.5	2.0	0.9	0.1	0.3	1.9	1.9	0.3	0.1	0.2	99.6
2015	0.8	0.3	0.3	0.4	0.6	0.3	0.2	0.6	1.1	0.3	0.1	0.1	52.8
2016	1.1	0.4	1.2	-0.5	0.6	-0.1	0.1	1.4	0.9	0.5	-0.1	0.0	43.4
2017	2.1	1.4	1.7	0.2	1.7	0.9	1.2	2.0	1.1	1.1	-0.1	0.0	53.5
2018	2.5	1.6	2.3	0.8	1.7	1.5	1.3	2.2	2.3	1.9	-0.1	0.0	64.8
2019	2.3	1.6	2.1	1.3	1.7	1.4	1.5	2.4	2.3	2.6	-0.1	0.1	67.6
2020-24	2.2	1.6	2.2	1.3	1.6	1.7	1.4	2.3	2.1	3.6	0.3	1.2	71.0

Notes: Forecast produced using the NiGEM model. (a) GDP growth at market prices. Regional aggregates are based on PPP shares, 2011 reference year. (b) Trade in goods and services. (c) Central bank intervention rate, period average. (d) Average of Dubai and Brent spot prices.

\*All questions and comments related to the forecast and its underlying assumptions should be addressed to Iana Liadze (i.liadze@niesr.ac.uk). We would like to thank Jagjit Chadha and Garry Young for helpful comments and Yanitsa Kazalova for compiling the database underlying the forecast. The forecast was completed on 27 April, 2018. Exchange rate, interest rates and equity price assumptions are based on information available to 11 April 2018. Unless otherwise specified, the source of all data reported in tables and figures is the NiGEM database and NIESR forecast baseline.

slower pace of growth in China as the economy makes its transition over the longer period. In global growth accounting terms this effect is slightly offset by China now being a larger economy within the world total. But it also, especially in the medium-term, arises from some economies moving beyond a ‘catch-up’ phase and starting to experience tighter capacity levels and monetary policies reacting gradually to this. Reflecting anticipated trends in demographics, productivity and structural factors, our medium-term forecasts anticipate global growth running at around 3.5 per cent a year which, while short of the over 4 per cent average in the five years preceding the Great Recession, remains a robust performance.

Three features of the outlook are particularly noteworthy, especially for the advanced economies. First, stronger growth and falling unemployment rates have led to increasing concerns about reduced spare capacity and some anticipation of pressure building on inflation. So far, the inflation figures have failed to register this and ‘lowflation’ has continued (perhaps the UK might be seen as an exception here but the currency depreciation since mid-2016 is the main reason for the recent higher inflation). Just because higher inflation has not been evident so far, does not mean that it will not be in the future and inflation expectations are important here. So, for the advanced economies, the issue of whether continued growth and tighter labour markets will lead to faster wage growth and eventually higher inflationary pressure remains a key risk for the forecast.

The second issue is the stance of monetary policy. The USA has led the way in terms of reducing the extent of monetary accommodation. Our expectation is that this move will spread and our forecasts include gradual policy rate increases in the UK and Euro Area over the medium term, broadly in line with recent market expectations. The forecast does not imply dramatic changes in policy interest rates, but rather a gradual upward path in response to continued growth and a concern about a possible upward bias to inflation.

Thirdly, trade policies may well provide an added risk for the outlook. While in the major Western economies what has become known as fiscal austerity appears to be rolling back, trade policy is now emerging as an issue, with a focus on the US and its relationships with the Far East and the Euro Area. At the time of writing, the US has announced tariff changes on a small number of focused sectors. But the possibility of wider impositions and retaliations is a risk for the prospects for world trade and growth forecasts. These risks are discussed in Jorra *et al.* and Slopek in this *Review*.<sup>1</sup>

## Recent developments and the baseline forecast

### *Our revised baseline forecast*

Economic news to date has been broadly tracking our February 2018 *Review* forecast and forward-looking developments have not been sufficient to change our view on the global outlook. Global growth is expected to run at just under 4 per cent a year in the next two years after 3.7 per cent last year. This is a slightly faster pace of growth than in the preceding five years, but it is not a marked acceleration. There are some early indicators that the pace of growth could slow in the latter part of 2018 and into 2019. Into the medium term, the pace of growth is expected to be weaker, reflecting a continued narrowing of output gaps in the wake of the Great Recession and so ‘catch-up’ growth disappearing, demographic effects especially in the major industrialised economies and a gradual deceleration in growth in China and some other Far Eastern economies.

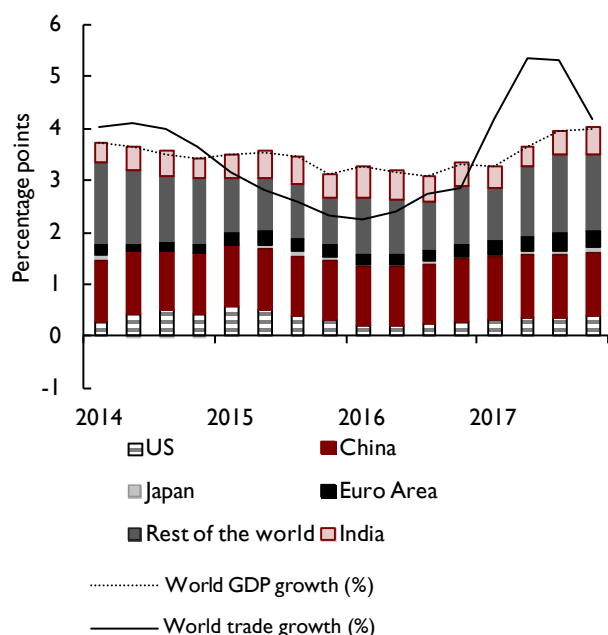
Our expectation remains for inflation generally to be broadly in line with policy targets. This, together with a narrowing of output gaps, contributes to a gradual rise in policy interest rates. Our policy rate expectations are consistent with market expectations and there are risks of policymakers moving more slowly or more rapidly, reflecting low inflation and uncertainty or perhaps to create some monetary policy space as a guard against possible future negative economic shocks. These risks are not in the baseline forecast.

