International Monetary Monitor

Date: May 13th, 2024
Newsletter No. 39

The Puzzle of US Inflation

By John Greenwood

Overview

- The disinflation that had been making good progress in the second half of 2023 seemed to come to a stop during the first three months of 2024. Three successive readings of the CPI were above expectations and the Fed's preferred PCE measure also failed to make progress. There are even fears that inflation might resume.

- The purpose of this 17-page Newsletter is to review the **monetary** analysis of inflation since the start of the Covid crisis, to explain how recent data is still consistent with the monetary framework, and to reaffirm my forecast of further disinflation.

- At the same time, I will critique the consensus, **non-monetary** explanations of inflation that have dominated central bank, academic and financial sector analysis. These false narratives have a superficial plausibility but fundamentally they are facts or assertions without an underlying theory.

- In the expansion phase of 2020-22 monetarists predicted the inflation of 2021-24 far ahead of those who relied on either Keynesian fiscal spending or neo-Keynesian frameworks. The superiority and accuracy of monetary forecasts has still not been acknowledged. Central banks remain in denial about their responsibility for the inflation.

- In the contraction phase, monetary analysis has arguably been less successful, but nevertheless more rational than any non-monetary narrative. For monetary economists the problem has been how to pin down the notoriously "long and variable" lags. For the non-monetary crowd, the movements of the inflation indices remain largely a matter of *ad hoc* incidents and random shocks.

- In 2024 inflation will continue to decline, delayed only by the overhang of excess money created in 2020-22. The negative or low growth of broad money since March 2022 implies sub-2% inflation in 2025 and 2026.

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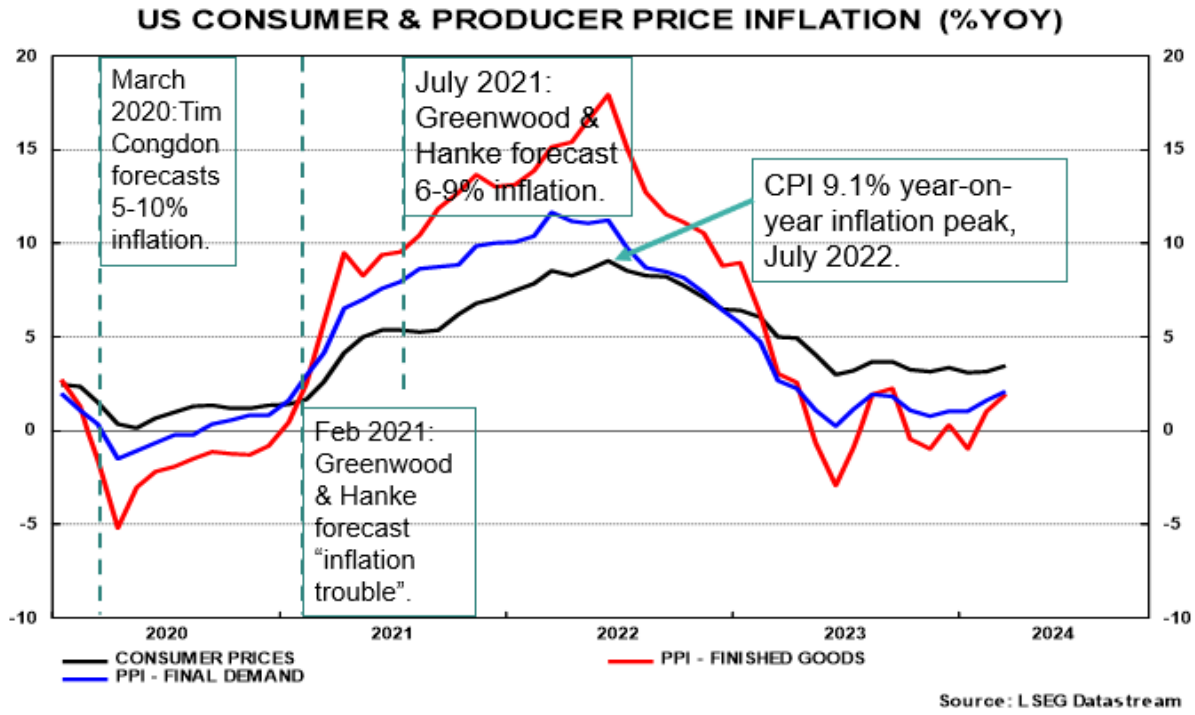
Section 1: Monetary Predictions in the Expansion Phase, 2020-21.

The first person to predict a serious episode of inflation following the widespread adoption of QE policies and the acceleration of broad money growth in the face of Covid-19 was Tim Congdon, Chairman of the Institute of International Monetary Research at the University of Buckingham. In a special release dated March 30, 2020, and based on excessive growth of the quantity of broad money in March 2020, he wrote: "*The annual rate of money growth to spring 2021 might be between 10% and 15%, perhaps even heading towards 20%. If so, the right sort of maximum inflation rate to expect in the next few years would be in the 5% - 10% band.*" [1]

Initially, I was more cautious. I thought that there was at least a possibility that the Fed and other central banks might withdraw some of the excess money they had initially created. Later I wrote a passage describing how, following the Bank of England's template of 1825, the funds could have been withdrawn to avoid inflation.[2] My first warnings of imminent inflation came in a series of articles written for Invesco from mid-2020 through 2021. In the public arena, Steve Hanke and I wrote an op-ed in the Wall Street Journal on February 22, 2021, entitled, "*The Money Boom is Already Here*" predicting "inflation trouble" for the US. At this stage M2 had grown by 27% since February 2020 – the largest one-year jump since 1943.

Figure 1. Early Monetarist Forecasts of US Inflation



Later in 2021 Steve Hanke and I wrote in the Journal of Applied Corporate Finance (JACF), Fall 2021 issue: "There have always been only two types of explanations for inflation: *ad hoc* explanations and monetary explanations. Historically, the *ad hoc*

[1] https://mv-pt.org/wp-content/uploads/2022/01/Special-e-mail-30-March-2020.pdf

[2] See IMM#13 US Monetary Shrinkage Requires Inflation Re-assessment, p.7 (January 2023).

explanations have been in terms of special factors present on particular occasions: commodity price increases due to bad harvests, supply disruptions due to restrictions on international trade, profiteers or monopolists holding back scarce goods, or trades unions pushing up wages leading to a wage-price spiral or cost-push pressures, and so on in great variety. […] The monetary explanations for inflation have focused on increases in the quantity of money: either new discoveries of gold and silver in centuries past, or fiat money creation by the banking system or by the central bank in modern times."

