



INSTITUTE OF INTERNATIONAL MONETARY RESEARCH

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Special e-mail from Juan Castañeda & Tim Congdon - 14th June, 2021

Where does US inflation go from here?

The announcement last week that the annual rate of US consumer inflation had reached 5.0% confirmed the validity of the forecasts we made in spring 2020 that the sequel to the pandemic would be an inflationary boom. In those forecasts we challenged the consensus view that Covid-19 would lead to a disinflationary process lasting for some years. In this sense, the monetary approach to the determination of national income and the price level has been successful.

However, the consensus about US inflation – which was totally wrong a year ago – is now that the rise in inflation is transitory, reflecting base effects and bottlenecks. In the following note we again challenge the consensus and argue,

1. Equilibrium national income = Equilibrium velocity of circulation x Actual quantity of broad money,
2. Equilibrium velocity in the USA was at least 20% beneath equilibrium in early 2021 (and still is so today), while we expect the quantity of money (broadly defined) by end-2022 to be about 10% above its Q1 2020 value,
3. The equilibrium value of US nominal GDP at the end of next year is therefore 30% or so higher than it was in Q1 2021, and
4. On this basis, as medical normality is restored in coming quarters, and as agents return to long-run money-holding behaviour, powerful upward pressures on inflation will persist. *In our view the annual rate of US consumer inflation between now and end-2022 will typically run in the 5% - 10% band.* Further, a reduction in annual money growth to 5% or less is a necessary condition for inflation to decline to the 2% figure that the Federal Reserve sees as its long-run aim. For a few quarters money growth will run at beneath the inflation rate, which will be bad for asset prices and may be accompanied by a recession.

Where does US inflation go from here?

In our writings a year ago – some published by the Institute for International Monetary Research and some elsewhere – we forecast that the marked acceleration in money growth then evident in the major economies would lead to a significant rise in inflation.¹ We were very much in a minority in taking this position. The dominant view – from central banks such as the Federal Reserve, and international organizations like the International Monetary Fund and the Paris-based Organization of Economic Cooperation and Development – was that the Covid-19 pandemic threatened disinflation into the medium term. The disinflation risks might even need to be countered by expansionary policy “for many years”, to use a phrase in the June 2020 Federal Open Market Committee minutes.

On 10th June the United States of America’s Bureau of Labor Statistics announced that in the year to May consumer prices rose by 5.0%. By common consent, the 5% figure signals, at least to some degree, the return of inflation. In that sense we are undoubtedly winning the debate. However, there is a lot more to say. The final verdict on the inflation vs deflation debate may be still two or three years away.

The money supply explosion: a retrospect

In our pamphlet for the Institute of Economic Affairs, *Inflation: the Next Threat*, we proposed – on the basis of the then recent data – certain peak annual rates of *broad* money growth by late 2020/early 2021 in the main jurisdictions/”countries”. In the box below we compare those numbers with the outturns. (We don’t expect these peak numbers – which arose from the immediate policy response in spring 2020 by governments and central banks to Covid-19 – to be exceeded in the next few years. All being well, they will never again be exceeded. We hope so, but who knows?)

	Proposed peak outturn	Actual peak outturn
- The USA	22 1/2% - 27 1/2%,	26.0% (June 2020)
- Eurozone	7 1/2% - 12 1/2%	12.5% (January 2021)
- Japan	4 1/2% - 7%	8.2% (February 2021)
- The UK	7 1/2% - 15%	15.3% (February 2021)

