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Introduction

What will be the immediate and longer-term outcome of the monetary and fiscal support provided by the Federal Reserve and the Federal government to the US economy during the coronavirus pandemic? More generally, what will be the impact of similar monetary and fiscal policies implemented in other leading economies?

Currently the official view from governments, central banks and official international institutions such as the IMF appears to be that the world will be so depressed, activity so much lower, and unemployment so much higher than pre-Covid that governments and central banks will need to roll out unprecedented measures for years ahead. In the words of the Fed's FOMC Minutes of June 9-10th: "The simulations [presented by Fed staff] suggested that the Committee would have to maintain highly accommodative financial conditions **for many years** to quicken meaningfully the recovery from the current severe downturn." (Emphasis added.)

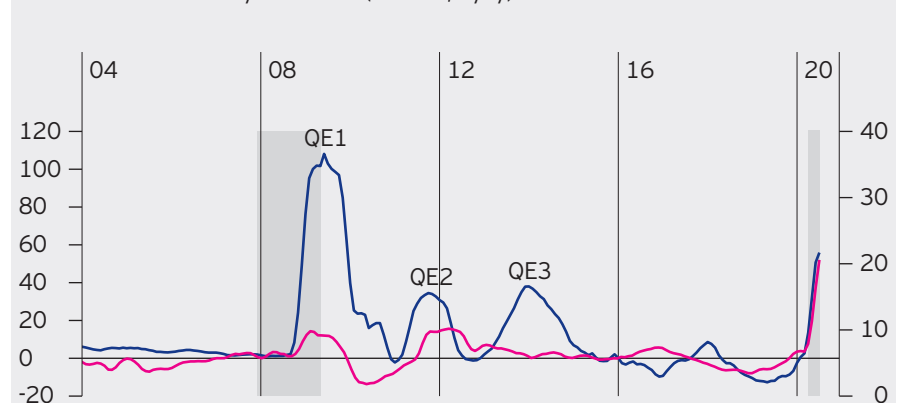
The judgment of the authorities, in short, is that the current downturn is far worse than that caused by the global financial crisis (GFC) of 2008-09. Moreover, since that crisis took many years to overcome and since there will be widespread "scarring" of the labour force on this occasion, even more stimulus will be required to deal with the pandemic-induced recession and it will be required for much longer.

However, a very different assessment of the post-GFC situation is possible. A concise way to summarise that difference for the US is by means of Figure 1 which shows that over the past decade, despite three episodes of QE which hugely increased "money on the books of the central bank", broad money or "money in the hands of the public" grew only at a very modest rate between 2009 and 2018.

The evidence suggests that the slow recovery and sub-target inflation rates in the US, the Eurozone and Japan between 2009 and 2019 were all the result of an excessive emphasis on interest rates rather than money growth as the main policy tool of central banks, resulting in money growth that was too low. It is only by understanding properly what happened in the wake of the GFC that appropriate policies can be designed for the post-pandemic environment.

Section 1 will show why the seemingly massive stimulus policies implemented after the GFC were not, in fact, as expansionary as they seemed at first sight, applying this analysis primarily to the US. Section 2 explains the two main reasons why the policies implemented by the authorities over the past decade did not generate the inflationary results that so many people had feared in 2008 or 2009. Section 3 extends the analysis to the UK, the Eurozone and Japan. Section 4 concludes by spelling out the implications that current policies, if continued, could have for asset markets, economies and inflation.

Figure 1
After the GFC, the Fed's QE did not generate rapid M2 growth; this time it is different
US: Growth of monetary base & M2 (3mmav, %yoy)



Source: Refinitiv as at 27 July 2020. Shaded areas = recession.

