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An Assessment

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The coronavirus crisis – estimated to have caused the sharpest annual contraction of output for 300 years – has to be viewed against an economic environment shaped by the last global economic upheaval: the 2008 financial crisis.

This environment is distinguished by four features:

1. Very low and anchored inflationary expectations
2. Historically very low interest rates and government borrowing costs
3. Slow and insipid economic growth accompanied by downward revisions to estimated trend rates of growth
4. Growing appreciation that advanced economies may have entered some form of profound stationary state or secular stagnation – a prolonged period of very low or no growth.

This paper focuses on how central banks have responded since March to the Covid crisis, explores the discrete episodes such as the liquidity crisis in the Spring and the evidence of companies borrowing to accumulate cash and the equity price boom that has followed the huge injections of liquidity into the international financial system. It offers an impression of where policy makers are and the limits that central banks confront in a low interest rate environment where monetary policy has no more space left and is not effective.

Summary of Conclusions

- There has been a huge monetary response to the economic consequences of the Covid shock. Central banks have hugely expanded their balance sheets. This is a further expansion of what were already hugely expanded central bank balance sheets following Quantitative Easing (QE) and other unorthodox monetary measures following the Great Recession. They have cut interest rates even lower too and here in the UK, where policy rates are now 0.1% there appears to be an ongoing debate in policy circles as to whether we should move to negative interest rates.
- These measures and the purchase of assets were led by the Federal Reserve and successfully stabilised market liquidity. Financial markets, including the US Treasury repo market, exhibited a genuine crisis of liquidity, but the central banks successfully contained it.
- The actions of central banks have pumped huge flows of liquidity into financial markets and that has been reflected in much higher financial market asset valuations. This is particularly marked in equity markets as well as the bond and credit markets, where credit spreads have been compressed at a time when corporate earnings and dividends have been cut as the likelihood of insolvency and

bankruptcy has increased.

- The combination of very low interest rates globally and in the UK and other public sector support has increased the number of zombie businesses that would normally close but are able to struggle on, with little scope for innovation and development.
- Many companies have borrowed in order to hoard cash. This was a feature of the long and slow recovery from the Great Recession and is pronounced now. Low interest rates and higher company borrowing has not been matched by higher investment but varying forms of financial engineering, leverage and accumulation of precautionary balances. The very low rates of interest have further compounded the micro-economic problems in credit markets that were apparent before the Covid crisis.
- Monetary policy was already at the limit of what it could achieve in terms of stimulating economies in the event of a shock before the Covid crisis and its limits remain clear after all the measures that have been taken since March. The Bank of England reportedly considering negative interest rates is further indication of the limits that monetary policy is encountering. Active fiscal policies to stimulate demand are now the key to macro-economic management. This has been directly recognised by the Chair of the Federal Reserve Board Jay Powell and by both his immediate predecessors, Ben Bernanke and Janet Yellen.
- Both low inflation and low interest rates are embedded in market expectations. Interest rates and bond yields have fallen and the costs of servicing public sector debt in the US, UK and other advanced economies have fallen. In tackling the immediate crisis this means that policy makers should be less constrained than they were in the past, when both inflation and interest rates were high.
- In assessing the scope for discretionary fiscal policy, the international economic context is just as important as the domestic. Integrated financial markets where capital flows freely across borders mean that, for example, the actions of the Federal Reserve are frequently more important to questions of financing UK public debt than the actions of the Bank of England, while the capacity of financial markets to absorb newly issued UK debt should be viewed in the context of international demand for gilts, not just domestic. In the first decades of the 21 century there has been a recognition that interest rates have converged internationally because of global influences rather than national ones. Last year presentations at the Jackson Hole conference explored these themes not least in relation to the central role that the dollar has in payment systems, invoicing and reserve holdings.
- The debate about raising central banks' inflation targets is another reflection of the ineffectiveness of monetary policy. Given that central banks have not been able to meet their current targets of 2 per cent it is not clear how they would hit, say, a 4 per cent target.

Higher expected inflation, moreover, would have different results from that hoped by policy makers. Businesses and households see inflation in a negative light - instead of boost to their confidence about employment incomes and investment, it could have the opposite effect.

- The debate about monetary policy and macro-economic demand management is taking place in the context of greater appreciation of much slower rates of trend economic growth. There is increasing evidence that advanced economies may be experiencing the sort of stationary states that classical economists speculated about. And the future may reflect the experience of Japan over that last thirty years.
- The explanations for this range from lower productivity growth in increasingly service based economies include aging demography and changing market structures. There is much discussion in the US about increased market concentration, higher monopoly mark ups and competition policies that may have accommodated this. Much of this is not directly relevant to the UK which was under the jurisdiction of EU competition policy and improved its own domestic competition policy. One interesting suggestion is that growth may be slowing because the diffusion of knowledge has been slowed by much more aggressive and significant use of patents and intellectual property law which impedes the opportunities that firms have from borrowing good practice and innovation that in the past has had resulted in beneficial spill overs arising from research and development.
- A lack of demand in the economy and spare capacity should be remedied by macro-economic stimulus. In the context of slowing trend growth policy makers need to be realistic about the sort of economic growth they may generate. The OECD recognises the limits of monetary policy and advocates use of fiscal policies and structural reform to improve growth. In many advanced economies particularly in Europe there is clear scope for ambitious structural reforms to improve the supply performance of the economy. In some economies such as the Netherlands and the UK there is much less scope for further structural reform given that so much has been undertaken over the last forty years particularly in relation to labour markets.
- The UK should explore opportunities to lock in the present historically very low rates of interest on its public debt by extending the maturity and duration of its debt. It can do this by exploring issuing much longer dated fifty- and hundred-year maturity gilts in the manner that other countries such as Austria have done. Also, it would be beneficial to look again at the appetite international institutional investors (such as pension funds and insurance companies) have for permanent non-repayable undated bonds issued at a slightly higher rate of interest than conventional debt,

such as the so-called 'Consols'. The Debt Management Office point out that historically, undated gilts used to comprise the majority of the UK debt stock prior to the Second World War in 1939.

- Post-Brexit, the UK's economic and financial authorities, in particular the Chancellor of the Exchequer and the Governor of the Bank of England, should use the status and history of London as the world's first major international financial centre and to position the UK as a world leader on financial policymaking, prominent on international stages such as the IMF, Davos and indeed Jackson Hole.