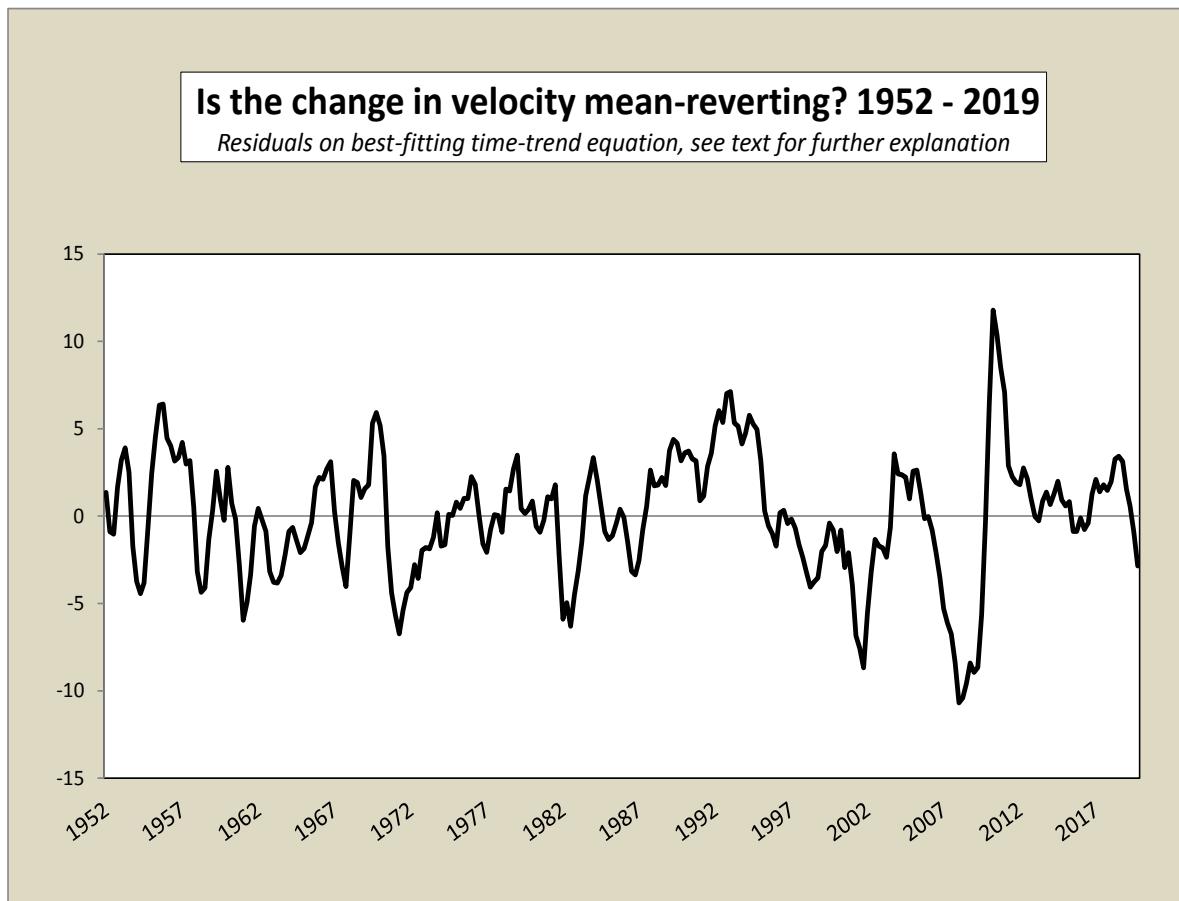
Clearly, our conjectures have been right, although – in the Japanese case – we were a little on the low side. We further argued that the subsequent rise in inflation would be higher in the USA than in the Eurozone or the UK, and that all three of these jurisdictions would have a higher peak inflation rate than Japan. Our pessimism about the USA was reflected in the concluding paragraph of *Inflation: the Next Threat*, which read,

The monetary and bank regulatory environment today is considerably looser than in late 2008 and 2009, and M3 money growth rates are dramatically higher. Time will tell whether the inflation doubters or the inflation mongers are right. The next few years may be very interesting in offering an unusually specific test of the validity of different theories of national income determination and inflation. Surprisingly, a majority of economists are vocal with claims that ‘money doesn’t matter’ (where

¹ The principal jointly-authored publication was the Institute of Economic Affairs’ pamphlet, *Inflation: the Next Threat*. Tim Congdon also wrote ‘Will the current US money growth acceleration increase inflation?’ for the April-June 2020 issue of *World Economics* and a 23rd April 2020 newspaper article in *The Wall Street Journal*, ‘Get ready for the return of inflation’, along with much other material.