Our JACF article documented the excessive growth of broad money in seven leading economies, but also contrasted those cases with Japan, Switzerland and China where money growth had remained relatively subdued. Based on the quantity theory of money we forecast that inflation in the former group would be substantially higher than in the latter group, a forecast that has turned out to be entirely correct. The importance of that forecast is that non-monetary economists continue to blame exogenous shocks for the inflation, but they have no theory – no explanation – for the low or negligible inflation in Japan, Switzerland and China despite the fact that these three economies experienced the same "exogenous shocks" (supply chain disruptions or energy and food price hikes) as the economies that had faster money growth. The difference in inflation outcomes can only be explained by their different money growth rates.

By mid-summer 2021 inflation in the US was surging. After reviewing the data again in the light of the quantity theory of money, Steve Hanke and I wrote another op-ed for the Wall Street Journal in which we forecast that "By the end of the year, the year-over-year inflation rate will be at least 6% and possibly as high as 9%."[3] In fact, US CPI inflation hit 7.0% in December and peaked at 9.1% in June 2022.

Section 2. Non-Monetary Concerns about Inflation Emerged only in 2021.

Among the non-monetary economists, Larry Summers (former US Treasury Secretary) and Jason Furman (former Chairman of the President's Council of Economic Advisers), both now professors at Harvard, were among the first to identify the inflation risk, but only after inflation had already taken hold. In February 2021, Summers and Douglas Holtz-Eakin (ex-Director of the CBO) had raised concern about the size of Biden's latest $1.9 billion fiscal relief package, but Summers agreed with Biden officials that the risk of doing too little still outweighed those of doing too much. In an article dated May 24, 2021, Summers wrote[4]: "Even six months ago, it was reasonable to regard slow growth, high unemployment and deflationary pressures as the predominant risk to the economy." This was Summers defending his own position, but in the same article, after CPI inflation had surged in March (to 2.6% year-over-year) and April (to 4.2%), he realised his error and switched. "Today, he argued, while continuing relief efforts are essential, the focus of our macroeconomic policy needs to change." (Figure 2.)

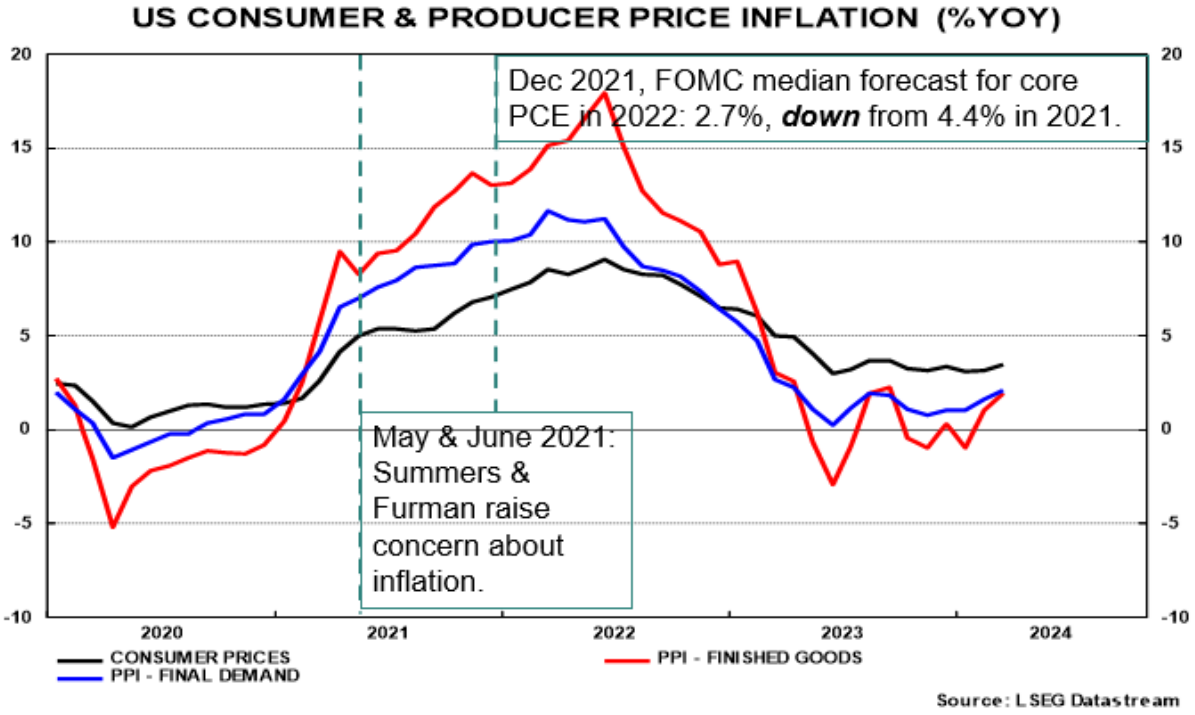
[3] "Too Much Money Portends High Inflation." Wall Street Journal, July 20, 2021.
[4] https://larrysummers.com/2021/05/24/the-inflation-risk-is-real/ May 24, 2021.

However, unlike the monetarists, he blamed both monetary and fiscal expansion, adding strong asset prices as another driver as if they were a separate factor: "Inflationary pressures are mounting from the boost in demand created by the $2 trillion-plus in savings that Americans have accumulated during the pandemic; from large-scale Federal Reserve debt purchases, along with Fed forecasts of essentially zero interest rates into 2024; from roughly $3 trillion in fiscal stimulus passed by Congress; and from soaring stock and real estate prices."

Turning to Furman, in an interview with Associated Press [5] on June 21, 2021, after the CPI had risen to 5.0% over the preceding year in May, he expressed the view that there had "been a lot of very temporary inflation from a set of quirks related to the economy's reopening. For example, used car prices have absolutely soared, and other prices are getting back to where they were pre-pandemic. I don't think anyone thinks the recent rate of price increase is going to continue." (See Figure 2.)

However, he cited four reasons why inflation *might* be "more persistent". These were (1) rent and what it costs homeowners to live in their home (OER), which he labelled "shoes that haven't dropped yet," (2) some prices – like wages – are sticky and only change once a year, (3) demand would likely continue to exceed supply for the rest of the year: "People have a lot of money," and (4) (speculatively) expectations – which "play a big role in the dynamics of inflation" – could become unanchored , leading to "self-fulfilling" inflation.

Figure 2. Non-Monetary Forecasts of Inflation Lagged Far Behind.



[5] https://apnews.com/article/lifestyle-inflation-business-536d99a7a2d7abf8dd735963e57b237f

Summers and Furman were two economists in the advanced guard of the Keynesian consensus, only coming to the realization that inflation was a serious problem in towards mid-2021, 15 months after the monetary horse had bolted from its stable.