### *Recent economic developments*

In its April 2018 update the IMF matched our projection for global growth in 2018 at 3.9 per cent (the same as ours), with growth continuing at that pace in 2019. These forecasts were stronger than those made a year ago. To add to the idea of momentum building through 2017 and into 2018, it is important to note that the most recent expansion has been broad based and synchronised (see Box A). In addition, world trade last year was faster than global output growth after two years of falling short, consistent with a pick-up in global investment. This issue was discussed in previous *Reviews*.<sup>2</sup>

Amongst the highlights of the expansion has been the duration of the US growth phase. This is now approaching the record 10-year expansion from March 1991 to March 2001. Growth in the Euro Area has generally surprised on the upside over the past year, with growth of 2.5 per cent in 2017 showing a rebound from 2016’s dip in growth. The rapid overall pace of growth in the Euro Area (at 0.6 or 0.7 per cent quarter-on-quarter in

Figure 1. World GDP growth and its components



Source: NiGEM database and NIESR forecast.

each quarter in 2017) masks a divergence of experience between countries within the Euro Area. Spain (3.1 per cent) and Germany (2.5 per cent) performed strongly, with unemployment falling markedly, while Italy and Greece, for example, both grew by around 1.5 per cent. Inflation within the Euro Area remains subdued, and has enabled the ECB to continue its monetary accommodation policy but this will soon be phased out.

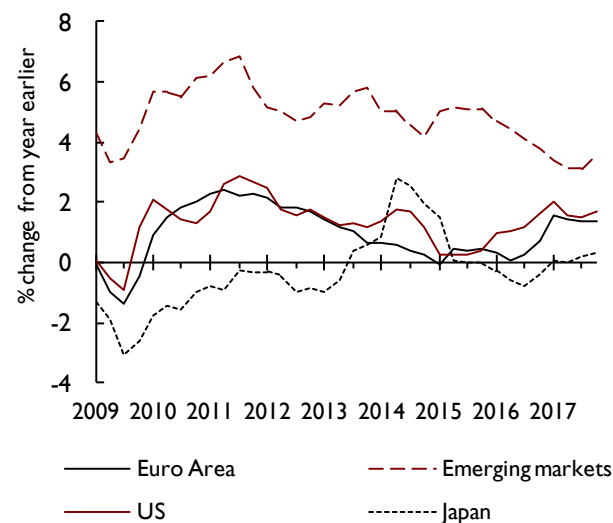
Japan saw a rebound in growth to 1.7 per cent and, among emerging economies, India and China have continued to show growth well ahead of the global average. Turkey and Vietnam performed strongly with growth in 2017 of 7.4 and 6.7 per cent respectively. The generalised pick-up in activity has assisted commodity producers.

As with growth, generally subdued inflation has been widespread, with a notable reduction in inflation in Brazil (from 8.7 per cent in 2016 to 3.4 per cent in 2017). Turkey and Mexico are two large economies that have bucked the wider trend on inflation, with inflation having risen over the past year.

### Monetary policy

Within the advanced economies, the US Federal Reserve raised policy rates three times in 2017 and has already acted once so far this year (in March). Two further increases are expected this year, with rates rising further

Figure 2. Consumer price inflation



Source: NiGEM database and NIESR forecast.

Note: 2018 includes forecast. Consumer expenditure deflator is used for the US, Euro Area and Japan, CPI for emerging markets. Emerging markets – weighted average of Brazil, China, India, Indonesia, Mexico, Russia and Turkey.

in 2019. However, the policy outcome remains data dependent, especially with regard to inflation, which has persistently fallen below its target. In contrast, the ECB has continued its policy of quantitative easing, with policy rates held at the lower bound. The pace of quantitative easing, in terms of the new flow of asset purchases, has already been reduced since December to €30 billion a month until September. The Bank of England raised rates back to 0.50 per cent last year and at the latest (March) meeting two MPC members voted for an immediate increase.

Outside the G7, while there is a trend towards gradually higher policy rates, the monetary policy debate is more diffuse. Given currency linkages, the pressure from US policy rate rises is likely to be transmitted to some emerging market economies. However, different economies are at different phases of the cycle and so the pattern of expected policy rate movements is more diverse amongst emerging markets.

### Financial and foreign exchange markets

After warnings about elevated equity valuations, equity markets fell sharply in February.

Following news of US tariffs on steel and aluminium in early March, the S&P index fell and this fall reverberated

## Box A. The Great Synchronisation

Economic growth has risen in a synchronised manner around the world in recent years (King, 2018; IMF, 2018; Naisbitt et al., 2018), but to what extent is synchronised growth unusual? In this box, I investigate the degree to which economic growth has been synchronised across twenty OECD countries from the first age of globalisation to the present.

A simple measure of synchronicity is the standard deviation of the rate of economic growth across countries. Figure A1 plots how this measure has evolved over time, where a lower (higher) standard deviation represents higher (lower) synchronisation.<sup>1</sup> Three distinct eras of synchronisation can be seen: an era of moderate synchronicity c.1870–1913, an era of low synchronicity c.1914–45, and an era of high synchronicity c.1945 onwards. The first era is well known by economic historians. This was the first age of globalisation (Ferguson and Schularick, 2006), which was a period of high international trade underpinned by the classical gold standard – a fixed exchange rate system adopted by two-thirds of the world’s economies (Reinhart and Rogoff, 2011). The second era spans the beginning of the Great War to the end of the Second World War. This was a time of rising protectionism and a breakdown of the international monetary system (Findlay and O’Rourke, 2007). The third era is the ‘Great Synchronisation’. In the aftermath of the war, the Bretton Woods conference laid the foundations for new international economic institutions, such as the International Monetary Fund, World Bank and World Trade Organization.

