



Corroborating Evidence of Tighter US Financial Conditions

By John Greenwood

Introduction and Overview

- Interpreting the current US business cycle and how long it can continue to expand is especially tricky at present. This is due to two overlapping sets of problems.
- First, there have been two dramatically different rates of growth of money that have been and are still impacting asset prices, the economy, and prices. In 2020-21 M2 **averaged** +17% p.a., but by December 2022 M2 growth had **declined** by -1.2% year-on-year.
- Second, the lags in the transmission mechanism of monetary growth mean that some indicators are already contracting while others are still expanding.
- The initial surge in M2 was so great that it could not be fully absorbed by output growth or by the normal increases in the demand for money balances, with the result that it left a residual which is still filtering through to a variety of **lagging indicators** such as employment, wages, and the price of services.
- These parts of the economy are still looking strong and will likely continue to do so until the excess money balances or excess savings held by the household and business sectors are eliminated.
- However, the very sudden change in the trend of M2 growth from positive to negative is already having adverse effects on numerous **leading indicators**.
- If negative M2 growth persists, as seems likely, due to the yield curve inversion, the Fed paying market rates on reserves and RRP, plus QT (as explained in IMM Newsletter 13), these adverse effects will percolate more widely, leading to a recession in late 2023 or in 2024.
- Investors should position for a steep downturn in economic activity later this year, and a shift from gradually moderating or declining inflation in 2023 to deflation in 2024.

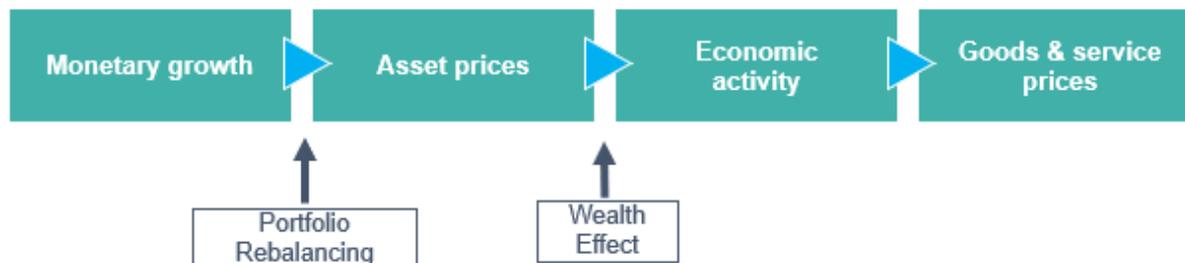
International Monetary Monitor Ltd

*The IMM Newsletter offers economic research written by John Greenwood, founder and Chief Economist of International Monetary Monitor Ltd. John was also the publisher, editor and lead author of **Asian Monetary Monitor**, a bi-monthly publication that he operated for 20 years from Hong Kong between 1977 and 1996. He was a pioneer of monetary research in Asia. From 1999 to 2021 he was Chief Economist at Invesco, based in London.*

To access my research please email your request to IMM@eri-c.com

1. Two sets of overlapping problems

Figure 1. The transmission mechanism of monetary policy



The diagram in Figure 1 is a visual way of presenting the Quantity Theory of Money or the Equation of Exchange, $MV = PT$ (in its historic form). M was the quantity of money, V was a measure of turnover or velocity, P was the price level and T stood for transactions. The theory was supposed to cover all forms of transactions including spending on assets plus goods and services, but nobody could ever measure either V or T . In the early 20th century the equation was simplified by Cambridge economists to omit assets: $MV = Py$, where M is the total quantity of money, V becomes the ratio of income to money (units of income or spending generated by a unit of money), P is the overall price level, and y is real income, so Py is nominal income. With the development of GDP and monetary statistics, the equation became tractable.

The second equation is sometimes also written as $M = k.Py$, where k is the inverse of V , and k represents holdings of money per unit of income, but this version has the disadvantage of suggesting the k is a constant, which is not correct.

Research on the experience of 89 economies over the past three or four decades indicates that the median downward slope of V is -1.74% p.a. for 24 developed economies and -2.96% for 65 emerging economies. The corollary is that the inverse of V (or k) rises at about 2% p.a. in developed economies and at about 3% in emerging economies. The rationale is that as incomes rise and societies become richer, people tend to hold larger amounts of financial assets, including money. Since EM economies are typically growing or developing their financial system more rapidly than developed economies, they tend to accumulate money balances relative to income at a faster pace, although the pace gradually slows as they become richer.