Introduction

Six months into the shock delivered to the international economy by the Covid virus, this is a good time to take stock of one of the vital shock absorbers for the global economy – namely the policy response of the world's principal central banks and monetary authorities to the crisis. This note reviews the direction policy has taken and how it is perceived by the principal monetary authorities. It draws on the presentations at the annual Jackson Hole Conference of central bankers as that has continued to influence the debate, as well as other papers to explore current central bank thinking and perceptions of the effectiveness of monetary policy as an economic tool. The Jackson Hole event is organised each year by the Federal Reserve Bank of Kansas City, the Quarterly Report published by the Bank for International Settlement in September 2020 and the reaction to the Federal Reserve Board's modified approach to its inflation target to assess some of the important issues. These include monetary and financial conditions, the present approach of monetary policy and the effects of the monetary response to the Covid shock in terms of its consequences for international liquidity, wider monetary conditions and financial markets, as well as the wider structural economic context that monetary policy is working in.

Normally, the Jackson Hole conference takes place in the beautiful mountain resort that gives the occasion its name. This year, however, it was a full-scale virtual conference with papers, slides, speeches, presentations and panels along with questions and a cross-examination of papers from an international audience. It was probably none the worse for its virtual organisation and an object lesson in how high level and technical public affairs can be conducted online, and offers an illustration of the sort of change that the response to the virus has generated. The conference itself exemplified the reallocation effects taking place in the global economy that were under discussion.

Taking stock of the Covid crisis and the longer-term challenge of becalmed economies

The economic backdrop to the conference was clear. There has been a huge reduction in economic activity in the first half of the year as the virus spread. Governments took public health measures to arrest the transmission of the disease, while households and businesses took measures to protect themselves from Covid's perceived dangers. At the start of the crisis, the economic shock – as well as being a specific exogenous health shock to economies – had the effect of crystallising financial and economic anxieties that are inevitably accumulated over a long period of expansion.

Among the accumulating financial anxieties that the mature phase of the cycle was generating was a concern about liquidity in money and bond markets – in particular, whether there were sufficient players in the repo and swap markets with enough capital committed to their trading operations to ensure the proper functioning of securities and credit markets in the context of a shock provoking a flight to safety and cash. In March of this year, this was swiftly tested, potentially to destruction, not least in the US Treasury market. There was a flight to quality and cash, and the only cash that was in demand was dollars. Even advanced economies, whose currencies carried some of the characteristics of a reserve currency or potential safe haven, such as sterling and the Swiss franc, were affected by increased demand for the dollar, which is normally only experienced by emerging economies.

Successfully managing the liquidity crisis in March

The Federal Reserve Board in Washington responded with massive injections of liquidity into both the domestic US markets and into the international foreign exchange and securities markets. Policy was constrained by the very low level of interest rates, but the Federal Reserve expanded its balance sheet aggressively and broke new ground in the range of assets it was prepared to buy, such as municipal bonds to help state and local government authorities in the USA. The Federal Reserve undertook bond purchase operations equivalent to around two-thirds of the Quantitative Easing (QE) undertaken between 2009 and 2014. Its balance sheet has increased by over two-thirds from $4.15 trillion in March to $7 trillion and looks set to increase further. This lead was followed by the other principal G7 central banks. The European Central Bank (ECB) increased its asset purchases in the sovereign segment, moving towards non-core securities, as its balance sheet ballooned to about 50 per cent of GDP. The Bank of England that at one stage moved to acquire UK Government debt directly, bypassing the Gilt Market, when there appeared to be technical questions about the market's capacity to absorb the scale of debt the UK was issuing.

The response of the central banks was matched by governments responding with fiscal policy measures. These included public sector guarantees of private business borrowing, measures to protect income and jobs and active measures of fiscal stimulus to maintain demand.

These measures to address the pandemic were not intended to prevent the fall in output. Rather, the purpose of these policies was to shut down activity, which in turn inevitably involved lower recorded economic activity. The economic response of policy makers was to mitigate the economic and social costs for households and businesses, and to try to limit the scarring and hysteresis effects of an interruption of economic activity on this scale. Much of the policy response of economic authorities, led by the Federal Reserve Board, was directed at maintaining liquidity in financial markets. This was on a huge scale and reduced market interest rates in a context where inflationary expectations in financial markets were contained and fell.

Huge sums raised in private sector markets match the liquidity pumped in by central banks

A distinguishing feature of the international economy since the spring measures has been an egregious disconnection between the optimism of equity and risk markets on the one hand, and the behaviour and deteriorating outlook for product and labour markets with malign implications for future trend growth on the other. As the year has progressed, economies have started to turn-around and in some areas, rebound strongly, although the persistent health crisis is still restraining growth.

Another feature – driven by increased liquidity – has been the difference in access to finance experienced by big corporations with strong balance sheets and smaller businesses. This is evident in the UK and globally. Large firms have been able to borrow through the bond markets and raise equity capital through the issue of new shares in public and private equity markets. Equity markets have soared. For instance, take the MSCI's World Index performance in August, when it rose by 6.6 per cent and experienced its sharpest rally in that month since 1986. Although there has been some volatility since, the solid performance of such markets has been fundamentally driven by the liquidity provided by the Federal Reserve and very low interest rates.

Equity valuations are disconnected from conventional valuations based on earnings and the potential performance of the economy. Soaring equity prices have been matched by some of the worst earnings reported since 2009. Global dividends fell by over $100 billion in the second quarter, ending in June. Payments paid to shareholders globally tracked by Janus Henderson fell 22 per cent. The UK was the hardest-hit market in terms of lower dividends, which fell by more than half in the second quarter compared to the previous year. US equity valuations have resulted in market capitalisations to GDP of close to 200 per cent. These are much higher than previous equity price valuations associated with asset price bubbles such as US equities in 1996 when the ratio to GDP was 120 per cent and in Japan inn 1989 when it was 140 per cent.

The very low rates of interest have further contributed to the mispricing of credit risks and the creation of circumstances where so-called zombie businesses are able to continue trading. These features of the market are a continuation and amplification of patterns that were established after the Great Recession in response to the actions of the central banks. Those central bank policies were essentially continuous very low rates of interest, purchase of securities and assets and expanded central bank balance sheets.