After a long, secular decline in the dispersion of world economic growth, 2017 was by this measure the most synchronous year on record. Of the twenty advanced economies in the sample, the minimum rate of growth was 0.7 per cent, while the highest was 3.2 per cent. The simple fact that growth was positive in all countries is rare, occurring in only sixteen years since the 1870s. One explanation could be that the financial crisis was a large global shock that reset the clocks on economies around the world, plunging each into recession and then recovery. As the shock fades over time, however, these countries might tend to move out of sync as growth runs at slightly slower and faster rates across countries, in line with the growth of the supply sides of the respective economies. Yet while this explanation might explain the high synchronicity since the crisis, it misses the long-run factors that set the Great Synchronisation in train in 1945. A central factor has been the development of international economic institutions that have lowered the barriers to the movement of capital and goods, tying the fortunes of distant economies together.

### NOTE

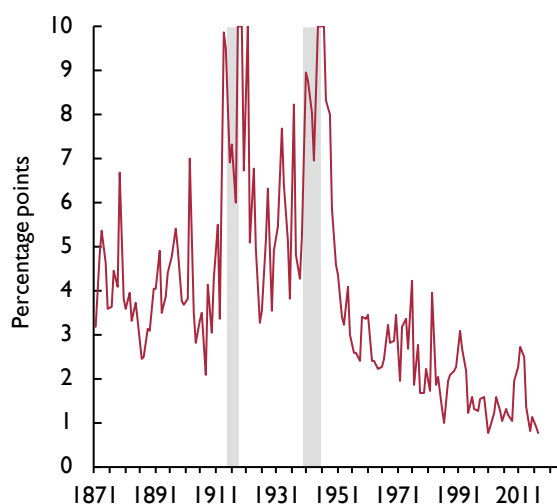
<sup>1</sup> A similar pattern is seen in the cross-country standard deviation of the *change* in growth rates.

### REFERENCES

- Bolt, J., Inklaar, R., de Jong, H. and van Zanden, J.L. (2018), ‘Rebasing “Maddison”: new income comparisons and the shape of long-run economic development’, *GGDC Research Memorandum* 174.
- Ferguson, N. and Schularick, M. (2006), ‘The empire effect: the determinants of country risk in the first age of globalization, 1880–1913’, *Journal of Economic History*, 66, pp. 283–312.
- Findlay, R. and O’Rourke, K.H. (2007), *Power and Plenty: Trade, War, and the World Economy in the Second Millennium*, Princeton University Press.
- IMF (2018), *World Economic Outlook: Cyclical Upswing, Structural Change*, International Monetary Fund, April.
- King, S. (2018), ‘Why the global economy is due for a downswing’, *Financial Times*.
- Naisbitt, B., Hantzsche, A., Lennard, J., Lenoel, C., Liadze, I., Lopresto, M., Piggott, R. and Thamotheram, C. (2018), ‘The World Economy’, *National Institute Economic Review*, 243, F43–80.
- Reinhart, C.M. and Rogoff, K.S. (2011), ‘From financial crash to debt crisis’, *American Economic Review*, 101, pp. 1676–706.

This box was prepared by Jason Lennard.

Figure A1. Standard deviation of real GDP per capita growth, 1871–2017



Sources: Bolt et al. (2018) and NiGEM database.

Notes: Shaded areas represent world wars. Based on a balanced sample of 20 OECD countries that have unbroken historical national accounts stretching back to 1870, including Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Greece, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States. Results have been capped at 10 percentage points for clarity.

in other markets. After calming quite quickly, the market has, at the time of writing, not recovered its peak of late January but is close to its start of year value despite the trade announcements.

The Vix index<sup>3</sup> (which is sometimes referred to as the ‘fear index’ for financial markets) traded at around 10.6 during the second half of 2017, 3 points lower than a year earlier. But the first quarter of this year saw considerably more volatility, with some sharp jumps in early February. During the quarter it briefly hit levels last experienced during 2011.

In the US, the increase in short-term policy rates in March continued to be interpreted by markets as a gradualist step and market expectations for short-term rates in the longer term remain below the Federal Reserve’s implied median expectation from the ‘Dot Plot’ chart. At December 2017, the long-run expectation stood at 2.75 per cent, and at the 21 March 2018 meeting it edged up slightly, closer to 3 per cent. Yields on 10-year US treasuries have risen by around 60 basis points over the year so far.

Movements in medium-term government bond yields in the Euro Area have been limited over the past quarter (and year) but there the monetary policy background has been different, with the ECB holding the rate on the deposit facility at –0.4 per cent and continuing with its

quantitative easing policy, albeit winding down the pace of net new asset purchases.

The US dollar has continued to depreciate rather than appreciate. In the first quarter of 2018 it fell by 2 per cent in trade-weighted terms after a 10 per cent fall in 2017, perhaps reflecting uncertainties about US trade policy more generally. In the opposite direction, the euro is up 0.4 per cent in trade weighted terms to date in the first quarter, and the Yen is up 2 per cent.

### Commodity markets

Over the course of 2017 the Brent oil price increased by 21 per cent and rose to its highest since late 2014. This marked an 82 per cent increase over a two-year period. North American shale oil production increased during 2017, with higher oil prices helping to boost production incentives. In the first quarter, the oil price fluctuated around \$65 per barrel, but in early April it rose to \$70 for the first time since late 2014. The forecast for oil prices broadly follows the path from futures prices.

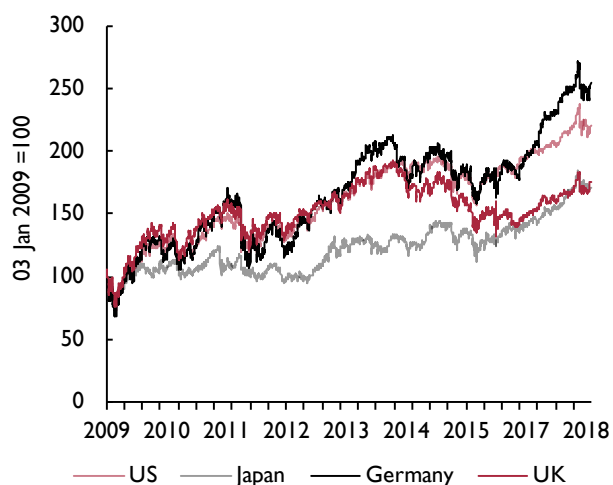
In US dollar terms, The Economist all-items commodity price index rose 1 per cent in the first quarter, with food prices up nearly 6 per cent but metals down about 6 per cent.