Members of the FOMC (Figure 2) were even further behind in understanding what was happening. In September 2021 their median forecast for core PCE inflation in 2022 was still 2.3%, ***down*** from 3.1% in 2021. Similarly, in December 2021, their median forecast for core PCE inflation was still 2.7% for 2022, ***down*** from 4.4% in 2021. [6]

As 2021 came to an end and inflation continued to rise in line with monetarist forecasts, a period of self-examination began. Why had the consensus of forecasters, including the Fed, failed to see the surge of inflation? What had they missed?

A good example was Furman's contribution to Project Syndicate, dated 17 January 2022, entitled, "Why Did Almost Nobody See Inflation Coming?" [7] In his article he pointed out that "a survey of 36 private-sector forecasters in May revealed a median inflation forecast of 2.3% for 2021 (measured by the core personal consumption expenditures price index, the US Federal Reserve's de facto target gauge). As a whole, the group put a 0.5% chance on inflation exceeding 4% last year – but, by the core PCE measure, it looks set to be 4.5%. The Fed's rate-setting Federal Open Market Committee fared no better, with none of its 18 members expecting inflation above 2.5% in 2021. Financial markets appear to have missed this one as well, with bond prices yielding similar predictions. Ditto the International Monetary Fund, the Congressional Budget Office, President Joe Biden's administration, and even many conservative economists." Note the omission of monetary economists.

Mainly, Furman blamed things that forecasters could not have anticipated (the speed of reopening, supply-chain disruptions etc), and the fact that $2.5 trillion fiscal support (11% of GDP) was outside the range of previous models. "To the degree that people relied on economic models, they often used a Phillips curve to predict inflation or changes in inflation based on the unemployment rate. But these frameworks had difficulty reckoning with the fact that the natural rate of unemployment likely rose, at least temporarily, as a result of the COVID-19 crisis."

"More important, he continued, unemployment is not the only way to measure economic slack. Estimates from before the pandemic show that the "*quit rate*" and the ratio of unemployed workers to job openings are better predictors of wage and price inflation. These other indicators of slack were already tight at the beginning of 2021 and were very tight by the spring." Yet even in January 2022 when the ratio of unemployed workers to job openings was reaching a record low, he was still using a Phillips curve framework to argue that inflation in 2022 would "maybe not be as high as in 2021."

[6] Summary of Economic Projections - December 15, 2021 (federalreserve.gov)
[7] https://www.project-syndicate.org/commentary/2021-us-inflation-forecasting-errors-economic-models-by-jason-furman-2022-01

However, with no money or credit in their equations, and relying on a version of the long-discredited Phillips curve to predict inflation, neither Furman nor others ever raised the fundamental question, were their models good for purpose? Can inflation ever be adequately explained by non-monetary factors?

Section 3. How Monetarists Used Quantity Theory to Forecast Correctly the Inflation Rate.

The quantity theory of money (MV=Py) relies on two key hypotheses, plus an understanding of how much money will be absorbed by factors other than inflation, and a general rule about time lags:

(1) Excess money is a necessary and sufficient condition to generate inflation.
(2) This depends on the hypothesis or presumption of relative stability between money (M) and nominal spending (Py), or V, the income velocity of circulation.
(3) Inflation emerges as a residual after estimating how much money will be absorbed by the rate of growth of real income (y) and the desired annual increase in money balances (the inverse of V).
(4) The only other factor to take into account in forecasting inflation is the "long and variable" lags between changes in money and changes in inflation.

In this Section I will show how an understanding of each of these four elements was critical to successful monetary forecasts of US inflation in 2021-23.

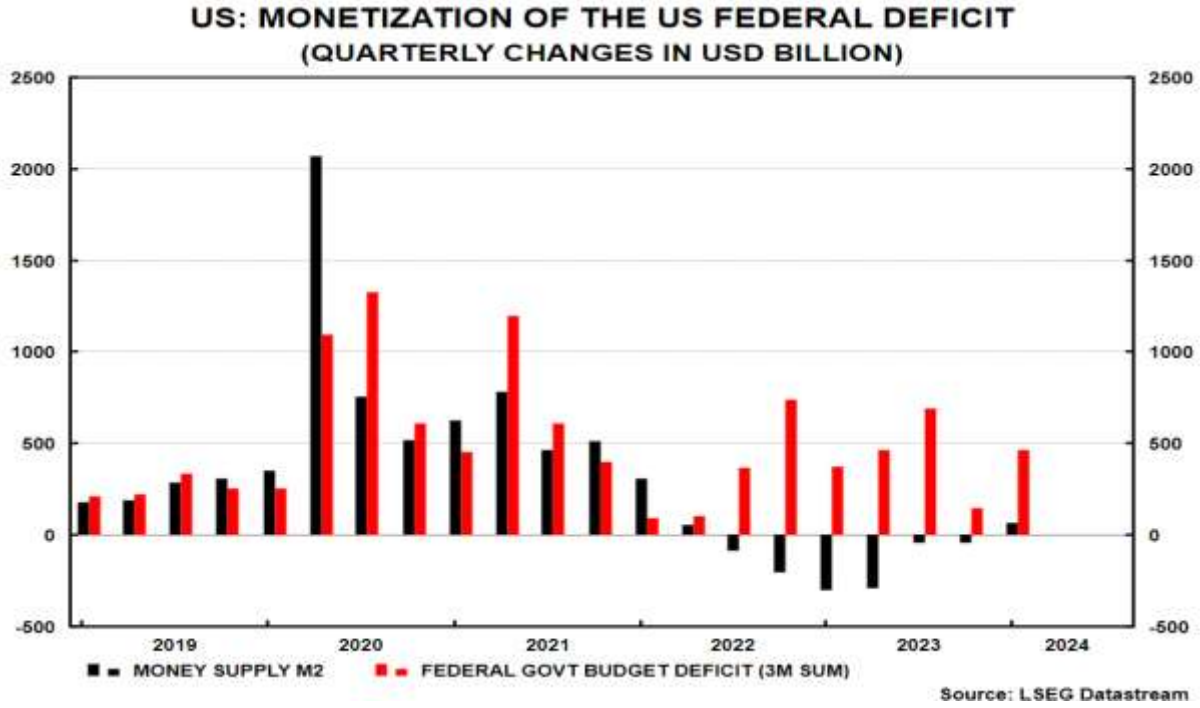
(1) It has long been the view of monetarist economists that inflation comes almost entirely from changes in the quantity of money (meaning currency in circulation plus all deposits in the banking system). Changes in money drive changes in spending (i.e. the demand side) and these changes are typically far larger than any changes in variables on the supply side such as the growth of the labour force, productivity, or hours worked. Non-monetary narratives often emphasise supply side changes, but this is seriously misleading. In a typical year supply side changes can account for changes in output (or real income) of about 1% at most whereas it is quite common for changes in the rate of money growth to exceed +/-5% in a year. Based on the typical growth rate of the US economy (2% p.a.), normal velocity change (see (2) below), and a 2% inflation target, an appropriate or "golden" growth rate of broad money is about 5-6% p.a. Anything below that for a sustained period (as in 2010-14 when broad money[8] averaged just 3% p.a.) will tend to cause inflation to undershoot its target (as in 2012-16 when the CPI averaged 1.3% p.a.); anything above that for a sustained period will tend to generate above-target inflation.
When, in March and April 2020, the Fed started large-scale purchases of securities – largely from non-banks – broad money accelerated dramatically. By the end of May, the 3-month annualised rate of change of the widely available M2 had reached almost 80%, a quarterly increase of over $2 trillion, the highest rate ever recorded in the US (Figure 3), and it averaged 17.4% p.a. between March 2020 and March 2022. This was enough to set alarm bells