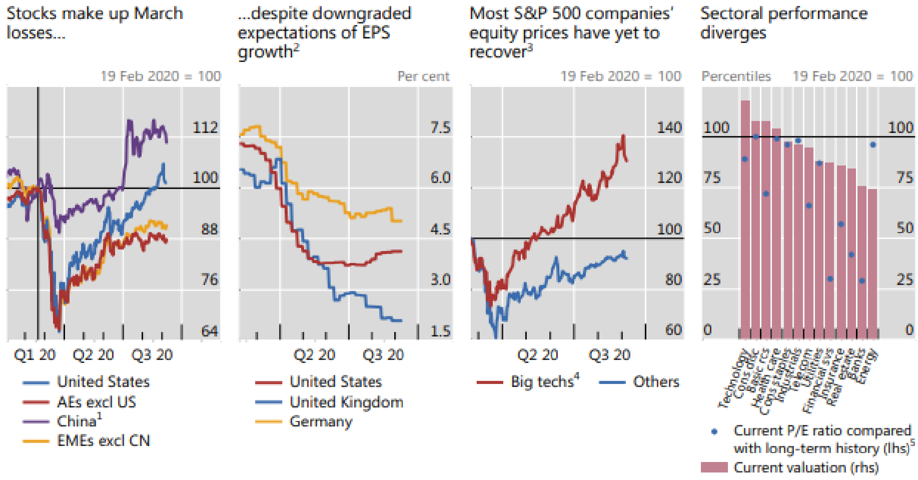
The counterpart to that expansion of central bank balance sheets has been an internationally unprecedented increase in money raised from public and private sources by companies. S&P 500 non-financial companies had the equivalent of $1.35 trillion by the end of June 2020. UK listed non-financial firms making up the FTSE 350 index increased cash on their balance sheets by 30 per cent to over £200 billion. The S&P ratings agency has reported that internationally, corporations have raised $2 trillion in bonds by August 2020 – an increase of $600 billion on the same period the previous year.

Private equity finance, particularly in the US, has supported corporate balance sheets. Buyout groups in the US are estimated to have over $800 billion available to support business restructuring. Firms before the Covid crisis were exhibiting more balance sheet caution – keeping more cash and working capital – that has so far been intensified by the uncertainty generated by the Covid public health crisis.

Higher cash reserves have been matched by reduced capital investment plans. Covid liquidity funds represent an extra cost on a firm's balance sheet. This will permanently lower returns, investment, innovation and growth. In the UK, earnings per share are estimated to have dropped by fifty per cent in 2020 and market expectations only discount a thirty-five per cent recovery in 2021.

The Bank for International Settlements Quarterly Report illustrates the extraordinary increase in equity prices compared to conventional metrics of valuation at a time when near term forecasts for economic growth remained pessimistic. The report also sets out how interest rates have fallen. Nominal and real yields have been compressed and credit spreads have further narrowed at a time when it might be expected that the pricing of credit would reflect increasing risks of insolvency and bankruptcy.

Equity markets recorded strong returns in April and May and were very buoyant between July and August. In advanced economies, by September equity prices were within about ten per cent of their previous highs. These high equity returns, led by China and the US overall, concealed great variation by sector. The US technology sector roared ahead. Less than half of the S&P 500 index had surpassed their February prices before the sell-off started. By that time, the top six technology firms had exceeded their mid-February prices by about 40 per cent. In contrast, the rest of the index did not catch up, despite its components increasing by more than 50 per cent from their deep falls in value earlier in the year.



Basic rcs = basic resources; Cons disc = consumer discretionary; Cons staples = consumer staples; Financial svs = financial services.

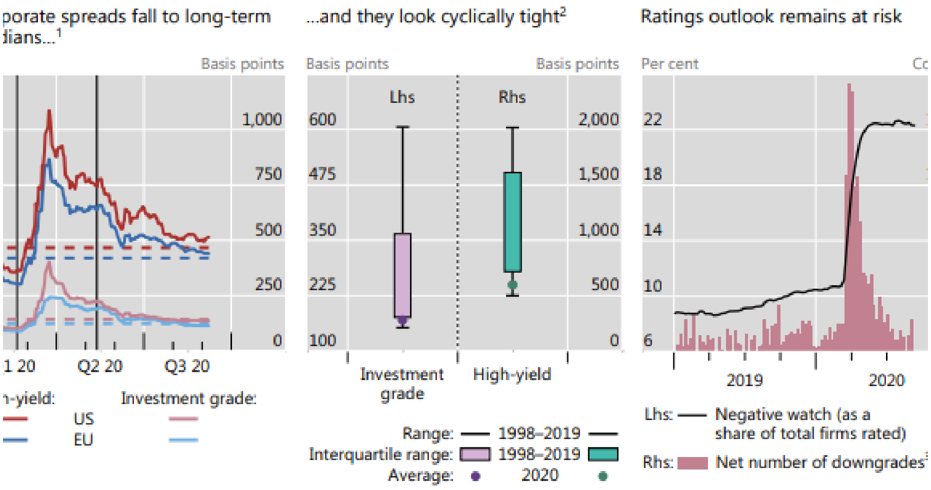
The vertical line in the left-hand panel indicates 19 February 2020 (S&P 500 pre-crisis peak).

[1] Shanghai composite equity index. [2] Cumulative average growth rate of earnings per share (EPS), calculated between realised end-2019 and estimated end-2023. [3] S&P 500 constituents as of 18 August 2020, simple averages. [4] Amazon, Apple, Facebook, Google, Microsoft and Netflix. [5] Latest observation as percentile of long-term historical distribution, 1973–current.

'Zombiefication?'

The very low interest rate environment since 2008 has resulted in the increasing phenomenon of zombie businesses. These are technically firms where the profits either do not or barely cover interest payments. The BIS, drawing on S&P estimates, reports at least fifteen per cent of business that have junk bond status have capital structures that are unsustainable. These firms in conventional business conditions would fail, but as the BIS notes, in the context of the various forms of stimulus they are able to struggle on trading. In addition, many firms that do not conform to the technical definition of being a zombie business will now exhibit comparable characteristics. These include high debts and low returns that result in those companies being managed in a cautious and defensive manner.