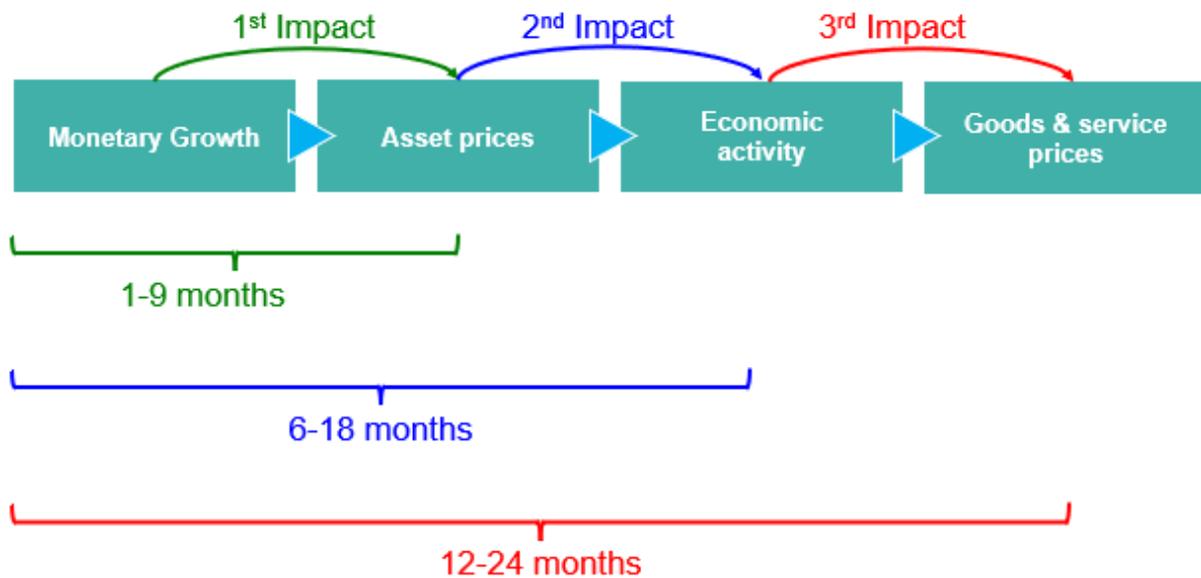
To conform with the order in which the effects occur, as set out in Figure 1, it is helpful to write the second equation as $MV = yP$.

When excess money is created by the central bank or the banking system, the first effect is on balance sheets. Firms and households find themselves holding money balances in excess of their desired balances which leads to **portfolio rebalancing** as the excess money is channelled to securities, real estate, or commodities, bidding up the prices of these assets in the process. Subsequently, with asset prices higher and people feeling richer, the second impact or **wealth effect** encourages a shift of the impact from assets to current expenditures, or from the balance sheet to the

income account. Firms increase their spending on investment, hiring or inventories, while consumers are tempted to increase their spending on goods and services, temporarily boosting economic activity. The third effect is on prices: the rising demand for goods and services ultimately pushes the prices of goods and services upwards. Only after prices have been raised to a level that restores the ratio of money to income (= real GDP times prices) to its prior level - before the surge in money growth - will the inflation subside.

This is the source of the central problem in the US today. How close is the US to restoring the desired ratio of money to incomes? Or, more prosaically, how long will prices continue to rise?

Figure 2. The lags in effect of monetary policy



The problem of the excess money balances from rapid US M2 growth in 2020-21 and their interaction with the subsequent contraction of money growth in 2022 is greatly complicated by the “long and variable lags” set out in Figure 2. The typical lengths of these lags are based on wide-ranging research in many economies over different eras.

It is my view that the effects of the earlier rapid money growth followed by the more recent downturn in money growth will – on the whole – be separate and consecutive, not merged into some kind of overall average. In other words, slowing M2 growth today does not mitigate the effects of excess money growth two years ago – at least the early impacts. The genie is already out of the bottle. It is possible, nevertheless, that there could be some exceptions among the later impacts – for example, moderating the inflation rate or slowing wage increases, but as yet this is uncertain.