[8] Here broad money is defined as currency plus all bank deposits and includes retail and institutional MMFs.

ringing among the monetarist community, but the consensus of economists generally ignored the monetary surge. First, their textbooks had taught them to ignore money. Second, they tended to view inflation as a product of either tight labour markets (as the quotations above from Furman illustrate) or other secondary forces such as rising commodity prices due to harvest failures or the operation of cartels. At this early stage of Covid all these secondary signals pointed to economic weakness due to lockdowns and widespread layoffs.

My strong statement that excess money growth is necessary and sufficient for inflation is derived from a very large number of case studies. To my knowledge, nobody has ever documented a case of high inflation that was not preceded by rapid growth of the quantity of money. Until such a case is presented, Milton Friedman's famous aphorism will remain valid: "*Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output.*"

Figure 3. During Covid, Increasing the Money Supply and the Federal Deficit were Separate Decisions.



Some economists claim that fiscal expansion can cause inflation, but on examination this turns out to be false. There are only three ways to finance an increase in the fiscal deficit: by taxation, by borrowing, or by the printing of money. The first two amount to a transfer of resources from the private sector to the public sector. Despite much research, the long-term fiscal multipliers have always proved to be one or less, and even negative.[9] In other words, transferring spending from households or companies to the government does not increase the quantum of spending except in the short run; on the contrary it tends to be accompanied by wastage, inefficiency, and corruption, dragging

[9] See Alan Walters, Britain's Economic Renaissance, Margaret Thatcher's Reforms 1979-84.

down overall spending. That leaves the printing of money. If the government's deficit is financed by either the central bank directly providing funding to the government or by the commercial banking system being encouraged or required to fund the government, the result tends to be an increase in the quantity of money. In other words, it is the ***financing*** of the deficits by the creation of money that leads to inflation, not the deficit itself.

However, in the 2020-2022 case of fiscal expansion referred to by Summers, Furman, and many others, it cannot be said that the government deliberately set out to fund the deficit by the printing of money. Rather, there were two separate decisions. First, the Fed decided to conduct large-scale asset purchases (to promote the smooth functioning of funding markets), which had the ***side effect*** creating a huge quantity of money (almost $5 trillion). Second, the federal government decided to run huge support programs for the private sector during the pandemic and to fund them by borrowing (Figure 3). It was the coincidence of these two programs running in parallel that led many observers to believe that the deficits were the culprit, whereas it was the way they were ***financed*** that was the problem. The huge expansion of bank balance sheets engineered by the Fed's QE generated the record growth of broad money, and this in turn facilitated the financing of the federal deficits.

To sum up, irrespective of other developments during the pandemic, the huge increase in money in 2020-22 necessarily implied an episode of comparatively serious inflation ahead. Mervyn King, former Bank of England Governor, has spoken recently of the collective amnesia by economists who ignored money growth during Covid. Monetarists nailed the inflation; non-monetarists completely missed it.

(2) The second hypothesis, implicit in the first, is that there is a reasonably stable relation (V) between the nominal quantity of money and the nominal value of spending. Empirical studies show that velocity is generally downward sloping (and trend-reverting when disturbed) with an annual trend of about -2%p.a. in developed markets and about -3% p.a. in emerging economies. A major reason why many economists do not adopt the monetary framework is that they have not learned about V, or what they have learned is derived only from US data. But the US is an anomaly. Before the Second World War US velocity was consistently declining. However, between 1945 and 1995 V was either rising or broadly flat in contrast to the downward trend in most other economies. Since 1997, however, US velocity has resumed a downward trend of -1.7% p.a.[10]

When the Covid pandemic struck and the Fed began its large-scale purchases of securities, thereby boosting the money supply, there was no immediate effect on the economy – i.e., no effect on Py, so while M in MV soared, V declined by an almost equal amount. Non-monetarists said that this not only showed the instability of V, but it was also evidence that V was unstable. However, monetarists knew that this was only a short-term effect. Sooner or later, V would return to trend, as indeed it has now done as a result of

[10] "US Income Velocity – A Primer" is available from the author for those who wish to study this in more detail.

behaviour by spenders. In other words, faced with an involuntary increase in their money balances, firms and consumers would attempt to reduce their balances relative to income. Since one person's spending is another person's income, the only way to offload the excess balances was to bid up prices. Cutting a long story short, this is exactly what has happened.

(3) The third important aspect of the quantity theory to understand in making any inflation forecast during the 2020-23 period was how much of the excess money would be absorbed by factors other than inflation, and over what time period.

Using the equation of exchange expressed in percentage rate of change form we have:

$$\Delta M + \Delta V = \Delta y + \Delta P$$

Re-arranging the equation as follows:

$$\Delta M = - \Delta V + \Delta y + \Delta P$$

tells us that changes in money holdings ($- \Delta V$) and changes in real GDP ($+ \Delta y$) must be deducted from ΔM to give us an estimate of inflation (ΔP). [Note that since ΔV is a negative number, $- \Delta V$ is a positive number.] We know from historical observations for the US that $- \Delta V$ is 1.7% p.a. and Δy is 2.0% p.a.