### Risks to the global forecast

Our projection is for 2017 and 2018 to be the strongest pair of years for global growth since 2010–11, with growth having surprised forecasters on the upside last year. While our near-term global growth projections are for continued robust growth, there are possible upside risks to growth. These upside risks tend to attract less comment than possible downside risks, perhaps in part as a legacy of the painful experience of the Great Recession. Our view is that the risks continue to be broadly balanced around our central forecast and this section describes the principal economic risks that we currently anticipate.

On the positive side, the strengthening in activity has a synchronised nature.<sup>4</sup> This process could well have further to go, with the possibility of domestic growth in economies being boosted by investment spending growth as a response to stronger global demand – giving almost a classical accelerator effect. If any such further expansion is not met with higher inflation as a response, it could prove to have further to run and give a boost to global growth. So far, in the major industrialised economies, increased growth has brought lower unemployment without, as a general statement, higher price inflation. Monetary policy has remained

Figure 3. Stock prices in the US, Europe and Japan



Source: Datastream.

Note: US stocks refer to the NYSE Composite Index, Japanese stocks to the TOPIX, UK stocks to FTSE All Share and German stock to DAX General Performance Index.

### Box B. Predicting recessions in the United States with the yield curve

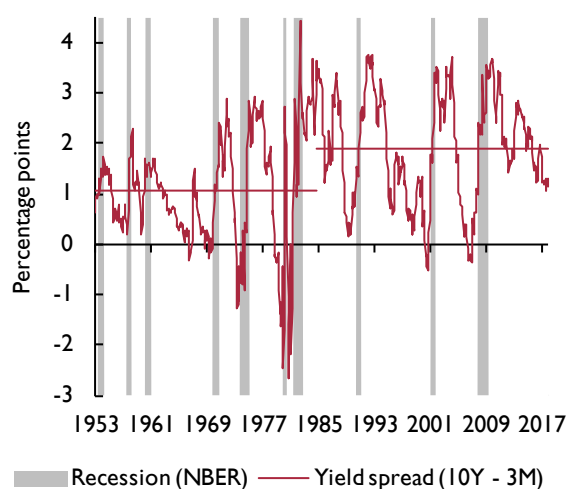
There is a large literature on the relationship between the yield curve and recessions that started in the 1980s as a result of the inability of macroeconomic models to explain sudden downturns in economic activity. In this box, we review the literature on the predictive power of the yield curve, with a particular focus on the United States, and compute the current implied probability of a US recession using data ranging from 1953 to 2018.

Recessions have often been associated with an inversion of the yield curve, moving from a positive slope to a negative one. A positive slope of the yield curve comes from the fact that investors require a premium for holding longer maturity bonds (the term premium) or expect the short-term rates to be higher in the future. A negative slope is a more unusual event – it has occurred less than 10 per cent of the time in the US in the past 65 years – reflecting the fact that the economy is probably in a transitory phase. In that situation, investors expect the future short-term rates to be lower than the current ones, according to the expectations hypothesis. Figure B1 displays the spread of the 10-year Treasury note yield minus the 3-month Treasury bill yield. The figure shows indeed that recessions have often been preceded by a negative value of the spread.

Laurent (1988) and Estrella and Hardouvelis (1991) first showed that the spread in yield between longer-dated Treasury notes and short-dated T-bills could help predict future real GNP growth. Harvey (1988) and Estrella and Hardouvelis found that the yield spread can also be used to help forecast other economic variables such as consumption and investment growth. Comparing the role of the yield spread to other financial and economic indicators, Estrella and Mishkin (1998) concluded that while stock market and Stock-Watson indicators have good predictive power one quarter ahead, the yield spread dominates at longer time-horizons, in particular one year ahead, to forecast recessions. International evidence is however more mixed than for the United States; Chinn and Kucko (2015) found that the yield spread performed relatively well predicting recessions in Germany and Canada but it performed less well in Japan and Italy.

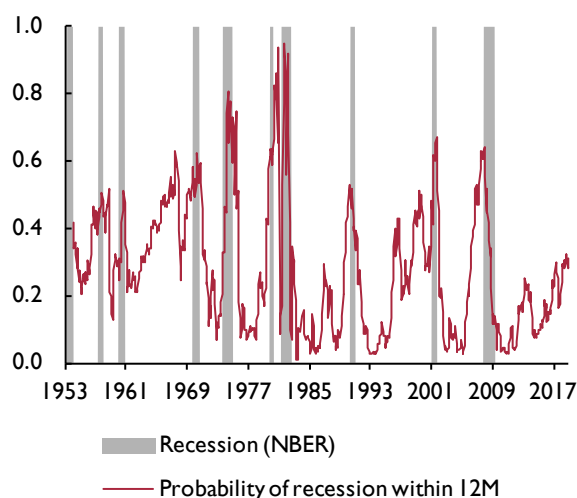
We examine the probit methodology of Chinn and Kucko to estimate the probability of a recession in the US at any point within the next twelve months. As is common in the literature, we define the yield spread as the difference in yield between the 10-year Treasury note and the 3-month Treasury bill and use the recession dates from the NBER. All data are of monthly frequency, between April 1953 and March 2018. Figure B2 shows the implied recession probabilities from the model and in the shaded areas the actual recessions. A reading above 50 per cent indicates that a recession is likely to be either ongoing or about to start in the next twelve months. Looking at the statistical power of this model, we can see that it has good ‘precision’ – when the model identifies that a recession month is likely during the following 12 months, it is correct in 69 per cent of the cases – but a rather low ‘sensitivity’ – when a recession month actually happens during any of the following 12 months, the model identifies it in only 35 per cent of the cases. So the model is far from perfect because it gives some false negatives. However, the model fares much better at predicting the *onset* of a recession period. For all the nine recession periods in our sample (we exclude the first one in 1953–4 because we don’t have yield information one year in advance of the beginning of the recession), the indicator correctly rose above 50 per cent in the 12 months before the beginning of the recession. The signal came sometimes earlier and sometimes

Figure B1. Yield spread between 10-year Treasury note and 3-month Treasury bill



Source: St Louis FRED.