'money' means 'the quantity of money') and many even assert that outright monetary financing of the deficit, on any scale, cannot cause inflation. We will see. In our view, strong grounds exist for believing that the highest growth rate of the quantity of money in US peacetime history will lead to a double-digit rate of inflation.

The last sentence may have startled. Have our views evolved in the light of later events? Are there still "strong grounds" for worrying about double-digit inflation? As already noted, we are undoubtedly winning the debate, but both sceptics and supporters may wonder whether we continue to expect US inflation to top out at – or even approach – such a high figure.



The analytical framework: the underlying stability of money-holders' preferences and the implications for the velocity of circulation

Crucial to our prognosis of rising inflation has been the monetarist claim that households and companies have stable preferences to hold money in the long run. Let us take it for granted that the attractiveness of money relative to other assets stays the same and that transactions technology is a given. If so, the desired ratio of total broad money to nominal gross domestic product should not change much over time. This idea – the so-called "proportionality hypothesis", which comes from economic theory – has to be qualified in practice. Experience seems to show that, as nations become more financially sophisticated, money held to facilitate transactions in assets – and particularly money held in the non-bank financial sector as such – grows faster than nominal GDP. As a result, it is not the *level* of the velocity of circulation that is mean-reverting to the long-run desired ratio. Rather it is the *change* in velocity that reverts to the values implied by a long-run trend due to this pattern of (what might be termed) "financialization". The chart below shows the behaviour of the change in

velocity in the USA in recent decades. (The point being made in the last few sentences was noticed by Milton Friedman in his 1959 Millar lectures.)²

Readers can make up their own minds from looking at the chart whether it is silly to assume that the change in velocity reverts to its mean value, which in this period (from 1952 to 2019) was in fact a fall of slightly over 0.5% a year. In our view it is reasonable to make that assumption. (We are carrying out more sophisticated statistical tests, but let us move on.)

No one disputes that the medical emergency since March 2020 has upset well-established behaviours, including behaviours that affect the amount of money agents wish to hold. But it does now look reasonable to believe that the US adult population will have been fully vaccinated by early 2022 and that medical normality will have returned by late 2022. In other words, a plausible view is two-fold,

1. that – by the final quarter of 2022 – the equilibrium value of the broad money (M3) velocity of circulation in the USA will be that implied by the long-run trend, and
2. that people and companies will in the intervening quarters, in the second half of 2021 and during 2022, be taking decisions (on expenditures and asset dispositions) that take them towards the equilibrium value of velocity (that is, the desired ratios of money to expenditure and assets) .

Income velocity of M3 in the USA: actual, with an extrapolation

		Velocity - actual	Velocity - trend behaviour
1	2018	1.094	1.066
2		1.099	1.065
3		1.099	1.064
4		1.103	1.062
1	2019	1.095	1.061
2		1.090	1.060
3		1.076	1.058
4		1.057	1.057
1	2020	1.029	1.056
2		0.796	1.054
3		0.852	1.053
4		0.855	1.052
1	2021	0.857	1.050
2		?	1.049
3		?	1.048
4		?	1.046
1	2022	?	1.045
2		?	1.044
3		?	1.043
4		1.041 *	1.041

* This value of velocity is assumed in the text.

² Milton Friedman *A Program for Monetary Stability* (New York: Fordham University Press, 1960, 10th printing 1992), p. 91. Over the 60 years to 2019 the average rate of increases in money and nominal GDP were 7.3 per cent and 6.3 per cent respectively. In his 1959 lectures Friedman said that his favoured policy rule was for broadly-defined money to grow at a roughly constant rate of between 3 to 5 per cent a year, with this intended to deliver price stability after an allowance were made for “a secular decrease in velocity” of 1 per cent a year.