For non-specialists, imagine that the quantity of money is like water in a bathtub. New money flows in by the tap or faucet, and there are two drains that absorb some of the inflow into the bathtub: one for the growth of money holdings and one for the financing of real GDP. In noninflationary times, the inflow from the faucet roughly equals the outflow through these two drains. But if more money is flowing in than out, the level of money rises. It will eventually reach the overflow, which means inflation. [11]

US monetary policy, the economy, and US citizens would have benefited if policymakers at the Fed had maintained a steady growth rate of broad money compatible with 2% real GDP growth, 2% inflation, and -1.7% annual decline in velocity. Instead, the Fed pursued policies that produced a huge surge of broad money growth following the Covid pandemic, and the result was inflation.

(4) Fourth, there was the issue of the "long and variable" lags between changes in money growth and changes in the rate of inflation. Figure 4 below summarises the typical time-lags revealed by empirical research into many economies covering many eras. Note that the diagram refers to changes in money growth, not changes in interest rates.

The impact of changes in money growth on changes in asset prices is typically spread over a period from one to nine months, but it could be shorter (with

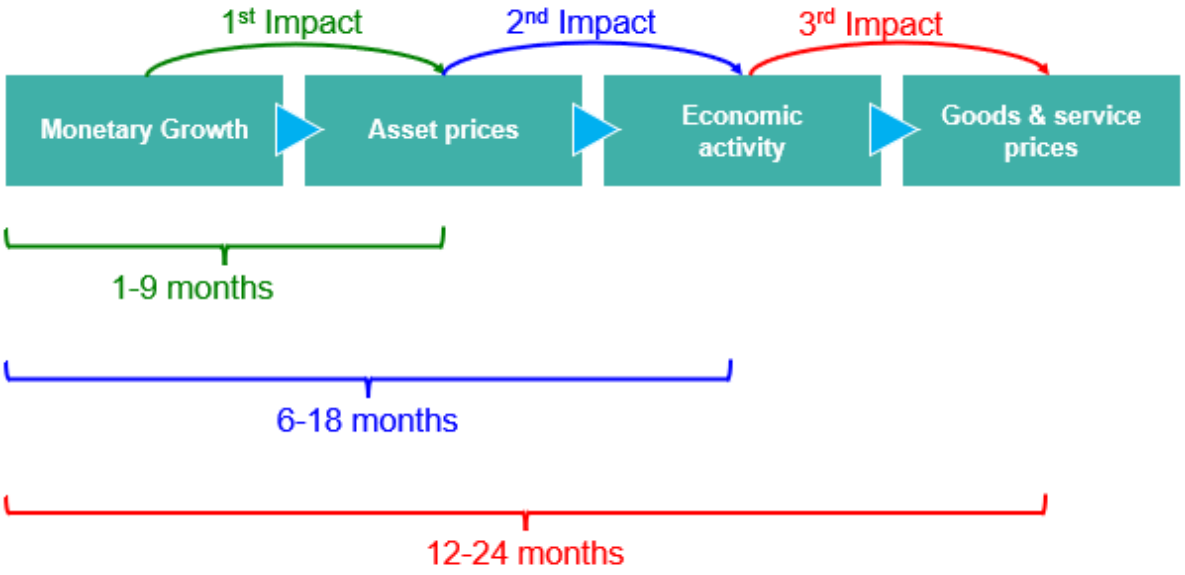
[11] See Greenwood & Hanke, "*The Monetary Bathtub is Overflowing*", Wall Street Journal, October 21, 2021. https://www.wsj.com/articles/monetary-bathtub-overflowing-inflation-drain-transitory-11634847429

some of the impact occurring ahead of the monetary changes) as people try to anticipate changes in monetary policy, or it could be longer as the monetary changes may continue well beyond nine months.

The impact of changes in monetary growth on the level of economic activity typically take from 6 to 18 months to have their effect, but again there may be cases where changes occur sooner or are delayed for longer.

It typically takes from 12 to 24 months for the impact of changes in monetary growth to start to show up as changes in the inflation rate. This is why central banks generally have a 2-year forecasting horizon for changes in their monetary policy. However, once again the changes may show up either sooner (e.g., people in a country with a recent experience of high inflation may react quicker to a renewed burst of rapid money growth) or later (e.g. inflation may take longer to show up in a country like Japan or Switzerland that has had a long history of very low inflation).

Figure 4. The Lags in Effect of Changes in Monetary Growth.



In 2020-21 the increase of money in the US was so egregious, the downturn in the economy so brief, and the transfer of cash from the federal government to businesses and consumers so large that it was clear to me and other monetarists that the lag between the start of the monetary explosion (in March 2020) and its consequences along the flow chart in Figure 4 would be at the shorter end of the historical ranges. In fact, the post-Covid expansion fitted the monetary template of lags almost perfectly:

- The S&P Composite surged by 114% between March 23, 2020 and January 3, 2022, and house prices by 43% between from January 2020 to June 2022.
- Economic activity was heavily influenced by successive waves of the pandemic, but a huge recovery got under way in 2020 Q3, six months from the initial monetary surge. Real GDP averaged 4.1% year-on-year in 2021-22.

- The emergence of excess money in the form of inflation began in the three months February-April 2021, exactly a year after the initial wave of QE purchases by the Fed and the consequent monetary tsunami. In 2021 and 2022, the average increase in the CPI was 6.4%.

Section 4. Using Quantity Theory to Assess Current Growth and Inflation Prospects.

Both non-monetarists and monetarists are on record for forecasting recession in 2023.

While non-monetarists were not concerned with the monetary contraction, they did worry that the strong demand reflected in the high inflation rate could not be brought under control without at least some softening in the labour market – i.e., a rise in unemployment. For example, Larry Summers told Bloomberg TV in April 2022, "The combination of overheating, followed by policy delay followed by supply shocks means … recession in the next couple of years is clearly more likely than not. I suspect that's how the consensus will evolve." Summers also pointed out that the U.S. had never experienced inflation above 4% and unemployment below 4% without that being followed by an economic slump within two years.[12]

A year later in April 2023 Summers was still predicting recession. "We're getting a sense that there is some substantial amount of constriction in credit. Recession probabilities are going up at this point."[13]

On the monetarist side the success we had enjoyed in the expansion phase predicting the sudden, strong, and persistent (as opposed to "transient") upswing of inflation in 2021-22 has not been matched by similar success during the downswing.[14] Soon after the Fed started raising the Fed funds rate in March 2022 and embarking on QT from June 2022, monetary growth moved abruptly into contraction. M2 slumped from a 6-month annualised growth of 10.3% p.a. in December 2021 to -3.1% by December 2022, and by the same measure it continued to decline until March 2024, making a cumulative decline of just over 4%. There has been no comparable decline in broad money in the US since before World War 2.