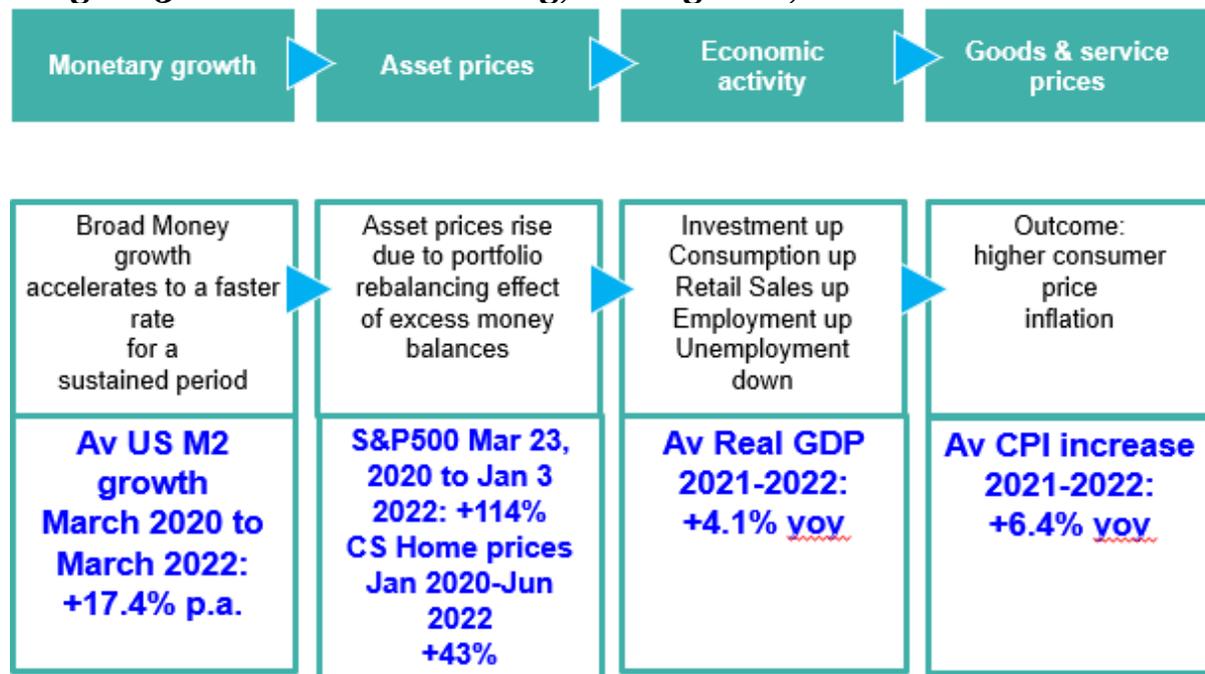
As investors we need to sort out which effects are still coming from the rapid money growth of 2020-21 and which effects are the result of the more recent contraction in money growth. The plan for the remainder of this Newsletter is to apply the above framework to developments in the US economy since the onset of Covid in March 2020, and then to separate out the indicators that are still responding to the 2020-21

money surge and contrast them with the indicators that are already responding to the slump in money growth since March 2022. Going forward, as tighter monetary conditions start to dominate, the current pre-eminence of indicators suggesting overheating and inflation will diminish and will be replaced with more indicators suggesting the onset of recession and falling inflation or even deflation.

2. Does US data since 2020 conform to the monetary framework?

Figure 3 uses the framework in Figure 1, to check the US data and its timing against the template in respect of the 2020-21 period of rapid money growth.

Figure 3. US data and its timing, looking back, both fit the framework.



Below the flow chart there are two sets of boxes. The first set with text in black provides the general case; the second set, with figures in blue, provides the actual data from the US since the start of Covid in March 2020.

As summarised in Figure 3, US M2 growth exploded from March 2020 and slowed somewhat in 2021, averaging 17.4% year-on-year for the two years 2020-21. Over the next nine months, the equity market, represented by the S&P500, increased by 114% from its trough on March 23, 2020 to its peak on January 3, 2022. House prices, represented by the S&P Case-Shiller index, responded more slowly, but nevertheless increased by 43% between January 2020 and June 2022. In 2021 and 2022 after the lockdowns of 2020 were mostly ended, the real GDP expanded strongly in 2021 and more moderately in 2022, averaging 4.1% year-on-year for the two years together – substantially higher than the normal US real GDP growth potential. Finally, CPI inflation surged starting in April/May 2021 and has subsequently averaged 6.4% year-on-year to January 2023.

However, the full impact of the 17.4% M2 growth on inflation has not yet been felt (see p.6 below).

Figure 4. US data and its timing, looking forward.



Figure 4 attempts to apply the same approach to the period of dramatically slower US M2 growth from March 2022 onwards. Using year-on-year average growth rates M2 slowed from 17.4% in 2020-21 to just 4.0% year-on-year, but on a seasonally adjusted, annualised basis the growth rate for the nine months to December 2022 plunged to -3.3%.