The table above shows the values of velocity on a quarterly basis in 2018 and 2019, and extrapolates to Q4 2022 with an extrapolated 0.5% annual fall determining the numbers from Q4 2019. Q4 2019 is implicitly assumed to have been an equilibrium quarter. This is open to debate, but we have done something. The quarters between Q4 2019 and Q4 2022 are of course disrupted by the pandemic. The trend values of velocity are very different in this period – of extreme disequilibrium – from those actually recorded. (Velocity is quarterly GDP at an annualised rate divided by M3 broad money, with the middle month value in the quarter chosen to represent the quarter.)

The analytical framework: the underlying stability of money-holders' preferences and the implications for nominal GDP

Let us take it that the equilibrium velocity of circulation of M3 broad money – determined by velocity's trend behaviour – is restored by Q4 2022. The calculations behind the table say that this equilibrium velocity at that date is just above 1.04. (Let it be noticed – to pre-empt criticism – that the actual values of velocity in 2018 and 2019 were *higher* than this.)

In our analytical framework, equilibrium nominal GDP equals

Equilibrium velocity x The actual quantity of money created by the banking system and its customers, including the government

To estimate equilibrium nominal GDP in Q4 2022 we therefore need a view on the quantity of money. So far in 2021 M3 has been growing in the USA at a bit over 10% at an annualised rate. (In the four months to April M3 was up by 3.5%, which implies an annualised rate of increases of 10.7%.) Let us halve that number, in the belief that the Fed will stop its asset purchases soon. Assuming that M3 grows from now on at an annualised rate of 5%, its value will rise from about \$26,000b. now to about \$28,000b. at the end of next year. With the M3 velocity of circulation at 1.04, equilibrium nominal national income comes out as roughly \$29,000b.

What is implied for the US economy by this calculation?

The figure of \$29,000b. as the equilibrium level of end-2022 nominal GDP is, to repeat and clarify, the figure implied by

1. a reasonable assumption about the increase in the quantity of money from here, and
2. a surely legitimate assumption that the medical situation returns to normal and that, in a monetary sense, the key money-holding agents in the private sector – households, companies and financial institutions – again come to behave as they have done for several past decades.