But so far, the slump in money growth has not led to any sharp slowdown in economic activity even though inflation has declined substantially. The problem that we and other forecasters have faced is how to take into account the overhang of excess money from the extraordinary prior increases in 2020-22. To calculate the extent of the overhang of excess money, my technique has been to calculate the trend growth of money holdings per unit of nominal income (M2/Nominal GDP), using data from 1997 until 2019 Q4 – i.e., until immediately before the onset of the

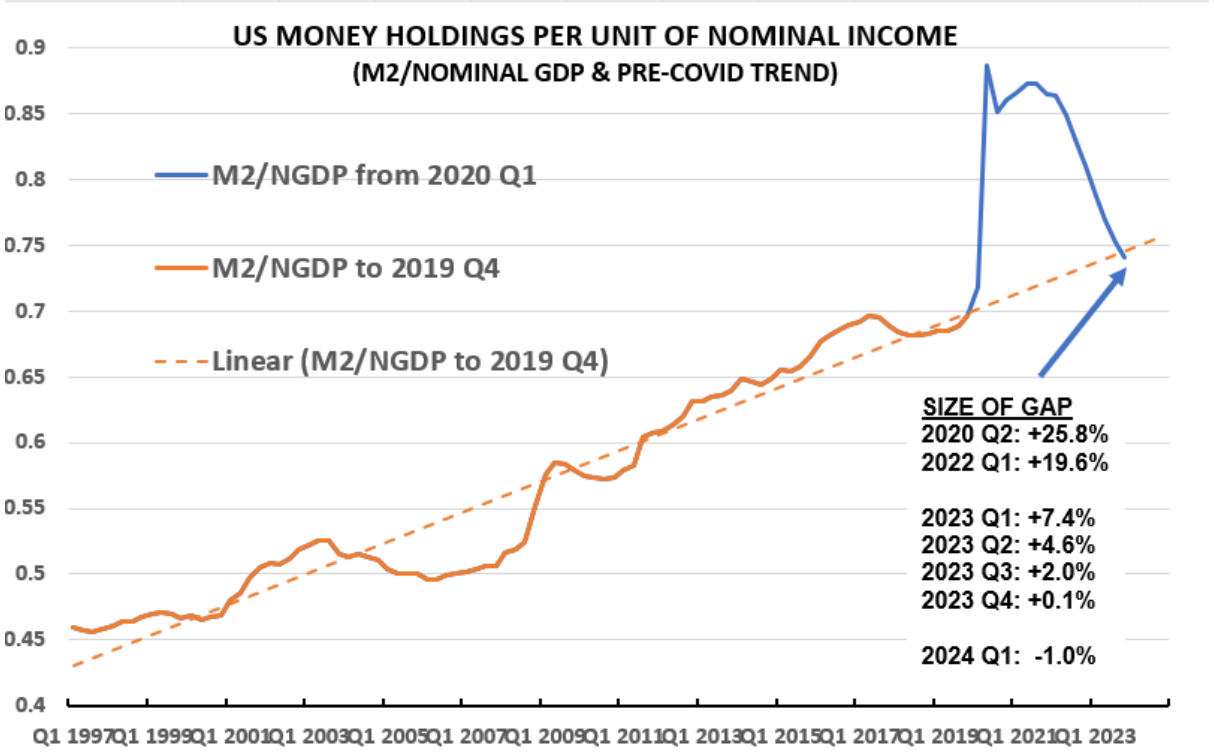
[12] https://www.bloomberg.com/news/articles/2022-04-08/summers-sees-consensus-building-toward-inevitable-u-s-recession

[13] https://www.bloomberg.com/news/articles/2023-04-07/larry-summers-sees-higher-chance-of-recession-fed-nearing-the-end

[14] See Greenwood & Hanke, "The Economy is Running on Fumes" National Review, December 13, 2023.

pandemic. This trend is then extrapolated to the present and compared with the increase in actual money holdings relative to nominal GDP from early 2020 onwards. Figure 5 below shows both the trend and the actual holdings relative to trend.

Figure 5. By 2024 Q1 M2/Nom GDP had returned to its pre-Covid trend.



Consistent with the analysis of velocity above (p. 8, item 2), I have relied on the hypothesis that the *surplus of money (M2) relative to nominal GDP* would come to an end when the ratio M2/Nominal GDP returned to its pre-Covid trend.

However, inflation does not end at the moment that the ratio returns to trend; the normal lags still apply. ***Even though the measured ratio crossed the trend line in 2024 Q1, there will still be a time lag before above-target inflation is eliminated***. On an optimistic view, this means that above-target inflation may not be fully eliminated until late 2024 or even 2025.

One of the challenges for monetarist and non-monetarist forecasters alike has always been the division of total nominal spending (nominal GDP) into its real and inflation components. Here I will split that discussion into its two parts.

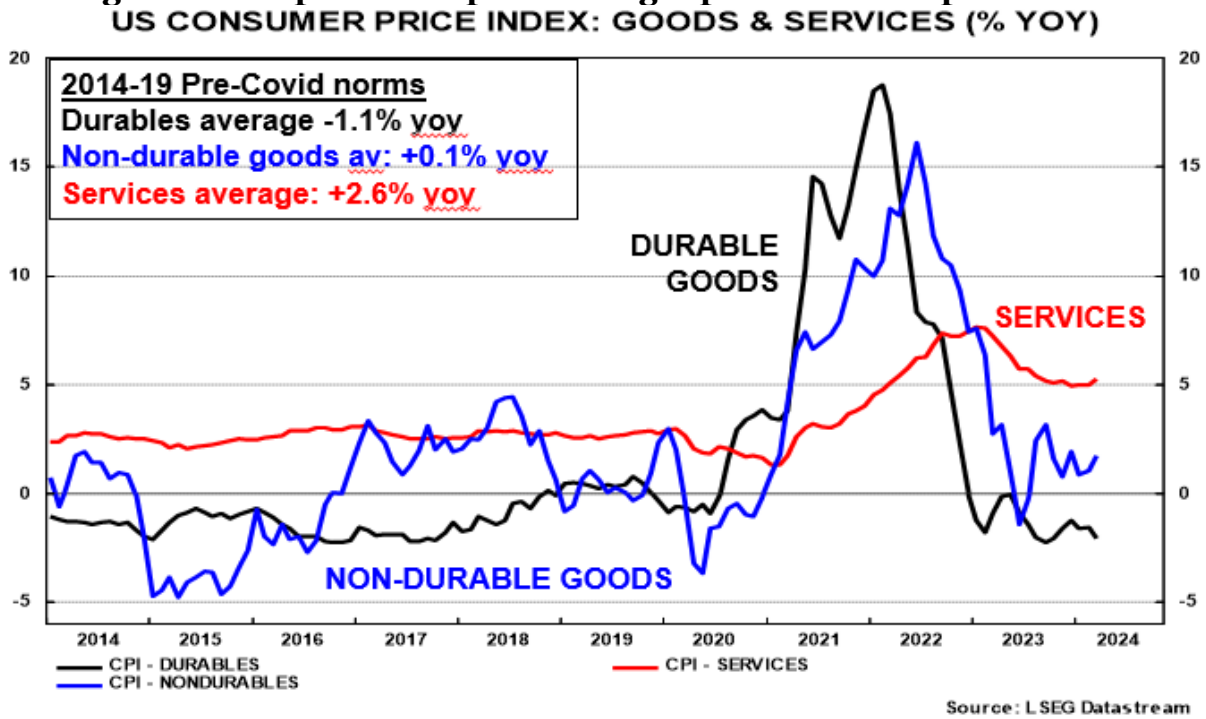
Real Economic Activity. Due to the wealth effect, which operates between the change in asset prices and the change in real economic activity (Figure 4), changes in real GDP and its components precede changes in goods and service prices. In the case of strong demand due to prior rapid money growth there is inevitably an upside limit to the possible expansion of economic output (due to limits on labour force growth, participation rates, or productivity growth in the short run). In the much rarer cases of weak demand due to prior monetary contraction or slowdown, prices