1. Post-GFC policies not as expansionary as they seemed

In the wake of the GFC central banks and governments turned to monetary and fiscal policies to restore economic growth, reduce unemployment and stave off disinflation or deflation. Interest rates were reduced almost to the “zero lower bound” (ZLB) in many economies, the general presumption being that this was as easy or accommodative as it was possible for central banks to be. In addition, partly to lower long-term rates, the Fed and the Bank of England (BoE) massively increased the size of their balance sheets by buying (mostly) government securities. There was much discussion about central bank policies being unprecedented in terms of their scale. Fiscal deficits also expanded to 10-11% of GDP, comparable with wartime interventions in the economy.

However, despite all this stimulus, the recovery turned out to be anaemic, and inflation for the most part well below expectations. Why was it that these unprecedented policies which were talked up so much delivered so little?

On the monetary side, the main reason that spending did not surge back to pre-crisis levels was that balance sheets had been so badly damaged in the housing and stock market crash of 2008-09 that an extended period of balance sheet repair was needed. Cutting interest rates, the traditional tool of central banks in recessions, proved wholly inadequate to revive the economy. In preceding recessions rate cuts had worked only because, by and large, balance sheets had not become as over-leveraged as in the pre-GFC expansion, and therefore in those recessions when central banks cut rates companies and individuals were able to respond to rate reductions by borrowing more and using the proceeds to increase investment or inventory-building or hiring and thereby promote economic recovery. Similarly, households responded to lower rates by taking out new mortgages or refinancing existing ones. Such reactions were expected following the administration of this standard medicine.

But the shock to balance sheets in 2008-09 was such that no matter how low interest rates fell - even to the zero bound in the US & UK - borrowers were not enticed to leverage up again. As a result, more drastic measures were needed. This led directly to the policies of QE in the US and UK.

In the US the Fed Chairman, Ben Bernanke, claimed that his policy was designed to achieve “credit easing” rather than monetary expansion.

In the UK, BoE Governor Mervyn King was more focused on the quantitative aspects of the policy. He said explicitly that the BoE needed to boost the money supply, and therefore, by design, the policy was aimed at purchases of long-dated gilts only - which banks did not hold. That meant the BoE had to purchase these securities from non-bank holders such as pension funds, insurance companies, or money managers, paying the sellers with sums that were credited to their bank deposit accounts, and in so doing increasing the quantity of money in the economy. Banks in turn would transfer these credits to the BoE for settlement, receiving a credit to their reserve deposit accounts at the central bank.

In practice, purchases of Treasury securities or MBS implemented by the New York Fed through the primary dealers (acting as agents) achieved the same result as that described by the BoE’s Governor. In short, by purchasing securities from non-bank holders, both central banks boosted the deposit component of the money supply. What mattered was that “money in the hands of the public” was increased, enabling some firms and individuals to deleverage and others to realign their portfolios. The result was faster money growth than would otherwise have been achieved and a gradual portfolio shift from money into riskier assets, in turn promoting a portfolio re-balancing process among institutional investors and a wealth effect across the economy.

On the fiscal side, government deficits increased rapidly in 2009-10 as a result of large falls in tax revenue and simultaneous increases in the payment of unemployment and other safety net benefits. Mostly these deficits were funded by the issue of government bonds rather than by tax increases or the printing of money. Most observers, and especially those of a Keynesian persuasion, looked at the increases in government spending and applauded the “unprecedented” support to the economy, protesting against “austerity” whenever cuts in government expenditure were proposed. As always, they tended to ignore the financing side of the problem, failing to appreciate that if funds were borrowed by the government to support capital spending projects or unemployment benefits, they could not also be available for spending by the private sector.

Even though governments were able to borrow large amounts at very low interest rates for most of the decade, there was little or no upward pressure on bond yields primarily because significant parts of the private sector, pre-occupied with balance sheet repair, were not competing for funds. In fact, the subsequent decade proved to be a period of very low spending on private capital investment. Despite the absence of upward pressure on bond yields, this was a clear case of government pre-emption of the available funds (sometimes called “crowding out”) but without the normal increases in interest rates.