Asset prices have already been reflecting the abrupt monetary tightening. Equity prices, represented by the S&P500 fell from a peak in early January 2022 by 17% in the period to February 2023. The earlier start to the decline in equity prices than in money growth no doubt reflected the growing concerns among investors that 2022 would see the Fed end QE, raise interest rates, and start implementing QT, as indeed happened. The Case-Shiller 10-city home price index took longer to react, peaking in June 2022 and declining by 5% in the period to November 2022.

There are also other prices that are already reflecting the increasing tightness of monetary conditions. Following the Russian invasion of Ukraine in February 2022, the S&P GSCI index of commodity prices increased steeply until early June, but since then it has fallen by 30% in the period to February 2023. Within the commodity complex, energy prices, base metal prices (aluminium, nickel and copper) are all down steeply. Steel prices fell sharply between March and October but have been reviving since China started re-opening in November/December. Agricultural and food prices have fallen slightly but remain elevated.

Similarly, freight rates for different routes and cargoes have fallen steeply since the early days of the conflict, although tanker shipment rates have held up. Arguably, since these prices are predominantly determined in producer markets, they should be included in the second box of the business cycle flow chart.

Figure 5. US money balances relative to income remain above pre-Covid trend.



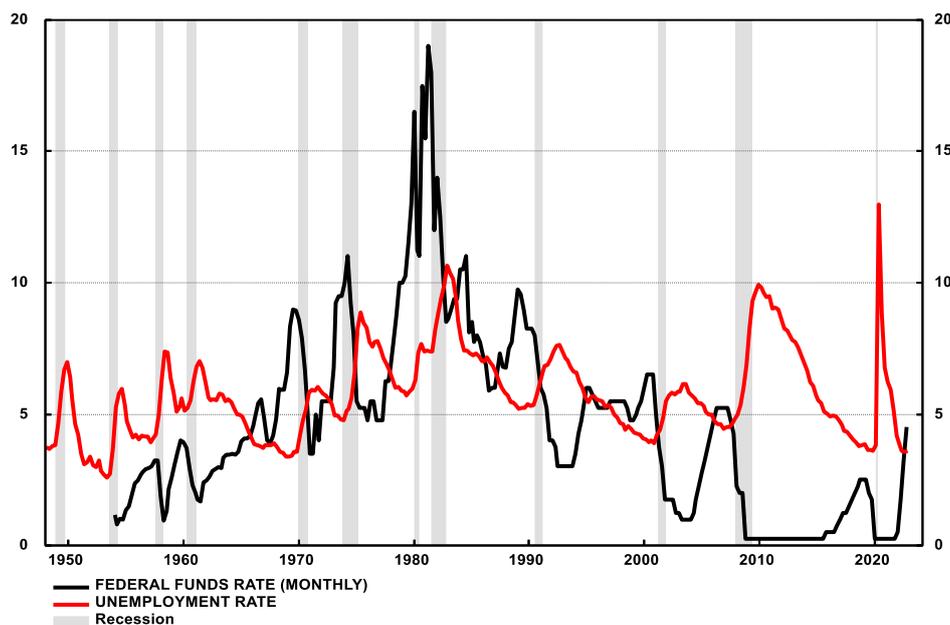
Given the excess money balances still prevailing in the US economy – as illustrated in Figure 5 – it is hard to specify exactly when the downturn in economic activity due to the monetary squeeze will start to take effect. On the basis of the latest (2022 Q4) data and using a trend line calculated from regression that starts in 1997, money holdings are approximately 12% above their desired levels. However, because M2 has been contracting since March 2022 and may continue to do so, the convergence of actual balances back to the trend may occur much more quickly than I had previously estimated. Indeed, based on current rates of shrinkage of M2, it is quite plausible to think that convergence may be reached in the second or third quarter of 2023 rather than at the end of 2024 as I had previously assumed. In that case, the incentive for households and firms to spend their excess balances on goods and services would evaporate, bringing forward the end of the current episode of inflation, but also hastening and intensifying any recession.

Given the Fed’s sharp tightening and the more rapid decline of excess balances than I had previously assumed, I have lowered my inflation forecast for the end of 2023 from 5% to between 2% and 5% year-on-year. (See “*High Inflation Will End Soon*” by John Greenwood and Steve H. Hanke, Wall Street Journal, February 15, 2023).