Credit spreads appear to imply that credit markets believe that corporate bankruptcy rates will continue to remain low, although this would be inconsistent with historical experience. The BIS points out that if historical relationships were to continue to hold, the 2020 GDP growth forecasts that range between –4.5 and –11 per cent would be consistent with bankruptcies increasing by 20–40 per cent in 2020. So far, instead of insolvency, as a result of public policy support measures, most economies have experienced a lower number of insolvencies since the start of 2020 than over the equivalent period in the previous five years. And this is despite the pre-pandemic increase in the number of persistently unprofitable firms, the "zombies", that have been identified as vulnerable to economic downturns, a significant feature of the economic recovery after 2008.



vertical lines indicate 19 February 2020 (S&P 500 pre-crisis peak) and 12 May 2020 (Fed starts purchasing corporate ETFs). The das indicate 2005–current medians.

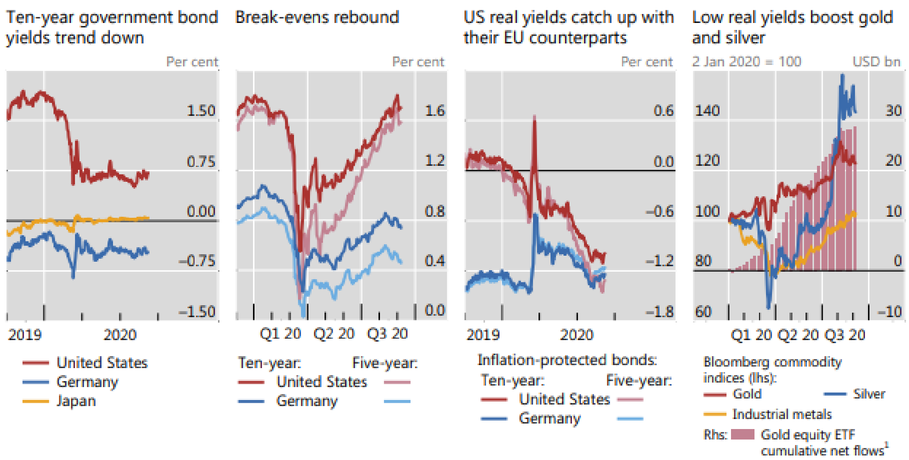
otion-adjusted spreads. [2] Calculated on monthly averages of daily spread data, conditional on negative real GDP growth rate over wing two years. The sample includes corporate credit option-adjusted spread for the euro and the US dollar for the period 1998–cur GDP growth corresponds to the compounded annual growth rate calculated over the current- and next-year Consensus Econo cast for real GDP growth. [3] Net downgrades count the number of downgrade actions taken minus the number of upgrade acti h may include the same entity being downgraded more than once.

ces: Consensus Economics; ICE BofAML indices; S&P Capital IQ; BIS calculations.

Low inflation and low interest rate expectations appear firmly anchored

Despite huge monetary and fiscal stimulus, low inflation and low interest rates appear set to remain firmly anchored in advanced economies. In the UK inflation has remained low and the underlying trend appears around 1 per cent. The Bank of England/TNS Inflation Attitudes survey shows that inflation expectations have fallen in the UK since the outbreak of the pandemic. Households' expected inflation for next year declined from 2.9 percent in February to 1.9 percent in May. Financial markets expect inflation to remain low - UK break-even 5-year inflation declined from about 3 percent in the first 2 months of 2020, to 2.5 percent in March, before rebounding to about 3 percent in August, approaching pre-Covid levels. On latest September data, UK CPI stood at an annual rate of 0.5 per cent. The University of Michigan Consumer Survey shows households have not changed expectations about medium-term inflation - it remains around 2.5 percent, as per the last four years. US Treasury inflation-protected swaps (TIPS) imply that inflation expectations briefly fell since the start of the Covid crisis. Expected US five-year inflation fell from between 1½ to 1¾ percent in the first two months of 2020 to ½ percent in March before rebounding to 1½ percent in August. Longer maturities along the implied inflation spot curve strikingly confirm how both curves have remained flat for both the US and the UK. Yield curves in the gilt and US Treasury markets suggest lower implied inflation in shorter maturity bonds. The difference between the five-year and 30-year is insignificant. In the US 30-year expected rate of inflation is six basis points higher than the five-year at 1.71 percent and in the UK 30-year expected rate of inflation is 14 basis points below the five-year at 3.15 percent.

The BIS show how loose monetary conditions in the US has led the world into lower interest rates and how inflation expectations have remained contained. Bond yields have fallen in Japan and Germany although the greatest fall is in US bond yields. This highly synchronised fall in interest rates and long-term bond yields led by the US illustrates the highly integrated character of modern capital markets in advanced economies. The actions of individual governments may have some impact on the relative cost of their long-term borrowing, but the fundamental cost is determined by the cost of capital internationally.



[1] Sum of net flows to SPDR Gold Trust and iShares Gold Trust, the top two gold ETFs as of 7 September 2020.

Sources: Bloomberg; BIS calculations.

Federal Reserve further refines its inflation target

The presentations and papers delivered at the Jackson Hole central bank conference offer us some guidance as to how economic and monetary policy makers perceive the challenges and appropriate policy tools to meet them. The most significant presentation in terms of what central banks were going to do was given by Jay Powell, the Chair of the Federal Reserve Board. He set out the conclusions of a year-long review and consultation considering the future direction of US monetary policy.

The Federal Reserve since the 1970s has been given a dual mandate by Congress: to maintain price stability and to support full employment. In practice, the central bank has significant discretion in determining the relative importance that it assigns to each policy objective and the intellectual framework and monetary policy instruments it uses. Since the mid-1970s, the Federal Reserve has deployed various regimes of targets, discretion and constructive ambiguity in carrying out this dual mandate. When inflation was running at over 12 per cent in 1979, Paul Volker introduced a regime of targets for the 'M1' measure of money supply (the narrowest measure: currency in the hands of the public; travellers cheques; demand deposits, and other deposits against which cheques can be written) and targets for the supply of non-borrowed reserves. He abandoned the targeting of reserves and returned to using interest as the principal of monetary policy in October 1982.

His successor, Alan Greenspan, perfected a wholly discretionary approach communicated in opaque ambiguity. Ben Bernanke steered the Federal Reserve to an explicit target for inflation in 2012 to offer clarity to markets and economic agents by formally framing what in practice the Fed had been doing for some time. The target was framed around the personal consumption expenditure measure of inflation and the rate targeted was 2 per cent.