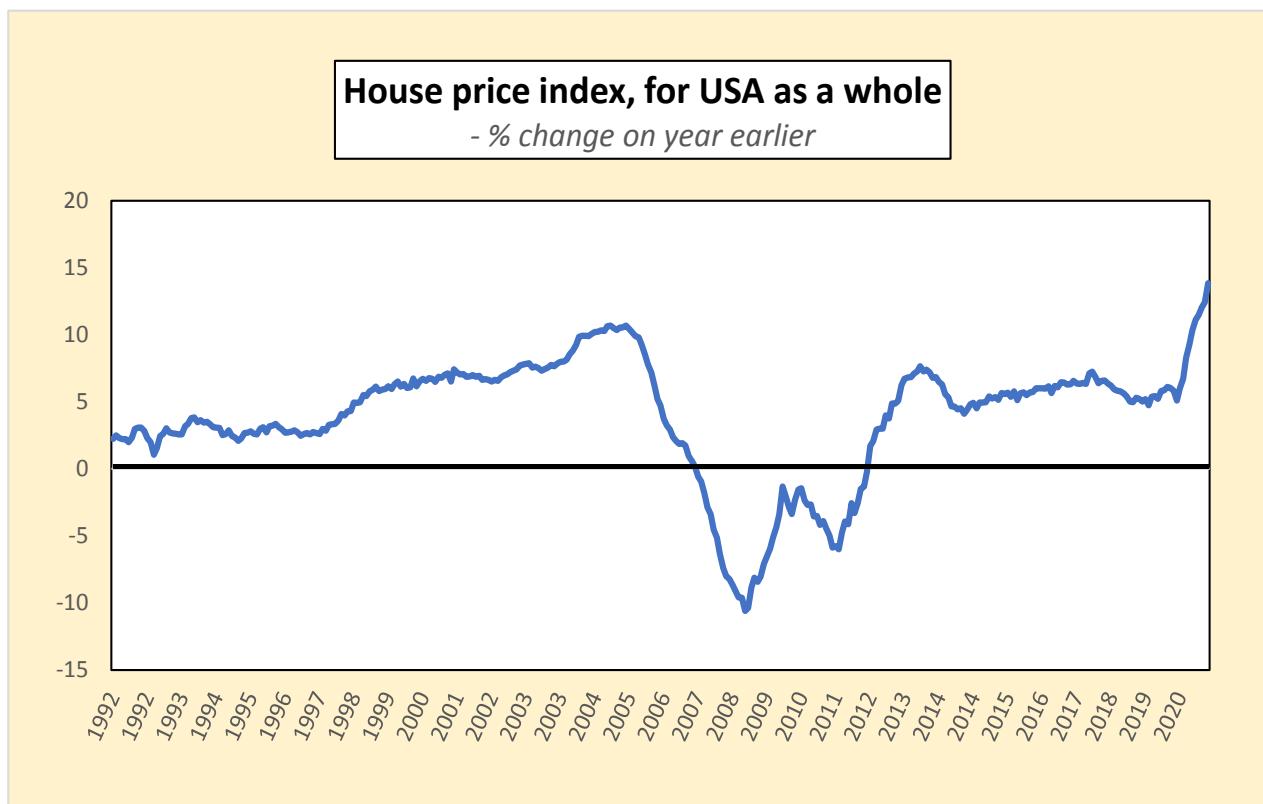
We know that many economists – indeed, the overwhelming majority of economists active in current central bank research and official policy-making – pay no attention to quantity-of-money variables in their analyses and forecasting. They certainly do not look at the quantity of money, on any definition, to gain insight into future developments. We would emphasize, in defence of what we are doing, that

1. we represent a long-standing tradition of macroeconomic thinking relying, ultimately, on the quantity theory of money,
2. the central empirical claim of the quantity theory is that agents' money-holding behaviour is stable in the long run and in our view the US evidence for that is compelling and also, finally,
3. in the last few quarters, our work has been far more successful in anticipating key trends in the US economy than mainstream New Keynesian research at the Fed and elsewhere.

But the figure of \$29,000b. as the equilibrium level of nominal GDP at the end of next year has remarkable consequences. Nominal GDP in Q1 2021 was just under \$22,100b. Our analysis is

therefore saying that the restoration of medical and monetary normality will lead, in little more than 18 months, to an increase in nominal GDP of over 30%.

The increase in nominal GDP will of course be split between rises in real output and the price level. Lockdown and other restrictions vary at present between the 50 US states, but most have now dropped restrictions altogether. Unemployment remains above its level in Q4 2019, but business surveys report severe staff shortages and difficulties with recruitment. Output may be lower than potential in some sectors, but the evidence of tight labour market and widespread supply bottlenecks argues that output cannot be much more than 2% - 3% beneath trend. The average growth rate of US real output between 2006 and 2018 (both years when output was near to trend, according to the IMF) was 1.8%. It is difficult to see why – after the trauma and disruption of the pandemic – the trend growth rate can be any higher in the 2020s. It follows that real output cannot be, say, 6% or 7% higher at the end of next year than it is today, unless the output gap is to take highly positive values which can last for a few years only by driving inflation upwards....