3. Coincident or Lagging Indicators

With its intense “data-dependent” focus on the labour market, the Fed appears to be too reliant on a series of coincident or lagging indicators. At almost every press conference following FOMC meetings Chair Powell reports on the strength of the labour market. This is understandable given that the maintenance of full employment is one of the Fed’s dual mandates (along with price stability). Nonetheless, calibrating recent or future interest rate hikes to the continuing strength of the labour market risks over-tightening policy. The reason is that labour market indicators are invariably lagging indicators. In terms of our flow chart, they belong in the third “box”. By the time the Fed has acted in response to labour market indicators, other parts of the economy will have moved far beyond what is happening to unemployment, employment, vacancies, or wages. In the current situation, this implies that much of the economy will already be in recession before the Fed starts to relax its policies. Here we will focus on just three such lagging indicators.

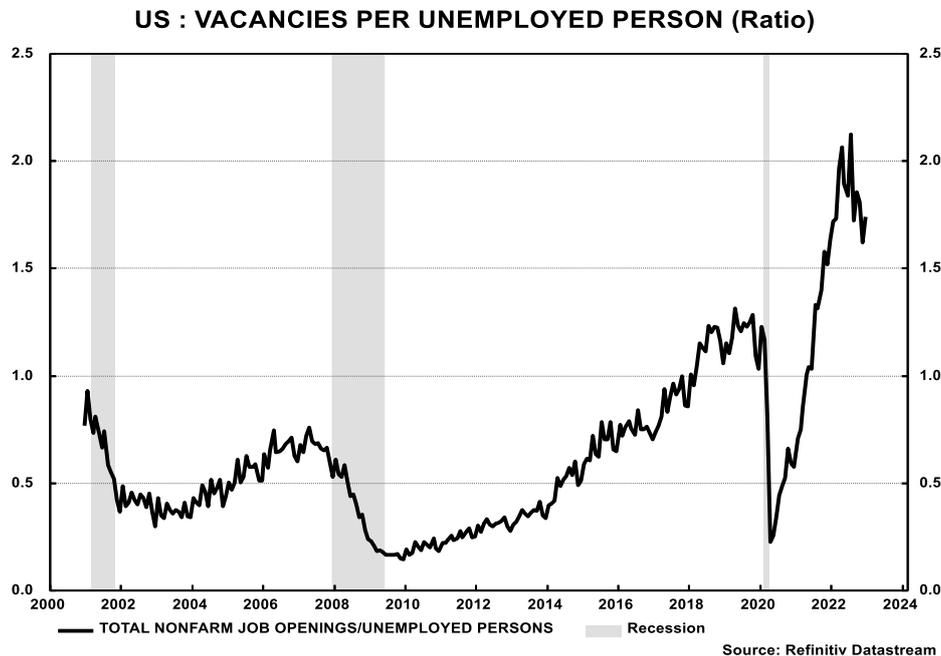
Figure 6. Unemployment does not rise until the start of recessions.
US FEDERAL FUNDS RATE & UNEMPLOYMENT RATE



Source: Refinitiv Datastream

Figure 6 contrasts the long climb of the Fed funds rate in most expansions with the gradual decline in the unemployment rate. Note how the troughs in unemployment are virtually coincident with the onset of recessions. This means that relying on a buoyant labour market as a signal of economic strength will cause the Fed to remain “tight” i.e., maintain high rates for too long until it is too late to ease off. The same kind of error is also built into reliance on one of the Fed’s favourite indicators – the Phillips curve which features unemployment on the horizontal axis and wage growth of inflation on the vertical axis. By the time policymakers start to act, the forces generating the slowdown or recession will already have been in operation for a year or more. This is exactly the situation today. With unemployment at 3.4%, the Fed has already been in tightening mode for almost a year.

Figure 7. Vacancies will plummet at the onset of recession.



Another indicator that receives much attention from Fed governors and FOMC members is the vacancy rate. Currently their boast is that the economic recovery is so strong that there are 1.7 job openings per unemployed person. Exactly so, as shown in Figure 7, but that is more a measure of how much extra stimulus was previously injected during the two years 2020-21 than an indicator of how sustainable those figures will be once the economy turns downwards.