Figure B2. Probability of a recession in the US within the next 12 months, implied by the yield curve



Source: NIESR and St Louis FRED.

## Box B. (continued)

later. In the four recessions of 1970, 1980, 1990 and 2008, the indicator was already at 50 per cent or above more than 12 months before the first month of the recession and in the remaining five recessions the signal appeared between 5 and 10 months before the beginning of the recession.

The latest data point for March 2018 is a yield spread of 1.1 per cent, which using the model translates into an estimated probability of recession within the next twelve months of 30.9 per cent. While this may appear quite high to forecasters, who look at a range of economic indicators, it is only marginally higher than the unconditional probability of 27.8 per cent, and well below the 50 per cent threshold. What is more interesting is that the indicator is on an upward trend, and in November 2017 it reached a 10-year high before levelling off. The main reason for the flattening of the yield curve in recent years is that the 3-month yield increased from 0 to 1.7 per cent while the 10-year yield stayed broadly flat. In short, the indicator does not indicate an imminent recession, but it would be wise to monitor if the yield curve flattens further.

At this point, we should note that the New York Fed publishes on its website<sup>1</sup> a recession indicator with a different methodology: it computes the probability of recession in exactly twelve months, rather than at any point within the next twelve months. Because of its more narrow focus, the Fed indicator gives by construction a systematically lower probability of recession, with the latest reading for March at 10.8 per cent, also close to the unconditional probability of 13.0 per cent. The reason why we chose the cumulative indicator is that the average yield spread in the twelve months before the beginning of a recession has historically been lower than exactly twelve months before the beginning of a recession: 0.0 per cent versus 0.6 per cent. This suggests that, as the signal from the inversion of the yield curve sometimes arrives late, the Fed indicator may err on the optimistic side.

Interpreting these results should be done with a degree of caution for several reasons.<sup>2</sup> First, the severity of the Great Financial Crisis has pushed the Fed into unprecedented monetary actions; Fed funds rates reached the Zero Lower Bound (ZLB) and the Fed bought a large quantity of long-dated government bonds as part of its Quantitative Easing (QE) programme. Both ZLB and QE have probably artificially reduced the yield spread by respectively pushing up the short rate and pushing down the long rate compared to what they would otherwise have been. As a result, the information content of the yield curve may have been temporarily blurred. Looking forward, the current tightening of monetary policy by the Fed is likely to have ambiguous effects on the slope of the yield curve; increasing Fed funds rates increases the short-term rates but reducing its balance sheet (composed mainly of long-term T-notes) also increases yield at the long end. In that regard, the current situation is different from what happened in previous business cycles. Secondly, the coefficients of the probit regression are not stable with regard to the estimation period sample, which means that out-of-sample forecasting performance is likely to be less good. As an example of such a structural break in the data, the average yield spread has nearly doubled since the mid-1980s as can be seen in figure B1: between 1953 and 1985, it averaged 1.1 per cent and since 1985 it has averaged 1.9 per cent. Indeed, the 'Great Moderation' led to short rates decreasing more than long rates on average.

To conclude, using the yield curve to predict upcoming recessions is an easy and model-free way of extracting some of the information contained in the government bond market to forecast an event that is otherwise very difficult to predict. Our own research and that of the New York Fed and the San Francisco Fed<sup>3</sup> suggest that the possibility of a recession in the US has risen somewhat over the past year but it is still far from our central case outlook.

### NOTES

1 [https://www.newyorkfed.org/research/capital\\_markets/ycfaq.html](https://www.newyorkfed.org/research/capital_markets/ycfaq.html).

2 Chair Yellen's December 2017 press conference <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20171213.pdf>.

3 Bauer M.D. and Mertens, T.M. (2018), FRBSF Economic Letter <https://www.frbsf.org/economic-research/files/el2018-07.pdf>.

### REFERENCES

- Chinn, M. and Kucko, K. (2015), 'The predictive power of the yield curve across countries and time', *International Finance*, 18(2), pp. 129–56.
- Estrella, A. and Mishkin, F. (1998), 'Predicting U.S. recessions: financial variables as leading indicators', *The Review of Economics and Statistics*, MIT Press, 80(1), February, pp. 45–61.
- Estrella, A. and Hardouvelis, G. (1991), 'The term structure as a predictor of real economic activity', *Journal of Finance*, 1991, 46, 2, pp. 555–76.
- Harvey C. (1988), 'The real term structure and consumption growth', *Journal of Financial Economics*, 22, 2, pp. 305–33.
- Laurent, R.D. (1988), 'An interest rate-based indicator of monetary policy', *Economic Perspectives*, Federal Reserve Bank of Chicago, January, pp. 3–14.

This box was prepared by Cyrille Lenoel.