In sum, the benefits of large-scale fiscal spending are almost always exaggerated because its advocates fail to account for the adverse effects of the need to finance the budget deficit. Research shows that it is only when increases in the fiscal deficit are accompanied by rapid growth of the money supply that the unequivocal outcome is higher spending - as is clear from the case of China’s “fiscal” stimulus in 2008-10 (see Section 3).

¹ The policymakers in the US, the Eurozone and Japan focused primarily on the interest rate effects of their policies, not on the quantitative effects.

2. Why broad money did not grow rapidly after the GFC

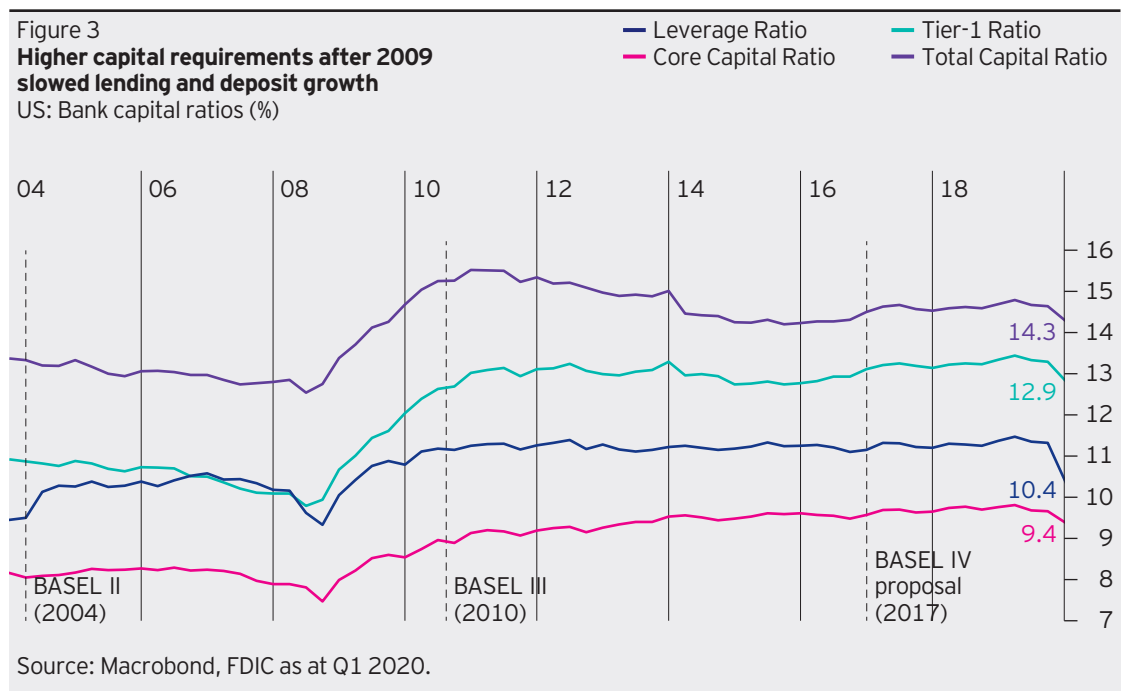
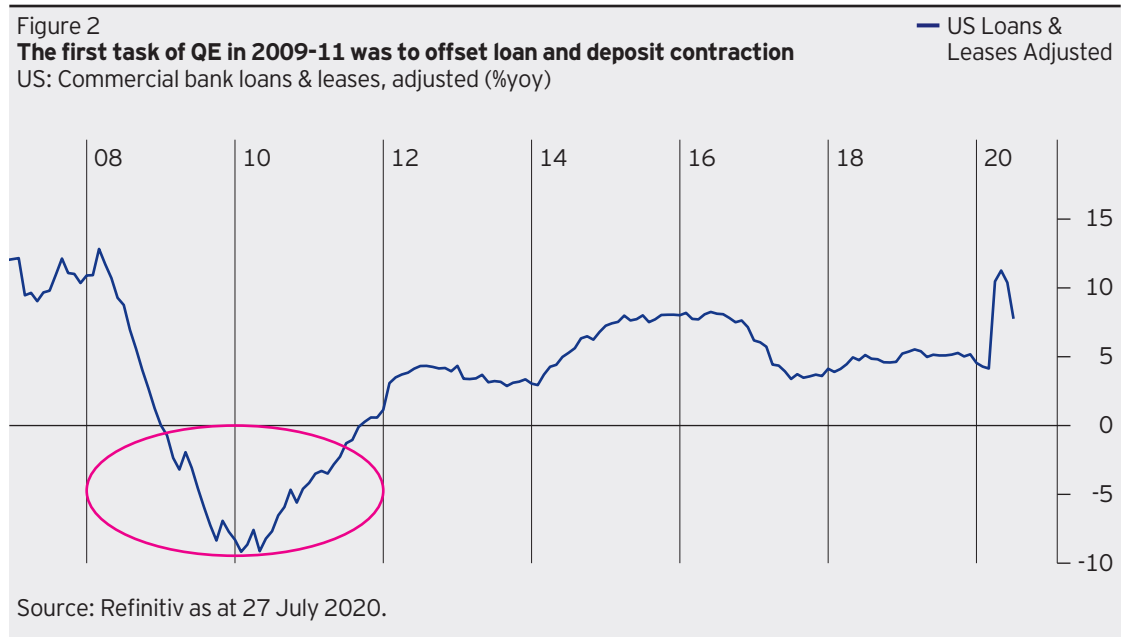
There are two main reasons why broad money did not grow rapidly in the aftermath of the GFC.