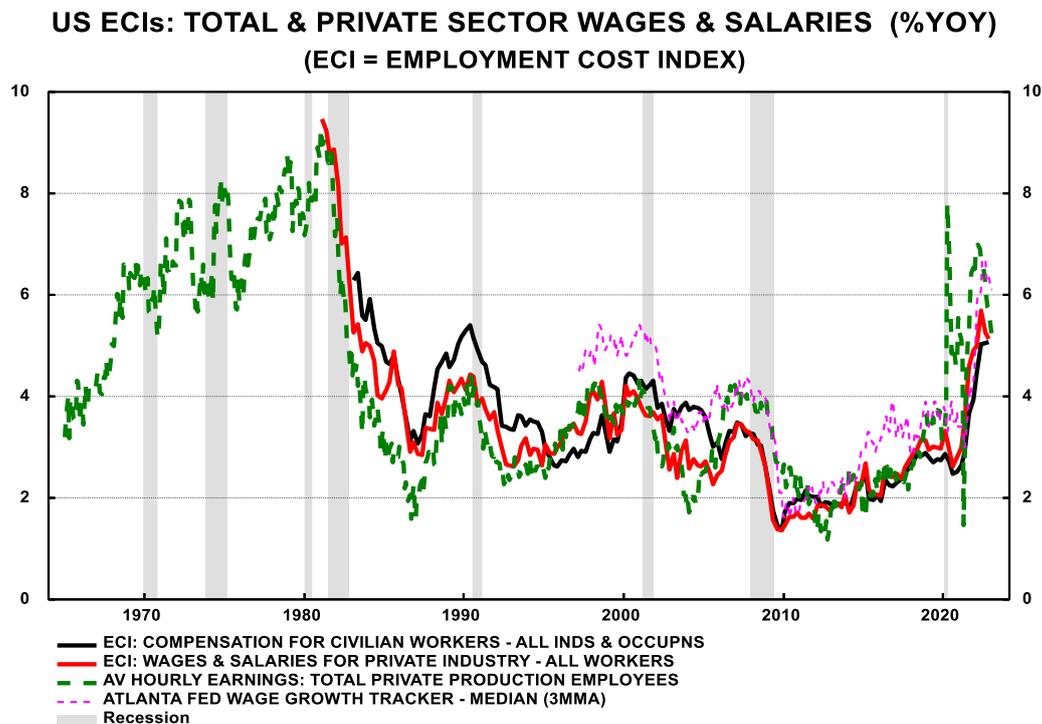
The job openings data on which the chart is based only commenced in December 2000, implying that the history is not long enough to judge the experience in numerous recessions. However, in each of the three recessions reported in Figure 7, job openings fell sharply during the recession and continued to fall for several months after the recovery started. Also, in each recession unemployment increased sharply. With the numerator falling and the denominator rising during recessions in our chart above, it is no surprise that the ratio falls so abruptly.

The third set of lagging indicators for this survey is wages and salaries or earnings in the private sector. Figure 8 (PTO) reports on the fluctuations of wages and salaries since 1965. As the years have passed, more indicators have become available, the most reliable being the Employment Cost Indices (as these are the amounts actually paid by employers), and the more recently developed Atlanta Fed Wage Growth Tracker, which is a composite of numerous underlying wage series. Currently these indicators are showing year-on-year changes in wages or salaries of close to 6%.

Here the mantra of Fed policymakers is that there are huge risks of a wage-price spiral if expectations about inflation become embedded. Sometimes this belief is rolled out with such confidence as to suggest that little else matters for inflation

beyond expectations. In other words, inflation, spurred on by wage demands, can become a self-fulfilling process, unaccompanied by any tangible, underlying driver.

Figure 8. Wages can continue to rise through recessions.



In such a world, the role of central banks and the banking system is eviscerated and taken over by workers and/or their union representatives. In that environment the financial system passively accommodates the demands of wage-earners or, for that matter, corporate price setters, or even global organisations such as OPEC. This is a world of cost-push without any independent role for policymakers. Fortunately, the very different behaviour of price inflation in different economies tells us that the world does not operate in such a way.

The important lesson to be drawn from the data is that the behaviour of wages is not pre-determined. In some recessions wages continue to rise while in others the rate of increase declines during the recession. In each episode much will depend on the pre-conditions – how much spending power remains in the economy and the relative bargaining power of each side in the wage negotiations. Since wages are one of the last set of prices to be affected by prior monetary conditions, any downturn in wage growth is an almost sure sign that the inflation is coming to an end.