## Box C. The re-emergence of concerns about debt

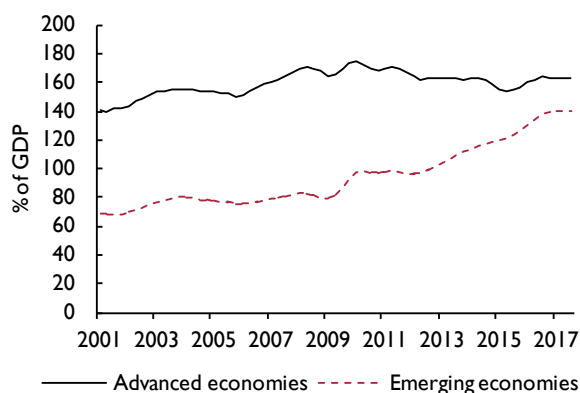
One outcome of the financial crisis and Great Recession is that the monetary authorities in many countries now regularly publish reports on financial stability and discuss the main risks that they think could adversely affect economic and financial conditions. As would be expected, debt is one topic. In part this may just reflect back to the build-up of debt before the Great Recession. But it also reflects the relatively low levels of policy interest rates since then and concerns about what might happen to debt service burdens should policy rates rise. This note looks at some recent trends in debt internationally, noting the increase in debt, especially amongst emerging economies. The focus is on private sector debt, in particular trends in household sector and non-financial company sector borrowing. The point is not to be alarmist about recent trends but rather to highlight something that may become a risk issue should the world economy face a negative shock or should policy and market interest rates rise markedly faster than expected.

In advanced economies (as defined by BIS statistics), private non-financial sector debt increased from 144 per cent of GDP at the end of 2001 to 163 per cent of GDP by the end of 2008. Of the credit at end 2008, households accounted for 47 per cent and non-financial companies 53 per cent. Private non-financial sector debt has since risen to 168 per cent of GDP, a notable slowing in the pace of debt accumulation, with the shares broadly constant (households 45 per cent) but with debt still rising. In contrast, in emerging economies private non-financial sector debt held steady in the run-up to 2009, from 70 per cent of GDP at the end of 2001 to 76 per cent of GDP at the end of 2008. It has since risen to 143 per cent of GDP. The key feature is that corporate credit has increased markedly. Corporate debt is now estimated at 104 per cent of GDP and 79 per cent of the total.

Rapid growth in corporate debt in China has played a major role in the emerging markets story. According to BIS figures, since late 2008 the share of emerging market corporate sector credit that is due to China has risen from 46 per cent to 70 per cent. That said, other emerging market economies have seen their corporate sector debt rise by 66 per cent in US dollar terms over the same period.

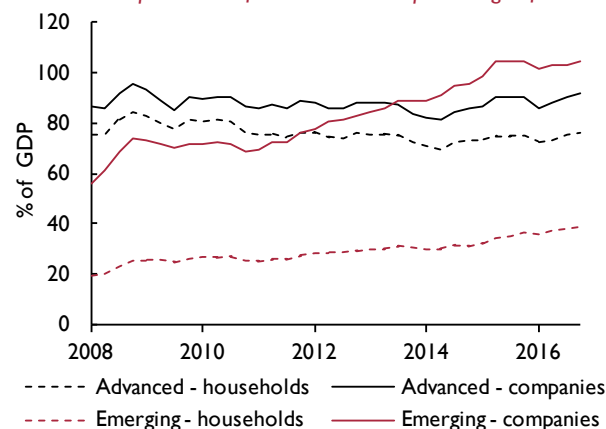
**Figure C1. Total credit to private non-financial sector as percentage of GDP**

*Credit as a percentage of GDP (rolling annual averages)*



**Figure C2. Non-financial private sector debt to GDP ratios**

*Total credit to private non-financial sector as percentage of GDP*



The IMF (2015) has noted that at the same time as corporate debt of non-financial firms across major emerging market economies has risen, the composition of that corporate debt has been shifting toward bonds. While credit can be used to fund productive investment, thereby boosting growth, for companies there is also an added possible concern in that some bond finance will have been arranged in foreign currency terms and not based on domestic interest rates. This creates a potential added risk if, for example, credit is in US dollars and US interest rates rise relative to domestic rates and also if the value of the US dollar appreciates, especially if the primary source of cash for repayments is domestic currency based and does not keep pace. The IMF notes "tentative evidence that listed firms that have issued (bonds) in foreign currency do not appear to have raised their foreign exchange exposures". To date, with the dollar index depreciating, this has not been a realised concern, but, with debt having risen sharply, adverse shocks to the global economy run the possible risk of bringing the debt crises of previous decades back into focus.

### REFERENCES

- Dembiermont, C., Drehmann, M. and Muksatunratana, S. (2013), 'How much does the private sector really borrow?', *BIS Quarterly Review*, March.
- International Monetary Fund (2015), 'Corporate leverage in emerging markets – a concern?', *IMF Global Outlook*, October.
- Liadze, I. and Haache, G. (2017), 'US monetary policy and its impact on emerging market economies', *National Institute Economic Review*, 240, May.

This box was prepared by Barry Naisbitt



accommodative as a consequence. In a virtuous circle this could remain a feature and the pace of growth could accelerate. But if inflation were to rise (or to be expected to rise) and policy interest rates rise in response, this possible effect could be choked off.

To date, the other side of the improved overall economic performance has been generally disappointing productivity growth. This, as discussed in the February *Review* and at a special NIESR session at the Royal Economic Society conference in March 2018,<sup>5</sup> has been a quite generalised feature of the advanced economies, with productivity growth disappointing relative to expectations based on past productivity growth rates. It is possible that stronger growth and its more synchronised nature could lead to a stronger path of demand and business investment and a subsequent boost to productivity growth. This would both add to future capacity and potentially further postpone any upward adjustment in inflation, which could result in a revival of productivity growth and so support higher real earnings growth<sup>6</sup> and increased confidence. As a consequence, the upswing could continue more strongly and for longer than anticipated.

If accommodative monetary policy has a lagged effect on growth, it is possible that the effect of the easing already seen is yet to be fully appreciated. So, with monetary policy still remaining supportive, growth in Japan and the Euro Area could provide a greater boost to global activity than anticipated in this outlook. At the same time, the recent fiscal measures in the US could add more momentum than expected and so the expectation of a gradual slowing on growth starting in the latter part of 2018 could be overturned.