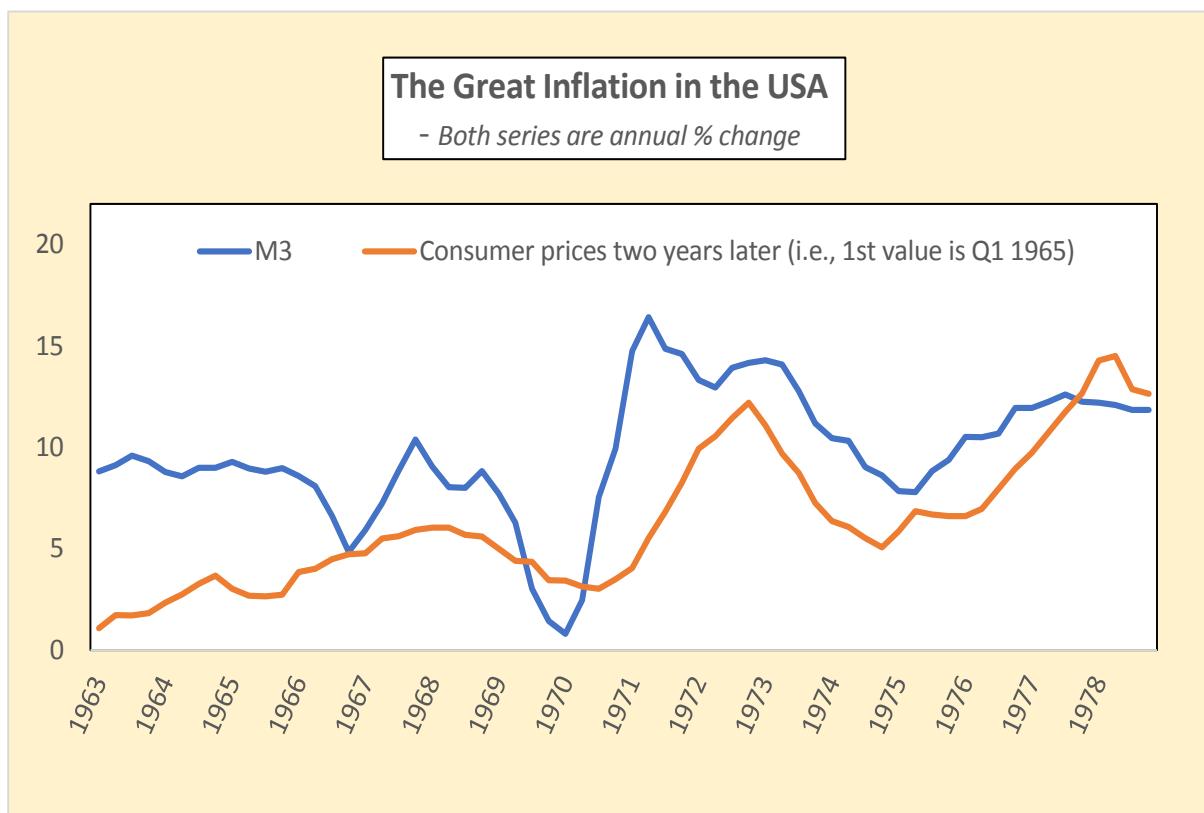
Indeed, the larger message is that the US economy suffers from severe monetary disequilibrium. Private sector non-bank agents have excess money balances, and these excess balances are putting upward pressure on both asset prices and aggregate demand. The fancy valuations in the equity market and the buoyancy in residential house prices have the same underlying explanation, that there is too much money chasing too few assets. The strength of asset prices is in turn another reason for the sharp increases in spending now being widely reported. The chart above of increases in house prices is eloquent about the tensions that reflect the excess level of money balances at present. The chart – which relates to house prices at purchase – shows that the increase in the year to March 2021 was the highest in the 30 years covered by the exercise. (The data come from the Federal Housing Finance Agency.)

In summary, if nominal GDP needs to rise by 30% in a period of 18 months to two years, and if real output cannot go up in that period by more than, say, 8%, then the rest of the adjustment has to be seen in the price level. Continued boom between now and Q4 2022 in which real output rises by 8% and the price level by 20% would in fact result in a 30% jump in nominal GDP.