4. The Message from Leading Indicators

In the business cycle flow charts at the start of this article, the whole chain of events was started off by **substantial and sustained** changes in the rate of growth of broad money. The current cyclical upswing following the Covid pandemic has been

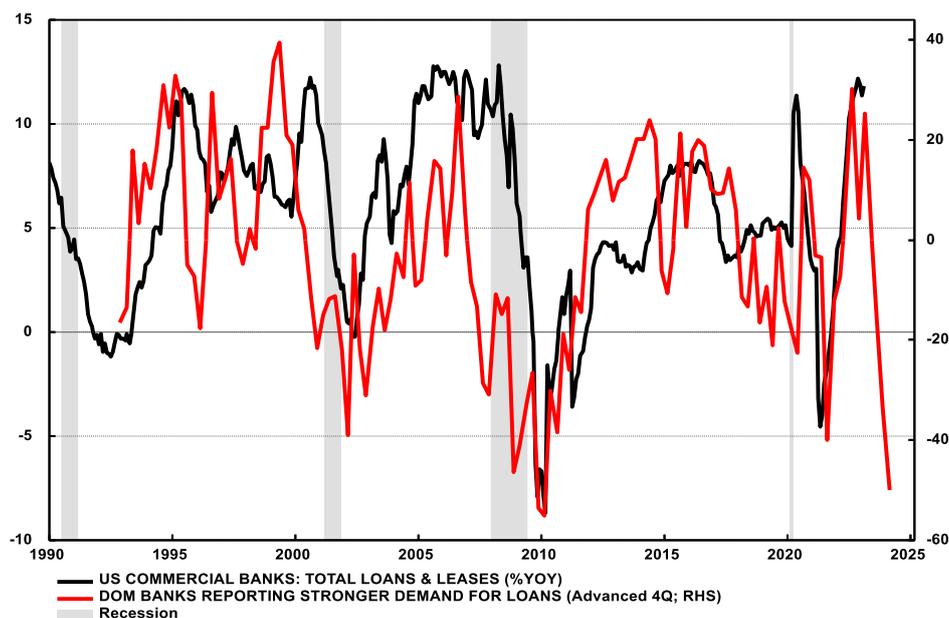
unique in the post-war period in terms of the scale and duration of the monetary expansion.

Even the monetary expansions prior to each of the oil crises of the 1970s did not come near the 17.4% average year-on-year growth of M2 in 2020-21. In 1971-73 ahead of the first oil crisis M2 growth averaged 11.4% p.a., while in 1975-79 ahead of the second oil crisis M2 growth averaged 10.1% p.a. (both measured year-on-year). Inflation proved especially hard to reduce after the first oil crisis, not because it became “embedded” in some sense, but because the M2 money supply was allowed to accelerate up into double-digits from early 1975 onwards, validating continued inflation.

In the current episode, by contrast, M2 has already been falling and is likely to continue to do so while the Fed conducts QT and while the yield curve is inverted. This means that, if the US experiences two years of monetary contraction (2022 and 2023), instead of seeing the inflation rate become entrenched or rise again during the next upswing, the economy will experience a steep decline in the inflation rate and there could even be a period of deflation. The message from the contraction of M2 – the best monetary leading indicator – could not be clearer.

Turning to other leading indicators, we will focus on four. The first is also a monetary or purely financial indicator – the Senior Loan Officer Surveys conducted by the Fed. The surveys are important for three main reasons. First, they have a long lead time. Second, they directly impact money creation insofar as bank lending creates deposits which are the largest component of M2. Third, they have successful track records in predicting downturns in lending ahead of the recessions of 2001 and 2007-09. Here we just show one example in Figure 9.