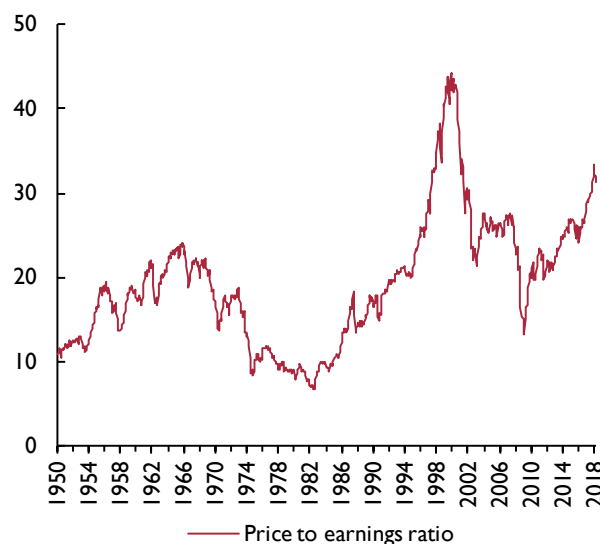
Downside risks to the outlook come from several possible sources. In the US the gradual tightening of monetary policy seen in 2016 and 2017 (and continued in the first quarter of this year) has come at a time when the unemployment rate has fallen to 4.1 per cent, a 17-year low. At the same time, inflation has been persistently below its target, which has led some economists to argue that there was not a need to increase policy rates. With the US economy now approaching its second longest postwar expansion, there is perhaps a natural focus on how long the expansion could last. There is a history of research in the US that has linked recessions to inversions in the yield curve and the focus on this has sharpened because the yield curve spread has narrowed as policy rates have risen. While it can always be argued that ‘this time is different’, Box B provides a brief examination of what simple models of the relationship imply. From this,

a US recession does not look imminent. San Francisco Fed Senior Policy Advisor Glenn Rudebusch found that “the historical record since World War II does not support the view that the probability of recession increases with the length of the recovery”.<sup>7</sup> While the US expansion is ageing, it may have much longer to run.

If synchronisation has had internal economic consequences that lead to more restrictive, anti-global policies then the synchronised nature of the recent global expansion noted in Box A may present a risk in itself. While a synchronised expansion may appear beneficial, it could be that the synchronisation itself contains the seeds of its own undoing. If economies become more dependent on exports to other growing economies to generate their own growth, this may increase the possibility that a shock that is unique to one economy is transmitted to other economies, increased synchronisation may increase the risks across economies, and if the next phase is a de-synchronisation, then slower growth could result.

Equity markets in the first quarter have been more volatile than over the previous year, perhaps reflecting the nature of policy shocks (especially related to trade) but also reflecting views that stock markets appear to be richly valued relative to what might be regarded as fundamentals. The most widely quoted analytical approach uses the Shiller CAPE index for the US (see figure 4). This indicator remains elevated, close to its

Figure 4. Shiller cyclically adjusted price-earnings ratio for the S&P 500



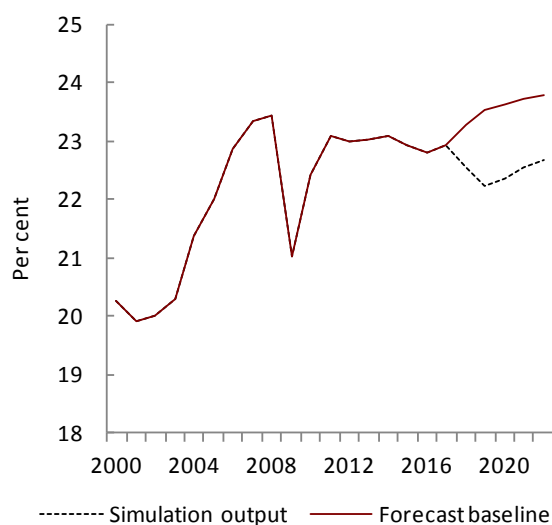
Source: Datastream.

### Box D. The war on trade: beggar thy neighbour – beggar thyself?

A long-held and widespread consensus in economics is that free trade creates more benefits than costs. It allows countries to specialise in goods they are good at producing (Ricardo, 1817), opens markets for firms to exploit economies of scale and for consumers to enjoy a wider variety products (Krugman, 1979) and exposes producers to international competition, raising the overall level of productivity (Melitz, 2003). However, under certain circumstances delaying opening up to trade can be beneficial. For instance, the once emerging markets of Asia, Japan, South Korea and China, only entered the world stage of trade once internationally competitive industries had developed. Existing barriers to trade continue to be held up in the developed and developing world to protect workers in less productive industries from painfully rapid disruptions, such as those described in Foliano and Riley (2017), consumers from low-quality imports and innovators from a theft of ideas. The question we raise in this box is: Who wins and who loses from erecting new barriers to trade? We focus in particular on the effect of tariff and non-tariff trade barriers on the international price system.

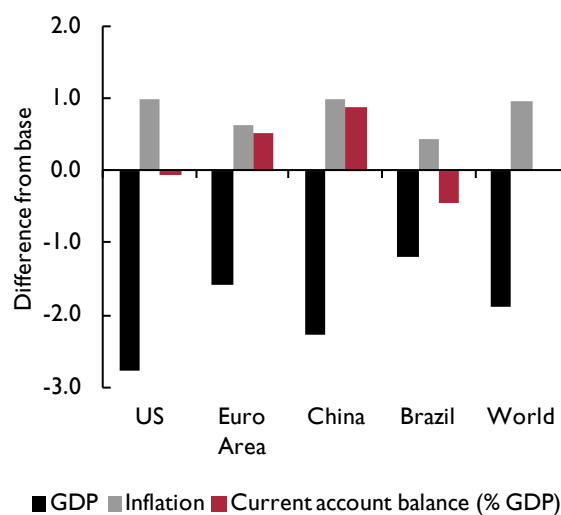
US President Trump's protectionist rhetoric and imposition of tariffs on some products from the country's trading partners together with the UK's decision to leave the world's most integrated trading block highlight the risk that international trade might become more costly in the future. Tariffs increase the cost of shipping goods across borders. This also holds for regulatory barriers that restrict, in particular, the trade in services. We use the National Institute's Global Econometric Model (NiGEM) to run a stylised scenario, that could be thought of as a supply side shock, illustrating the impact of a 10 per cent increase in import prices worldwide.<sup>1</sup> This could come as the result of the imposition of tariffs or a rise in trade costs due to regulatory barriers.<sup>2</sup>

Figure D1. World trade-to-GDP ratio



Source: NiGEM simulation.