During Ben Bernanke's tenure, the Federal Reserve developed novel instruments. Communications and forward guidance were increasingly used to direct market interest rates such as the Fed Funds rate (the interest rate that banks charge on short-term overnight lending to other banks) in the market for non-borrowed reserves (a bank's own money, i.e. not deposits) to anchor inflationary expectations and to support the unconventional monetary policy measures taken in response to the credit crisis after 2007 and the Great Recession. Forward guidance was issued on low interest rates, quantitative easing and management of the structure of the yield curve and expressing the direction of interest rate policy in relation to the rate of unemployment as a proxy for inflationary pressures in the economy.

The progressive recognition that models and assumptions which policy was based on had broken down

The assumptions of a neat trade-off between unemployment and inflation, as exemplified in the Phillips curve, or that there is a reliably identifiable natural rate of unemployment, have broken down. The economic background to the extended review of monetary policy undertaken by the Federal Reserve was that much of the intellectual framework and assumptions about policy and the way the economy behaved and the financial sector interacted with it had plainly broken down. Jay Powell set out this comprehensive breakdown of previously understood relationships that the Federal Reserve had shaped its approach to policy on at the 2019 Jackson Hole Conference.

This year, Jay Powell reported the conclusion of the review of monetary policy and announced a change to the Federal Reserve Board's inflation target. In future, it would opt for an average inflation target for personal consumption expenditure of 2 per cent. This means that if inflation rose above 2 per cent, the Federal Reserve's Open Market Committee would take account of any undershooting that had taken place before and would not necessarily act to tighten policy. **This has reinforced the message that monetary policy in the US will remain accommodating for a long time, meaning that interest rates will remain low even if that involves slightly higher inflation**. Indeed, at its following meeting, the FOMC outlined its economic projections, suggesting inflation will remain 2 per cent in the next two years, leading the markets to believe interest rate hikes may not occur sooner than 2023.

The US Treasury market initially reacted to the new of an average inflation target with a sharp steepening in the yield curve with longer maturity bonds being sold. The difference between five-year and thirty-year US Treasury bond yields widened to 119 basis points and the yield on thirty-year Treasuries rose to its highest point since March when the crisis began. This reflected the recognition that the central bank was giving greater weight to its employment objective and had recognised that in the framework of explicit inflation targeting pursued following the formal establishment of an inflation target in 2012, the monetary authorities placed too great an emphasis on the need for pre-emptive strikes to control inflation. An example of this would be the interest rate increases in 2015 and 2018 when there was no significant evidence of above target inflation.

The main implication of this is that the US central bank is going to maintain highly accommodating monetary conditions, keeping interest rates low and maintaining an expanded balance sheet. This implies the continuation of the low cost of borrowing for governments and continuing demand for equities and risk assets that will contribute to elevated valuations of securities and other assets relative to their normal long-term potential returns.

Managing expectations and promising inflation can backfire

An interesting feature of central bank discussion about policy in recent years has been a focus on guiding businesses and consumer expectations about inflation. As interest rates have reached their zero-rate boundary, monetary policy has lost its bite as a source of stimulus. The suggestion has been that if central banks give a clear signal that they will seek to raise the rate of inflation, it will reassure economic agents about employment, income and economic activity. This will encourage them to spend and invest, raising demand and activity in the economy.

Several papers and presentations at this year's Jackson Hole Summit have explored how effective such policies may be in influencing the public's economic expectations and behaviour. In a paper *Communication and the Beliefs of Economic Agents* presented by Yuriy Gorodnichenko, an economist at the University of California, **a significant disconnection was explored between central bank economists and the public, in term of how the two groups think about inflation**. Using a general equilibrium model as their framework for understanding the economy, policy makers are confident that a commitment to raising the rate of inflation will stimulate economic activity by reassuring the public. But it appears that it will not.

The disconnection with the public arises from two things.

The first is a veil of ignorance, or more accurately, indifference, on the part of the public to the questions and matters that interest central bankers.

The public simply does not follow the debate that policy makers have and the commentary that surrounds it.

Second, in so far as the public may follow the guidance of central bank policy, it does not share the same framework for interpreting economic events. At the heart of this is a different perception about prices and inflation. **The public regard higher inflation as bad; something to protect yourself against rather than evidence of a stronger economy with greater opportunities to work, earn and consume.** The authors of the paper show that the provision of information about inflation to households and firms can sometimes backfire in terms of their subsequent decisions. Whether or not this is the case hinges on how individuals interpret the news about inflation: supply-side interpretations ("inflation is bad for the economy") lead to negative income effects, which can depress economic activity. They show that households in advanced economies, unlike professional forecasters, typically have such a supply-side interpretation, as do many firms.

Over the last twenty years the Federal Reserve has relied on economic agents automatically adjusting their expectations and behaviour to give effect to policy. Since the 1990s it has relied on announcement effects and market guidance rather than open market operations to give effect to its interest rate policy. The success of that gave the central bank the confidence that it would be able to anchor inflation expectations by similar policy guidance and this was further developed in the forward guidance that the Federal Reserve developed as part of the unorthodox suite of policies used after 2008. These papers on the difference perceptions that households and businesses have of how the economy works from those of a central bank offer a warning about the limits of such policies.

Negative interest rates, the Bank of England and the effectiveness of monetary policy

The publicly ventilated debate among the members of the Monetary Policy Committee of the Bank of England this Autumn illustrates the exhaustion of the effectiveness of monetary policy. Far from suggesting that monetary tools are exhausted in offering economic stimulus the fact that the Bank of England with interest rates at 0.1 per cent has written to the CEO of the principal commercial banks to explore their "Operational readiness for a zero or negative bank rate" illustrates how monetary policy has run out of road. It is not clear that the Bank of England would adopt such a policy involving charging commercial banks for making deposits at the central bank. Sir Dave Ramsden the Deputy Governor of the Bank and the former chief economic adviser to the Treasury has expressed significant reservation about the proposition. In an interview with Britain's Society of Professional Economists he said that interest rates on households' bank deposits tended not to fall below zero when central banks pushed their benchmark rates into negative territory. That could potentially damage banks as the gap between lending and funding rates would narrow. He also thought that Britain's banks were also likely suffer in present circumstances by increased losses from defaulting loans as borrowers struggle with the effects of the coronavirus.

In European economies where the monetary authorities have tried negative rates the policy has yielded disappointing results. Not least because for households and consumers it is a counter intuitive proposition – a bit weird – as the Governor of the Swedish Riksbank has observed reflecting on Sweden's disappointment with the practice. The use of the tool in the euro-zone does not appear to be effective given that the ECB continues to fail to achieve its present inflation objective. Many may respects it invites comparison with the suggestions that a deliberate central bank objective of raising the rate of inflation far from stimulating output by encouraging optimistic expectations about employment, income and investment may have the opposite effect of making economic agents and retail savers more cautious especially if think their real cash balances are likely to be eroded by negative interest rates.