will weaken although there tend to be impediments to downward price movements because wages and other prices such as rents are typically sticky. This may result in a longer than normal time lag between changes in monetary growth and changes in economic activity. If we add to this the effect of the strengthened balance sheets of the corporate and household sector in the wake of very generous federal handouts during the pandemic, it is easy to see why, since the monetary contraction started in April 2022, any economic downturn may have been delayed.

Inflation. Much of the consensus and central bank discussion of inflation has been little more than a dissection of overall price changes into its component elements. A typical analysis will state that energy prices or food prices or wages contributed x% to the y% increase in a particular price index over the past month, quarter, or year. But this is no more than a superficial description of the symptoms, not an analysis of the underlying causes of the inflation. The problem with this style of presentation is that it implies that if, for example, service prices can be somehow contained in the coming months, then overall inflation will subside. It does not properly address the transmission mechanism.

In Newsletter IMM#33 (February 19th, 2024) I explained that the overall price level was a result of the prior monetary expansion, and I suggested a better way to think about the transmission process and its consequences for the components of inflation. In what follows I update that analysis.

Figure 6. The pattern of price changes pre-Covid and post-Covid.



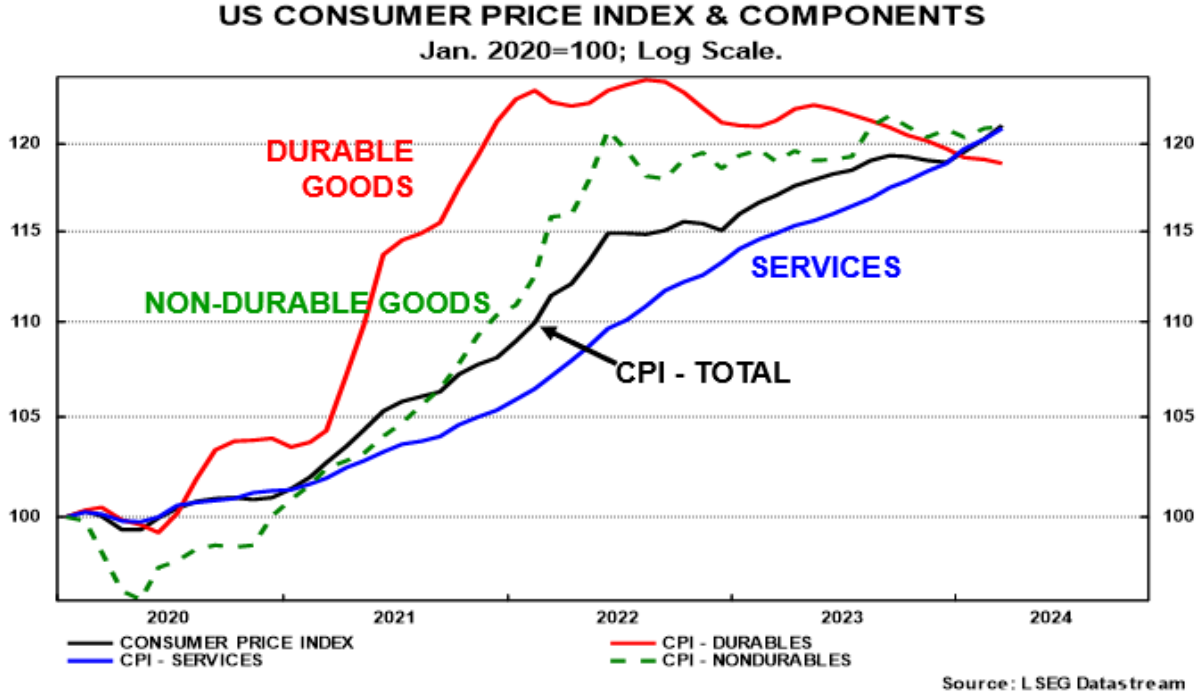
For perspective, consider the pattern of price rises during the period 2014-19 when the overall CPI increased on average by 1.6% p.a. The typical pattern was for goods prices to fall or remain roughly stable while service prices increased. As shown in the

box in Figure 6, between 2014 and 2019, durable goods prices *fell* on average by 1.1% yoy, while non-durable goods prices (including food) rose by on average by 0.1% yoy.

Meanwhile, services prices increased by an average of 2.6% yoy. Since the overall CPI is a weighted average of goods (durable and non-durable) and service prices, the resulting overall annual percentage change in the CPI (averaging only 1.6% p.a. during the period 2014-19) was the outcome of these three components. But the underlying driver was the restrained growth of broad money averaging 6.7% in the period starting and ending two years earlier – i.e., 2012-2017.

During Covid this pattern was abruptly overturned. Initially, durable goods prices increased most (due to lockdowns and supply chain disruptions), followed by the prices of non-durable goods. Service prices only began to increase from the start of 2021, and generally increased at a slower pace than either durables or non-durables.

Figure 7. The pattern of inflation components was disrupted by Covid.



For a better understanding of the lags, and how much service price inflation is still to come, we turn to the **levels** of the component indexes in Figure 7, using the same three key components of the CPI. Rebasing the data to January 2020=100 enables us to highlight movements during the Covid period, and particularly the timing of their increases since 2020. Using past relative price levels, we can estimate how far service prices have yet to rise.