First, in the immediate aftermath of the GFC a wide range of US entities were over-leveraged. Households, corporate borrowers, banks and shadow banks all needed to deleverage. As a result, US bank lending declined by US\$1 trillion over the period 2009-11.

Therefore, when the Fed implemented its first round of "quantitative easing" (QE1) from November 2008 until March 2010 the main effect, in a quantitative sense, was merely to offset the decline in bank lending on banks' balance sheets (Figure 2). Bank loans declined, but because banks were receiving inward payments from customers who had sold

securities to the Fed, banks' declining loan portfolios were counter-balanced by an increase in holdings of reserves at the central bank.

The same was true during QE2 between November 2010 and June 2011. The main quantitative effect of QE2 was once again to offset the decline in bank lending, preventing a contraction in broad money. In fact, it was not until October 2011 that bank lending growth turned positive on a year-on-year basis, but even then, bank lending growth remained weak, growing only at an average of 3.4% p.a. between October 2011 and June 2014 (see Figure 2). It therefore became necessary to implement another round of quantitative easing - QE3 - from September 2012.



Second, in the aftermath of the GFC new regulations were introduced such as Dodd-Frank and Basel III which required US commercial banks to hold much more capital - particularly loss-absorbing or equity-like capital - than they had held pre-crisis. The official diagnosis was that commercial bank capital ratios in the US and other developed economies had been too low, and therefore needed to increase. Higher capital ratios would improve the resilience of the financial sector. Figure 3 shows the evolution of commercial bank capital ratios in the US.

There are several measures of commercial bank capital, some measured against risk-weighted assets (RWA), and others measured against total assets. A simple leverage ratio (as shown in dark blue), which measures total bank equity capital to total assets, has doubled since the mid-1980s, from around 5% to over 10% in Q1 2020. The key point from a quantitative standpoint is that the ability of commercial banks to extend credit (and create new deposits or money) is inversely proportional to their capital requirements; the higher the capital requirements, the less the ability to extend credit and create money. To give an example, with capital of 20 and a required capital ratio of 5%, a bank can make loans of 400 (or $20/0.05$), which in turn would show up as deposits of the same magnitude. However, if the capital ratio is raised to 10%, then, without an increase in capital, the amount of lending must decline to 200 (or $20/0.10$).