Conclusion: is it silly to retain the suggestion that annual US inflation might again go into the double digits %?

Our conclusion is that there are still “strong grounds” for worrying about a double-digit rate of inflation in the planning horizon (say, the next two to three years) of key US decision-takers and, in particular, of top policy-makers in the Federal Reserve. The rise in inflation to 5% will certainly not be “transitory”. On 28th April Jay Powell, Fed chair, said at a press conference, “we want inflation to run a little bit higher than it’s been averaging in the last quarter century. We want it at 2%, not 1.7%.” If our analysis is right, a plausible view is that annual US consumer inflation will typically be between 5% and 10% for the next two years. Mr. Powell and his colleagues have no notion what will hit them in coming months and quarters.

That does not mean the boom will continue indefinitely. It has a few quarters to go, but – with the 5% annualised money growth we have assumed from now – inflation will in due course run at a faster rate, causing real money balances to fall. A contraction in real money balances tends to be associated with weak asset prices, and beneath-trend growth in aggregate demand and output, or even a recession. (In the long run the growth rates of real money and real output are similar, differing – in American experience over the last 60 or so years – only by the long-run “financialization” factor noticed by Friedman in his 1959 Millar lectures. So the very fast increase in real money balances in 2020 has to be offset by a corresponding decrease in later years. This is just the same argument as that which says that the falling velocity of circulation in 2020 will be followed by rising velocity in late 2021 and, in our projections, in 2022 and 2023.)



When will inflation peak? Friedman sometimes ducked this question by mumbling about “long and variable lags”. If he had to pick a standard lag, it was that the change in inflation followed the change in money growth by two years. The chart above shows that the annual change in consumer prices two years after the annual change in M3 for the period usually characterised as “the Great Inflation”, when Friedman was most active. (The equation is quite good. The r^2 of the equation for the two series,

where the increase in consumer prices is regressed on the increase in M3 money, is 0.35 and the t statistic of the regression coefficient for the money term is 5.82.) Since the money explosion was in spring 2020, the message would seem to be that the inflation peak will be in spring 2022. However, the current situation is most unusual, as the scale of the excess in money balances has no precedent in US post-war history. After the 1943 money growth peak in the Second World War, inflation took off in 1946 and exceeded 20 per cent in March 1947. It is quite possible that the inflation peak in this episode – using the annual rate of consumer inflation as the measure – will be in 2023. (The ramifications for the Biden Presidency will not be welcome to the Democrats. Notice here that inflation – measured by the backward-looking annual rate, which is of course affected by what was happening eight, nine and ten months ago – often peaks as the economy is entering a recession. This may sound strange, but it is a common cyclical pattern.)

It must be emphasized that a reduction in the rate of broad money growth to an annual rate of 5% or less is a necessary condition for a return to the 2% inflation number that Jay Powell and other senior Fed officials favour. We have noticed often in our work that nowadays the Fed does not refer to any money aggregate in its policy-related statements. In a recent admirable letter to the *Financial Times*, Mervyn King, former Governor of the Bank of England, described the central bank silence on broad money as “deafening”.³ Quite so. But that deafening silence in no way changes

1. the long-run relationship in the US economy between changes in broad money and nominal GDP to which we have been drawing attention, or
2. the implied obligation on the Fed and other US policy-makers to take decisions that will curb the annual rate of money growth to under 5% if they want to restore roughly 2% inflation.

The logic of our analysis is implacable. Our insistence that “money matters” may not nowadays be fashionable in academic research, including research undertaken within leading central banks like the US Federal Reserve. Nevertheless, it appeals to standard economic theory, and it has its roots in ideas that are robust and centuries-old.

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³ Mervyn King ‘Be alert to inflation risks as economies unlock’, 8 June 2021, *Financial Times*.