Durable goods prices were the first to surge, rising nearly 4% between June and October 2020 as the first wave of Covid eased and demand pressures showed up especially in the auto market and in the related market for electronic chips. Next, there was a sustained surge between March 2021 and February 2022 when durable goods prices peaked at 24-25% above their levels of January 2020. Subsequently they have gradually slipped back to 19% above their January 2020 levels.

The story for non-durable goods prices has been very similar, except that the first lockdown with its closure of restaurants and entertainment facilities caused prices to fall by 5% in the first half of 2020. These prices then increased in the second half of 2020 and 2021, reaching an initial peak in June 2022 at 20.8 % above January 2020, and a second peak in September 2023 (21.7% above their January 2020 level), since when that level has been broadly maintained.

The pattern of service price increases, however, has been very different. Initially service prices increased at half their normal rate -- only 1.3% year-on-year to January 2021 -- but then climbed much more vigorously to "catch up" with other components of the CPI. On a year-on-year basis service prices peaked at 7.6% in January and February 2023, and slowed to 5.0% by January 2024. The overall increase so far (to March 2024), as shown in Figure 7, has been 21%.

Given what we know from the pre-Covid period about the pattern of price changes, what can we say about the likely future performance of these CPI components? Figure 7 shows that the overall increase of prices as measured by the CPI is 21% since the start of Covid. Concerning its three main components, I believe the following statements are consistent with both theory and recent experience:

- First, durable goods prices have peaked and now appear to be resuming their pre-Covid trend of annual declines of -1.1% p.a. (featured in Figures 6). After the upward spike of 2021-22 one would expect a quicker downward adjustment initially, followed by a return to "trend" declines. From a peak level of 24-25% (in August 2022, Figure 7) above the Covid starting point, durable goods prices within the CPI have already declined to 19% above the pre-Covid start point. If these faster declines persist, that could be an early signal not simply of overall disinflation towards 2%, but a signal that overall prices might weaken more – i.e., potential deflation.

- Second, non-durable goods prices appear to have plateaued at 20% above pre-Covid levels. The roughly flat pattern since their initial peak in June 2022 (Figure 7) is consistent with their pre-Covid trend of +0.1% p.a. yoy (Figure 6). In short, both durable and non-durable goods prices are behaving in a manner consistent with the current episode of inflation having ended, and these indices are returning to something close to their pre-Covid trends.

- Finally, however, service prices are still rising at 5% yoy (Figure 6), roughly double their pre-Covid trend of +2.6% p.a. (which was associated with the overall CPI average increase of 1.6% p.a. in 2014-19). How long can service prices continue to climb at this rate? When will they resume a lower rate? Very roughly, given the overall increase in the CPI of 20% between January 2020 and December 2023, one could reasonably expect the service component of the CPI to rise potentially by 20% plus 2.6% for each year (= 30.4%), or another 10 percentage points from its current level of almost 120. The rather gloomy forecast implicit in this analysis is that service prices could rise at a rate faster than 2.6% p.a. for another two years without disturbing the

overall relationship between the overall CPI and its components. A mitigating factor would be if M2 monetary growth continued to decline, but that would also imply some downward adjustments in durable and non-durable goods prices.

The conclusion, therefore, is that durable goods prices and non-durable goods price inflation are essentially over, but service prices are likely to rise by up to 10% to restore the relationship between the components of the CPI at a time when it was rising at close to 2% p.a. In other words, the transmission of excess money into service prices is not yet complete, and it would be futile to try to prevent it.

Meantime, broad monetary growth needs to be restored to about 5% p.a. from its recent contraction. If this is not done, then the main risk for 2025 and 2026 will be outright deflation.

Summary and Investment Conclusions

- During the first three months of 2024 the disinflation that had been making good progress in the second half of 2023 seemed to come to a stop. Three successive readings of the CPI were above expectations and the Fed's preferred PCE measure also failed to make progress. There are even fears that inflation might resume.

- This 16-page Newsletter has reviewed the **monetary** analysis of inflation since the start of the Covid crisis, explaining how recent data is still consistent with the monetary framework, and reaffirming my forecast of further disinflation, albeit with a further lag.

- At the same time, I critiqued the consensus, **non-monetary** explanations of inflation that have dominated central bank, academic and financial sector analysis. These false narratives have a superficial plausibility but fundamentally they are facts or assertions without an underlying theory.

- In the expansion phase of 2020-22 monetarists predicted the inflation of 2021-24 far ahead of those who relied on either Keynesian fiscal spending or neo-Keynesian frameworks. The superiority and accuracy of monetary forecasts has still not been acknowledged. Central banks remain in denial about their responsibility for the inflation.

- In the contraction phase, monetary analysis has arguably been less successful, but nevertheless more rational than any non-monetary narrative. For monetary economists the problem has been how to pin down the notoriously "long and variable" lags. For the non-monetary crowd, the movements of the inflation indices remain largely a matter of *ad hoc* incidents, random shocks and "second round effects" from wages or rents.

- The US economy has been fuelled by the overhang of money from 2020-22, but that excess liquidity is now running dry. Gradually, consumers and businesses will be forced to adjust their spending to the more constrained monetary growth rates, slowing real economic activity and slowing inflation.

- In 2024 inflation will continue to decline, delayed only by the overhang of excess money created in 2020-22. The inflation of durable goods prices and non-durable goods price inflation are essentially over, but service prices are likely to rise at above their pre-Covid trend of 2.6% p.a. for another year or so.

- The **short-term** outlook for inflation (in 2024) is for a further modest decline (from 3.5% year-on-year in March to between 2.5% and 3.0% by December) , but the **long-term** outlook is for a more significant decline. The key is the negative or low growth of broad money since March 2022 which implies sub-2% inflation in 2025 and 2026. Monetary growth needs to accelerate from its recent negative growth rate if deflation is to be avoided in 2025-26.

- As far as the stock market is concerned, what normally happens in a period of slowing nominal growth is a slowdown of sales and corporate earnings. This is in contrast to current expectations of central bank rate cuts boosting equities. Investors who have enjoyed the strong bull run in equities against the backdrop of rapid money growth and its overspill into 2022-23 and early 2024 are advised to limit their equity exposure. PE ratios normally fall in a weak economy, and on most measures, notably the Shiller CAPE, PEs are high.

- For bonds, the outlook is very different. Far from the consensus view that the world is heading for a renewed inflationary era, my forecast of a longer-term decline in inflation is bullish for bonds.

- On the currency front, the USD is likely to continue to remain firm, particularly if Europe and the UK start lowering rates ahead of the Fed. The Japanese yen will likely remain weak as the Bank of Japan will not be able to raise interest rates against a background of sub-target inflation.