Sir Dave Ramsden In a speech to the Society of Professional Economists The Monetary Policy Tool Box in the UK October 2020 emphasised that the Bank of England does not believe that monetary policy has run out of traction, He set out the additional head room that QE and guidance brings in addition to the use of interest rates. In an interesting observation he noted that the Bank of England still considers some version of the Phillips Curve – a trade off between unemployment and inflation to be in play in the UK economy. This is an interesting contrast to the perception of the Federal Reserve that conventional formulations of the Phillips Curve no longer offer guidance for conducting policy in the US.

Taking a back seat: monetary policy when it has run out of road

The difficulty of an economic policy conference such as the Jackson Hole event that concentrates on the role of central banks and monetary policy in a context where monetary policy has run out of road is that the other dimensions of economic policy are neglected. These are the role of fiscal policy within macro-economic demand management, the role of structural economic reform and micro-economic measures to improve the functioning of product and labour markets.

The Chair of the Federal Reserve Board has repeatedly emphasised the need for further fiscal stimulus to sustain the American economy. Governor Lael Brainard graphically spelt out the Federal Reserve's perception of the need for further active fiscal measures in a speech to the Society of Business Economists saying that "Apart from the course of the virus itself, the most significant downside risk to my outlook would be the failure of additional fiscal support to materialize," said Fed in remarks set for delivery in an online discussion on Wednesday.

Governor Brainarnd observed that robust relief efforts in the spring and summer to provide more generous unemployment benefits and grants to small businesses had contributed to a stronger-than-anticipated rebound after the coronavirus pandemic froze economic activity in March and April, and argued that "Premature withdrawal of fiscal support would risk allowing recessionary dynamics to become entrenched, holding back employment and spending, increasing scarring from extended unemployment spells, leading more businesses to shutter, and ultimately harming productive capacity. The Federal Reserve Board has fully taken on board the views of the two previous Fed chairs on the importance of fiscal policy in the contemporary context.

It is interesting that both Jay Powell's predecessors Ben Bernanke and Janet Yellen made significant interventions this year at the annual meeting of the American Economic Association, saying that **given the limitations of monetary policy, governments have to recognise that fiscal policy must again have a major role in short-term demand management when stimulus is needed.**

Fiscal stimulus and micro-economic structural reform

In many respects, the most pertinent contribution to the proceedings at the Jackson Hole conference was offered by Laurence Boone, the Chief Economist of the OECD, in a concluding panel discussion. She made the point that accommodating monetary conditions needed to be supported by an expansionary fiscal stance, made sustainable by improvements in economic growth. Such growth is generated by structural reform and micro-economic measures to improve the working of product and labour markets. Some advanced economies will find it difficult to identify transforming further micro-economic measures to improve their economies. The OECD has noted that the Netherlands and the UK have few obvious structural impediments hindering the working of their economies Central banks have generally considered that the unorthodox monetary policy instruments developed after 2008 when monetary policy approached the zero rate boundary constraint such as QE , credit easing and forward guidance to have worked effectively. Although the insipid rate of growth in advanced economies and their difficulty in meeting their inflation objectives would suggest that they have experienced ample evidence illustrating the limitations of monetary tools in the present circumstances.

Central bank economists marking their own homework: too optimistic a gloss on recent monetary innovation?

An interesting paper published by the National Bureau for Economic Research *FIFTY SHADES OF QE: CONFLICTS OF INTEREST IN ECONOMIC RESEARCH* by Brian Fabo Martina Jančoková Elisabeth Kempf Ľuboš Pástor argues that central banks may have over- estimated the effects of recent innovations in monetary policy in their evaluations. Central banks sometimes evaluate their own policies. They look at tools such as quantitative easing (QE), which represents large-scale purchases of longer-term financial assets such as government debt, as well as policies such as forward guidance and long-term refinancing operations to identify their effects on the level of GDP and the price level for the euro-zone, the UK and the USA. They then compare the findings of studies written by central bankers with those written by academics. They found 'that central bank papers report systematically larger effects of QE on both output and inflation. Central bank papers are also more likely to report QE effects on output that are significant, both statistically and economically. For example, while all of the central bank papers report a statistically significant QE effect on output, only half of the academic papers do'. Furthermore, central bank papers appear 'to use more favourable language in their abstracts: they use more positive adjectives and, to a lesser extent, fewer negative adjectives compared to academic papers. Overall, central bank papers find QE to be more effective than academic papers do'. This paper that identifies the potential conflict of interest in central banks assessing their own policy and compares the institutional challenge to that of being slowly guided by pharmaceutical firms in assessing innovations in drug therapy. It offers a sharp qualification to much of the guidance that central banks have offered about the reliability and efficacy of the new monetary policy tools they have used since 2008.

The fusion of monetary and fiscal policy tools within macro-economic policy

For some thirty years there was a growing and eventually settled consensus that there was a neat division of labour between fiscal policy and monetary policy. Monetary policy was the appropriate tool for short-term demand manage and inflation control because it had much more powerful effects on the economy. Changes in interest rates effected all consumption, investment and savings decisions. In contrast decisions about taxation and borrowing own operate with a lag making active fiscal policies pro rather than counter cyclical. Moreover, notions of Neo-Ricardian Equivalence – essentially the idea that private sector behaviour would automatically offset public sector measures therefore vitiating the effectiveness of fiscal policy as a source of active economic management. Fiscal policy was recognised as very important in shaping the economy's long-term supply performance and the micro-economic structure of its markets. This division enables central banks to be made operationally independent.

Since the Great Recession and the credit crisis that brought it about the neat separation between monetary and fiscal policy has broken down. Central bank balance sheets have only been able to expand because they have enjoyed the support of the taxpayer either explicitly or implicitly. Central banks QE measures have lowered long-term bond yields lowering the cost of borrowing and giving greater scope for active fiscal measures. At the same time central banks through monetary policy have demonstrated less capacity to stimulate economic activity and to determine the rate of inflation as interest rates have approached the zero-rate boundary. In this context there is a need for macro-economic co-ordination of both monetary and fiscal policy and it is quite likely in managing adverse shocks to demand that monetary policy will need to take a subordinate role fiscal policy in matters such as managing the yield curve to ensure that monetary policy accommodates an active fiscal policy.