Higher capital requirements also reduced lending capacity directly because deposits would need to be transferred from the existing stock to subscribe for new capital.

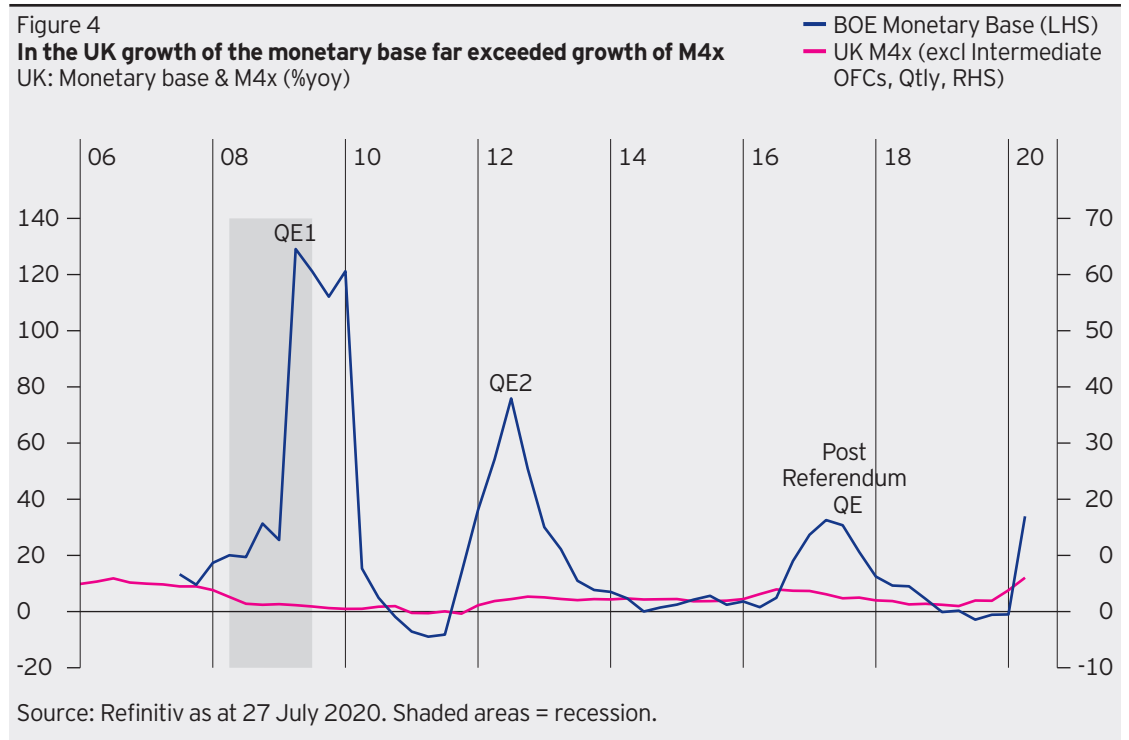
Reverting to Figure 2, it is easy to see the effects of these capital requirement hikes on commercial bank lending: between 2012 and 2019 loan growth of US banks averaged only a modest 5.3% p.a. The immediate consequence of the straitjacketing of commercial banks' balance sheets has therefore been lower broad money growth than in a normal business cycle expansion. This is not to say bank capital is the only driver of banks' asset growth - central bank policy rates and asset purchases together with shadow banking activity can all affect the growth rate of broad money. However, given that most of the money supply in developed economies is still in the form of commercial bank deposits, changes in bank capital requirements will have a direct impact.

To sum up this section, the fall in bank lending between 2009 and 2011 together with the increased commercial bank capital requirements imposed after the GFC combined to slow bank lending growth and hence deposit creation and M2 growth for most of the decade 2009-18. These factors were responsible for the sub-par growth rates of economic activity, sub-target inflation, and - along with these results - persistently low interest rates and low bond yields.