Figure D2. Average impact on GDP, inflation and the current account balance-to-GDP ratio over a 5-year period (relative to baseline)



Source: NiGEM simulation.

Note: GDP - percentage difference from base; inflation and current account-to-GDP ratio - absolute difference from base in percentage points; for the world the aggregate only impact on GDP and inflation is shown.

Our analysis demonstrates that the share of trade in world GDP would fall by about 1 percentage point over a 5-year period, relative to baseline, if import prices were to rise substantially (see figure D1). To show the impact of the shock on a wide range of countries, we have chosen economies with differing characteristics: developed and developing; with different levels of openness; as well as varying degrees of trade linkages with the US.

As illustrated in figure D2, an increase in import prices raises inflation and depresses output in all countries, with the magnitude and persistence depending on the sensitivity of domestic prices to import prices, the stickiness of domestic prices as a result of labour market rigidities as well as differences in the reaction of monetary policy. The increase in trade costs leads to a fall in domestic demand in all economies, as both private consumption and investment suffer. Higher domestic prices depress real personal disposable income and hence private consumption, while increases in interest rates by central banks in response to rising

### Box D. (continued)

inflation discourage investment. The effect on external current account balances varies across countries both in magnitude and sign – in the Euro Area and China the current account improves, while in the US and Brazil it deteriorates. The net effect in each economy will be determined, among other things, by the relative sensitivity of export and import volumes to changes in export and import prices as well as the relative share of exports and imports in total trade (see the article by Slopek in this Review).

Our results show that a global war on trade has the potential to make everyone worse off through adjustments in relative prices. However, some countries would have potentially more to lose than others depending on each economy's reliance on imports and exports. The analysis builds on our earlier work (Carreras and Ramina, 2017; Liadze and Hacche, 2017), which shows that unilateral tariffs can have detrimental effects not just on others but also on the country that imposes them. In practice, a global wave of protectionism would likely affect economies through a range of additional channels, which have not been considered here, including risk premia in financial markets and productivity. The fact that we focus on aggregate outcomes further caveats our results, as we would expect substantial differences within countries across industries and along the income distribution.

#### NOTES:

- 1 NiGEM version v1.18b was used for the simulation.
- 2 Shocks are applied to non-commodity export prices to deliver equivalent increases in non-commodity import prices.
- 3 The authors wish to thank Garry Young for helpful comments.

#### REFERENCES:

- Carreras, O. and Ramina, M. (2017), 'The risk from increased trade protectionism', *NiGEM Observations*, No 11.
- Foliano, F. and Riley, R. (2017), 'International trade and UK de-Industrialisation', *National Institute Economic Review*, 242, November.
- Krugman, P.R. (1979), 'Increasing returns, monopolistic competition, and international trade', *Journal of International Economics*, 9(4), pp. 469–79.
- Liadze, I. and Hacche, G. (2017), 'The macroeconomic implications of increasing tariffs on US imports', *NiGEM Observations*, No 12.
- Melitz, M.J. (2003), 'The impact of trade on intra-industry reallocations and aggregate industry productivity', *Econometrica*, 71(6), pp. 1695–725.
- Ricardo, D. (1817), *On the Principles of Political Economy and Taxation*, London: John Murray.

This box was prepared by Arno Hantzsche and Iana Liadze.<sup>3</sup>

highest level since the internet bubble. While there is an active debate about the precise inferences that can be drawn from this, it can be viewed as a potential indicator of vulnerability to a negative shock. Falling equity prices would reduce household wealth which, in turn, would be likely to have negative effects on consumer spending and possibly also indirect effects from a reduction in confidence or an increase in uncertainty.

Another source of potential downside risk to global economic prospects comes from rising debt. This factor has been cited by the Bank for International Settlements (BIS) and in some central banks' and IMF reviews of potential concerns on financial stability. There is considerable commentary about the increased levels of government debt and, given the experience of the Great Recession, about rising household debt (especially mortgage debt in economies such as the UK, Canada, Netherlands and Australia). Much of the concern here focuses on what might happen to debt serviceability when interest rates rise, especially if households have become accustomed to an ultra-low rate environment and current debt-to-income ratios are stretched.

On a broader international scale one area that has been the source of a rapid rise in debt is the corporate sector, especially in emerging markets. This is discussed in Box C. This was recently highlighted by the IMF and here the potential vulnerability is more complex as some corporate borrowers face possible currency movements. Over the past couple of years the US dollar has shown a relative weakening on a trade weighted basis but if

US interest rates were to rise faster than anticipated, global growth were to slow and the US dollar were to appreciate,<sup>8</sup> some overseas corporate borrowers could find their exposure increase markedly, putting domestic expansions in the affected economies at risk.

With Jerome Powell having taken the helm at the US Federal Reserve on 5 February and one (widely anticipated) increase in US policy rates already having taken place this year, the most likely policy pace of the Fed has not changed in markets' perceptions. As a result, some of the uncertainty around the consequences of personnel changes at the Fed has dissipated. But uncertainty from trade policy has increased substantially in the first quarter of the year with President Trump's pronouncements on tariffs on China (\$50 billion) on 22 March and on steel and aluminium imports (1 March). It is difficult to know how far these might portend further US actions and possible retaliation from the countries named by the US but protectionist rhetoric turning into action has added a key downside risk to the outlook for global trade growth.

With continued robust growth in the Chinese economy remaining a key contributing factor in global growth, any internal downside risks (such as perhaps emanating from the rapid pace of credit growth which has already led to some policy reactions following concerns about over-expansion and losses) could be added to by external trade shocks. To date, tariff measures by the US have been limited in scope but they have created uncertainty about the downside possibilities.