While central bankers attempt to maintain that these interventions to support fiscal policy have been carried out for perfectly good purposes to maintain orderly markets, liquidity and meet their inflation mandates, it is interesting to note that the public deficits of the euro-zone, Japan, UK an US governments as a proportion of GDP have been roughly matched by an expansion of central bank balance sheets and an acquisition of assets.

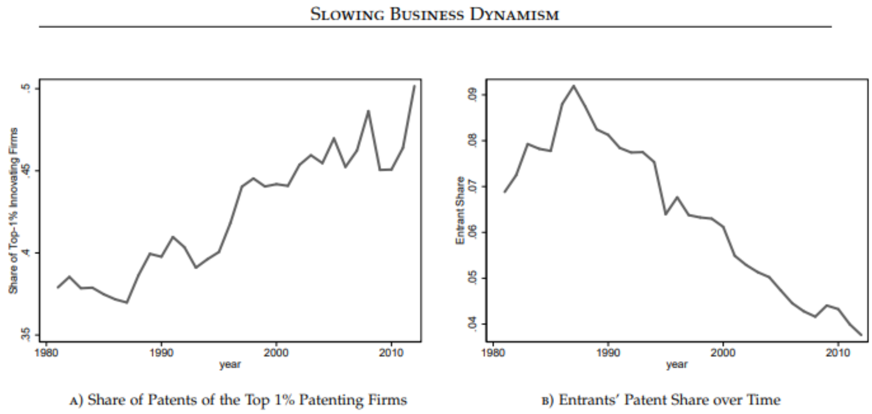
The new normal of very slow growth

It is not clear how advanced economies engineer an increase in their trend rate of both GDP and productivity growth. These are longstanding challenges for advanced economies, and Covid has probably made them worse. Long-run scarring effects, including on capital, will both deter future and reduce current levels of investment. Over the last thirty years, the Japanese economic experience has offered an uncomfortable pattern. It has included asset price bubbles, a banking system crisis, sticky prices bordering on genuine deflation and an aging population. These have provoked every form of monetary and fiscal innovation and a huge accumulation of government debt. Latest was a new growth strategy, personified in its unorthodox ambition by the outgoing Prime Minister, Shinzo Abe, as the strategy was dubbed 'Abenomics.' Yet the results in terms of returning Japan to a faster trend rate of GDP growth have been disappointing; although there was a significant increase in those at work, particularly women.

Twenty-five years ago, Japanese policy makers were both ridiculed and offered patronising advice. **Yet the 21st century, for most advanced economies, has been closer to the Japanese experience than the steady growth that distinguished the later decades of the 20th century.** UK economic growth has progressively fallen since the 1950s and 1960s when it was around 3 per cent. In the first two decades of the 21 century economic growth averaged below 2 per cent and would now appear to be lower. This trend is present throughout the G7 and if anything, the UK has weathered the further slowdown in growth among advanced economies slightly better than other countries in the first part of the 21 century, so far.

The complex factors of exhausted innovation, aging demography and cheap supplies of goods arising from globalisation appear to have generated the conditions of a static or stationary state that occupied classical economists in the middle of the 19th century. In this context, monetary policy and macro-economic policy tools have a limited potency. Indeed, the Jackson Home conference had a session asking: 'Why has the trend rate of growth declined?'

Ufuk Akcigit and Sina T. Ates led this with a paper that looks at the causes of slower growth in a paper titled *Slowing Business Dynamism and Productivity Growth in the United States*. They set out a series of artifacts about the US economy to demonstrate a slower and less dynamic business sector. These include greater market concentration, higher mark-ups and profits, less entry and exit of firms and less job reallocations. Their key finding is "a decline in knowledge diffusion, which allows laggard firms to learn from and implement the practices of the frontier firms, has potentially obstructed rivals from exerting enough competitive pressure on the frontier firms, leading dynamically to a decline in leaders' incentives to experiment and innovate". The paper suggests that **intellectual property rights and the use of patents is central to reducing the transmission of good practice and knowledge between firms.**