3. Application of the analysis to the UK, the Eurozone and Japan

The US was by no means unique in terms of its reaction to the GFC. The same set of developments - QE policies implemented by the central bank but significantly countered by the need for corporate and household deleveraging and bank balance sheet repair, plus

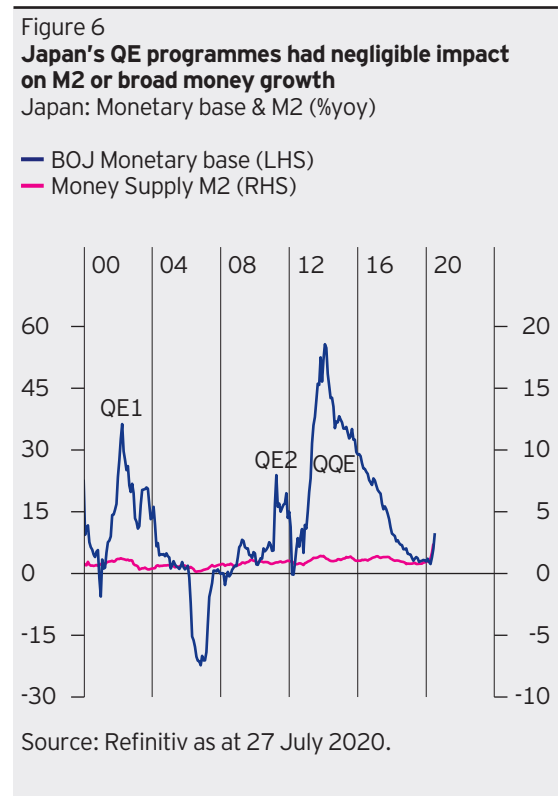
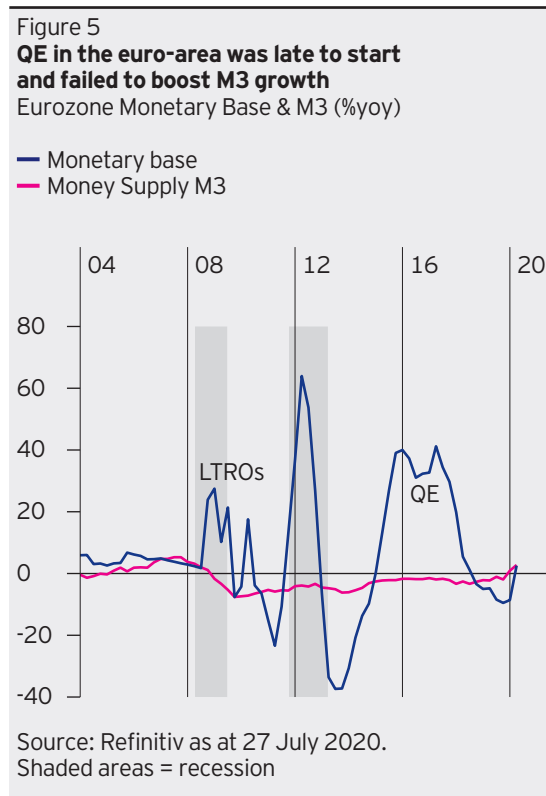
the requirement for banks to maintain higher capital ratios, and consequently low rates of bank lending and deposit growth - resulted in slow broad money growth not only in the US but also in the UK.



Over the decade 2009-18 the UK experienced three episodes of QE (March 2009 to yearend 2009, £200 bn; November 2011 to 2012, £175 bn; and from August 2016, following the Brexit referendum, £60 bn gilts +£10 bn corporate bonds) and, like the US, on every occasion the growth of the monetary base far outstripped the growth of M4x, the best official measure of money held by the UK non-bank public (see Figure 4). Overall, the average annual growth of M4x was only 3.5% p.a. for 2009-18.