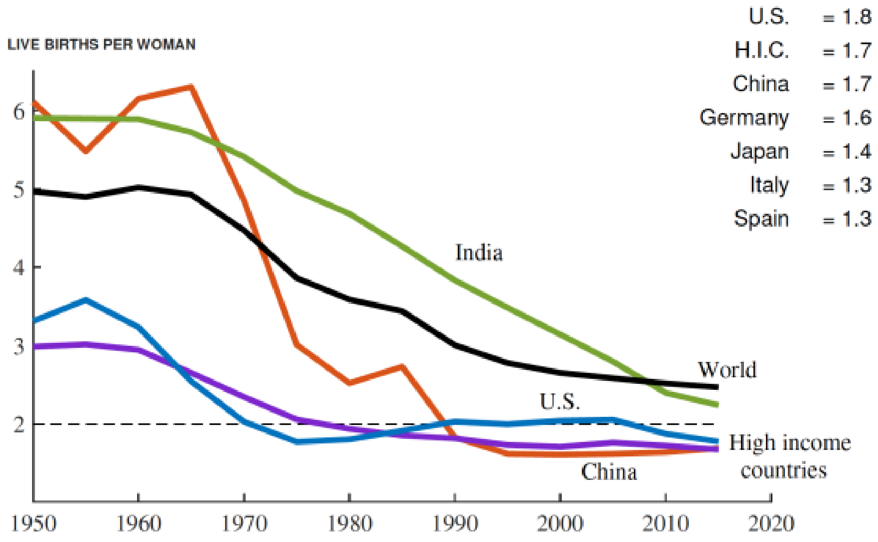


A) Share of Patents of the Top 1% Patenting Firms

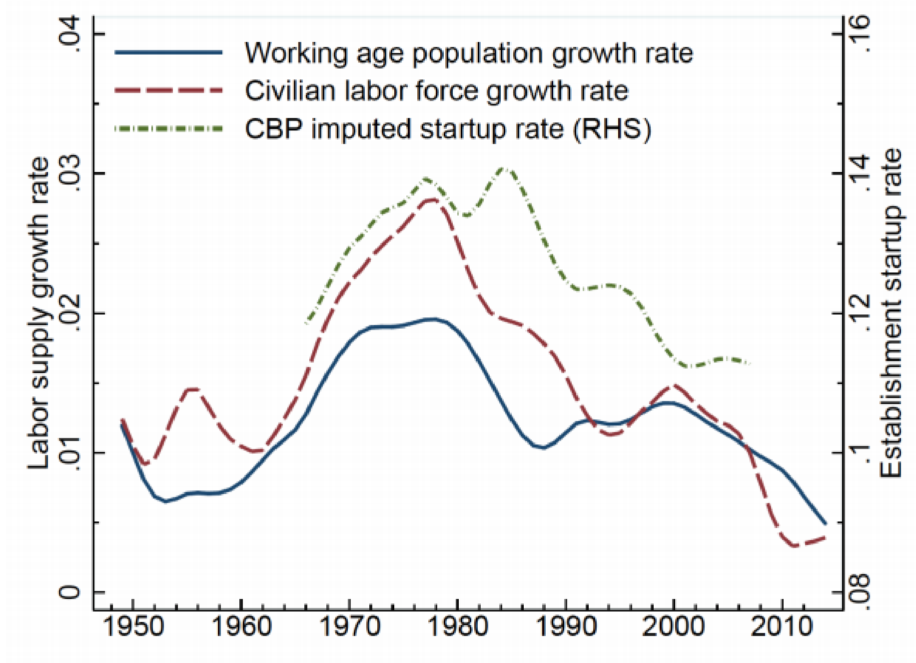
B) Entrants' Patent Share over Time

Commenting on the paper, Gauti Eggertsson suggested that higher market concentration and mark-ups may be part of the explanation of why capital investment has not increased as interest rates have fallen and why the stock of wealth in the US – reflecting higher equity prices – has risen as a result of increased monopoly profits or economic rents. He also sets out demographic context to slower growth. An older demographic is less willing to consume and less willing to experiment with new products.

The Total Fertility Rate (Live Births per Woman)



The Demographic Origins of the Startup-Deficit



Giving monetary policy more ambitious policy objectives when it can hardly fulfil its conventional role in achieving their present inflation targets?

Extending the role of the central bank and the objectives of monetary policy has taken on an interesting political dimension at a time when the principal instruments of monetary policy and interest rates have least traction on the economy. After the financial crisis in 2008 central banks were given a greater role in banking supervision and maintain general financial stability as well as maintaining price stability and the macro-economic stability of economies, as a whole. Led by the Bank of England central banks are taking a much greater role in relation to environmental sustainability and climate change. This role is naturally evolving out of their concern about financial stability and the kind of direct financial risks that climate change will present to insurance companies and banks in the context of having potentially funded long-term energy projects that end up being stranded assets impairing bank balance sheets and the functioning of credit markets.

There has been increasing controversy about the distributional consequences of central bank policy. The charge laid against them is that the measures taken by central banks – the low interest rate regime and asset purchases has aggravated inequality. Monetary authorities have taken a robust position on the macro-economic and income effects of policy since 2008. Their argument is that these measures were necessary to stabilise output and employment and to stimulate economies. There is a recognition, however, that the measures taken by central banks particularly the asset purchases have widened the dispersion of wealth. If these measures had not been taken the people who would have been most vulnerable were those living in low income households, if economic activity and employment had not been supported. But the tools of monetary policy are blunt and clumsy in distributional terms. The modification and equalisation of household incomes is usually recognised as the domain of fiscal policy, because of its political character and technically because the tools of fiscal policy can be more precisely targeted than those of monetary policy.

Yet there is growing interest in using monetary policy to achieve highly focused objectives in terms of employment such as the specific promotion of low income or minority households rather than a general mandate to maintain price stability and employment. This interest in expanding the role of the central bank is particularly pronounced in the US with regards to the issue of using monetary policy to correct for disparities in labour market participation, incomes and wealth of minority communities. When employment is very high and the unemployment rate is very low, the level of detachment from the labour market of black men and other minorities remains much higher than for the country, as a whole.

Federal Reserve Board Governor Lael Brainard explained the way in which the Federal Reserve new formulation of its inflation target as a Flexible Average Inflation Target represented a powerful stimulus that would modify market and other expectations. One the things that she emphasised was that in a changed environment – without the traditional Phillips Curve the when could and would run a much more ambitious monetary policy directed at achieving much lower levels of unemployment and higher levels of labour market participation among minority communities. This reflected the Fed's experience in recent years at the more mature phases of the economic recovery after Great Recession when unemployment significantly started to fall among black and Hispanic communities. And it was part of the feed back that the Fed received from its community engagement as part of its review of monetary policy. Governor Brainard referred to a community college leader in Illinois who had explained that for minority communities even during robust economic expansion the labour market often felt as though it remained in recession. The Governor saw a much more ambitious employment objective as part of the Fed's institutional commitment to its mandate to maximise employment consistent with price stability and to the other statuary responsibilities that Congress had given it in relation to lending to minority communities. It is not however clear that monetary policy and broader macro-economic policy can overcome in a sustainable manner the entrenched structural labour market challenges that disfigure the participation rates of minority communities and the complex social and economic pathologies that shape them.

Democrat politicians such as Senator Elizabeth Warren have called for the Federal Reserve to take account of these disparities. Such targeted objectives, however, are at the best of times very remote from the influence of the central bank. Raphael W. Bostic, the first black president to lead one of the Federal Reserve's regional banks, and current president of the Federal Reserve Bank of Atlanta, wrote what *The Washington Post* described as a searing essay on racial economic inequality in response to this summer's Black Lives Matter demonstrations, *A Moral and Economic Imperative to End Racism*.

Dr Bostic recognises that the Federal Reserve's tools are "really broad, blunt instruments" that brush over the economy as a whole. The Federal Reserve Board, in common with other contemporary central banks, cannot even reliably achieve its inflation target. It is difficult to see how it could deliver on a much more subtle and nuanced labour market objective. It is odd that at a time when monetary policy is least effective, that there should be a discussion of expanding its function. Dr Bostic, for example, is fully seized of the need for fiscal policy to continue to play a critical part in stimulating the US economy in the Covid crisis.

There has been a debate about whether central banks should be given mandates to a achieve a higher rate of inflation. Charles Goodhart has made the point that apart from the malign effects that would arise from embodying inflation into economies – a target of 2 per cent is a rough approximation of genuine price stability in the context of technical progress and improvements in the quality of goods – but what is the point of giving the central banks higher inflation targets when they cannot achieve the present targets which have been persistently undershot?

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