Applying simple quantity theory, the 3.5% growth of money in the UK financed an average annual real

GDP growth of 1.3% p.a. and an annual increase in money holdings (or annual decline in velocity) of nearly 0.4% p.a., leaving a 1.7% annual increase in the GDP deflator over the same period. Consumer prices increased by slightly more at an annual average rate of 2.2%, despite a couple of outbreaks of higher inflation (in 2010-11 and 2016-17) which were largely due to sharp declines in the sterling exchange rate, not due to any sustained period of faster broad money growth.



As shown in Figures 5 & 6, the experience in the Eurozone and Japan with QE was less successful in generating faster broad money growth than either the US or the UK. The reasons were twofold. First, both central banks were much later in adopting QE (March 2013 in the case of Japan, March 2015 in the case of the ECB). Second, in each case the central banks purchased securities under their QE programmes from banks instead of non-banks. This distinction might appear trivial, but it makes a crucial difference. It is only by purchasing securities from non-banks that central banks can "create money" in the sense of adding new deposits to the banking system. This happens because the central banks pay for the securities purchased with new money. If, however, the central banks buy securities from the commercial banks, as the Bank of Japan (BoJ) and ECB did, the result is that these transactions amount to little more than asset swaps, and do not create new deposits in the banking system or faster money growth. In order to generate new money growth, the commercial banks would still need to create new loans, which in turn would be matched by new deposits or money. However, for the most part, banks in Japan and the euro-area remained risk-averse, reluctant to lend, and subject to regulatory pressures to increase capital ratios.

In effect, the BoJ and the ECB adopted the wrong brand of QE. The result was that persistently low money growth rates in both Japan and the euro-area resulted in sub-target inflation outcomes - and at times the risk of deflation.

In contrast to the US, UK, Eurozone and Japan, China did not implement QE but did announce a huge fiscal stimulus of Yuan 4 trillion in November 2008, equivalent to 6% of GDP at the time. In practice the central government did very little incremental spending and its budget balance did not record large deficits. Instead, the provincial and municipal authorities were instructed to borrow from the banking system and particularly the state-owned banks, with the result that China's M2 growth rate surged in 2009-10, averaging 24% p.a. over two years, 10 percentage points above its previous average - a massive increase in domestic spending power. In other words, this was a stimulus that was as much monetary as fiscal. China therefore experienced a surge in stock prices and commodity prices in 2009-10, a housing boom, a strong economic recovery, and ultimately a dramatic shift from consumer price deflation averaging -1.4% in 2009 Q2 and Q3 to an inflation averaging 6.0% in the second half of 2011.

4. Implications for asset Markets, the economy and inflation

Returning to the US, bank lending plunged in 2009-11, so initially QE merely offset what would otherwise have been a decline in broad money. In effect it prevented a repeat of the Great Depression which had resulted from a sustained contraction of money. This time (in 2020), as shown in Figures 1 & 4, not only has QE pushed up the monetary base in the US and UK, but broad money in both countries is soaring. In contrast to 2008, banks have ample capital, regulators have been easing capital requirements, and there is plentiful liquidity.

It is always important to focus on the key issues. Some commentators, for example, make a big issue of the Fed buying or offering to purchase lower grade securities, but this is nothing new. In the first few decades after its founding in 1913 the Fed operated mainly in commercial bills, and for centuries the BoE bought trade bills ("acceptances") under the old gold standard. What matters is how much broad money is created, and the purchase of government securities or lower grade bills or bonds is simply one step in the process. Generally, under normal conditions, money is mostly created by commercial banks when they make loans, not by the central bank.

Another mistake people make is to think that more government debt inevitably means that there will be inflation. The fallacy of this view can be shown with reference to Japan. The country has seen its government debt grow to around 240% of GDP over the past 20 years, yet there has been negligible inflation. The reason Japan has not suffered inflation is that money growth (M2) has been too low for too long. It is money that creates inflation, not debt.

This means that despite the huge increase of US federal debt or UK government debt, this will not turn out to be inflationary unless accompanied by a rapid growth of the quantity of money ("money in the hands of the public"). On the debt side, all the debt issued by the US Treasury or by the Debt Management Office (DMO) in England this year has been willingly purchased by institutions and other investors. Between April and July the US Treasury has issued no less than US\$2.999 trillion of marketable debt, most of it in the form of Treasury bills. The entire amount was eagerly purchased by Primary Dealers and passed on to investors such as government money market funds. This will mean that over the next year or so the Treasury will need to "term out" i.e. extend the maturity of its debt, and re-sell it to institutions such as pension funds, insurance companies or foreign investors.

In the UK, by contrast, fully 60% of the £248 billion increase in government debt so far (from 5 April to 4 August) has been in the form of conventional medium and long-dated gilts plus index-linked securities, entirely absorbed by institutional investors, many of whom are under an obligation to match long-term obligations with high quality fixed income securities. In other words, the absorption of this deluge of government securities has been relatively easy so far, and without any upward pressure on yields either in the US or in the UK. However, when the mood of risk aversion - so evident in March and April 2020 - begins to shift, investors may start to demand higher yields.

Another issue is that today the consensus of US economists holds the view that money has nothing to do with inflation. Neo-Keynesian economists argue that large output gaps and/or high unemployment will keep inflation low, hence the need for continuing

stimulus. However, as argued above, inflation was low over the past decade only because broad money growth was low, whereas in the current environment money growth is much more rapid.

The consensus view also holds that since massive QE did not create inflation in 2009-18, the central banks can do it all over again without any consequences for inflation. The problem with this view is that, with few exceptions, inflation is not created by "money on the books of the central bank"; it is created by "money in the hands of the public." The current circumstances will therefore provide an important test of monetary analysis versus the neo-Keynesian consensus.

The monetary view of the recent surge in money growth is not that central banks have directly monetized the increase in government debt, but that central banks have expanded their balance sheets in a bid to accommodate the "dash for cash" as witnessed at the time of the scramble for liquidity in March and April. This classical or Bagehot-like response of the Fed and the BoE to the crisis has created a tidal wave of new money, which is already evident in the strong recovery in equity prices and, most likely, will later show up in the form of large increases in spendable balances ("money in the hands of the public"). In terms of the quantity theory mentioned above, the excess funds are being temporarily absorbed by a decline in velocity.

One way to illustrate the present conjuncture and to conclude this survey is to sketch out the implications of the monetary transmission process in three phases.

In the current first phase most of the new "excess" money remains in the hands of investing institutions, money market funds and others in the financial sector. Although many non-financial companies raised funds by drawing down on bank credit lines in the early stages of the pandemic, these funds are still being held as precautionary balances (e.g. in government money market funds) and have not yet migrated to those businesses and consumers who might be more inclined to spend the funds. The strong revival in stock prices - reported by many commentators as being out of line with developments in the economy - is evidence of an excess of purchasing power in the hands of non-bank institutions and others. At this first stage in the transmission process, these excess funds are tending to keep interest rates very low.

Moving to the second phase of the transmission process, however, it seems likely that the current disinflationary episode will last only until yearend or early next year. By that time the excess funds will have started to generate an upswing in spending and stronger economic activity. While this will not necessarily achieve full employment any time in the next year or two, the recovery in spending will boost the demand for credit causing market interest rates and bond yields to start to rise in this second phase.

In the third phase, starting in late 2021 or 2022, continued rapid money growth will mean that economic activity will remain strong and inflation will start to increase. The gold and silver markets are already indicating nervousness about inflation and the dollar has started to weaken. Unless steps are taken to withdraw some of the excess funds provided to deal with the crisis, the risks of inflation emerging in 18-24 months will be on a rising trajectory.

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