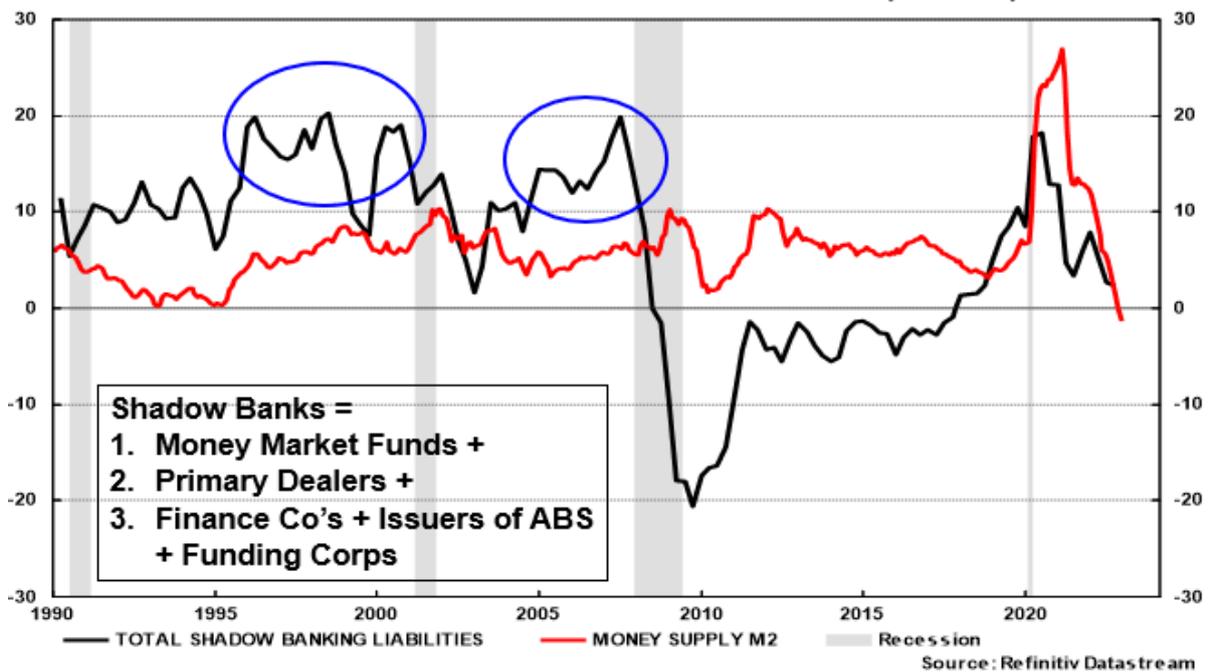
Figure 9. Senior loan officers are forecasting a steep decline in lending.
US COMMERCIAL BANK LOANS & LOAN OFFICER SURVEY



In addition to the forecast of falling demand for loans featured in Figure 9, the net percentage of banks reporting stronger loan demand (not shown) fell by almost 50% in 2023 Q1, while the net percentage of those banks tightening lending standards (also not shown) increased for business loans (+44%) and household lending (+24.9%) in the current quarter.

Another purely financial indicator is my measure of the funding sourced by shadow banks, shown in Figure 10. This series has value because shadow banks are generally less regulated than member banks of the Federal Reserve System and in the past their balance sheets tended to expand more rapidly and contract more sharply than those of conventional commercial banks. Shadow banking can be measured either by adding up the balance sheet totals of such entities, or by adding up the instruments they use to source or provide credit such as repos, commercial paper, CLOs etc.

Figure 10. The growth of shadow banks is slowing.
US: GROWTH OF M2 & SHADOW BANKS (% YOY)

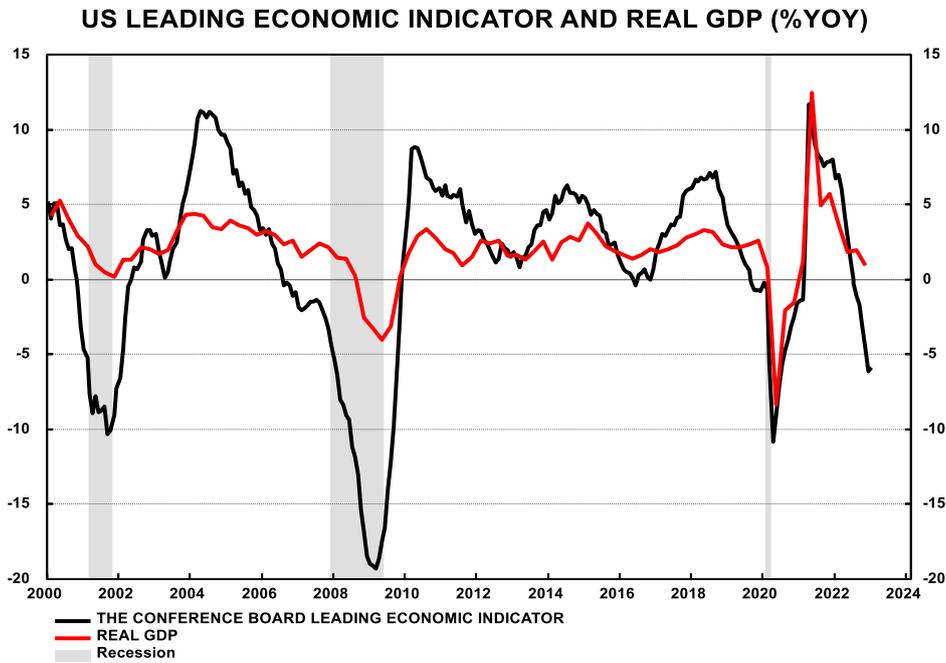


It should be noted that shadow bank activity slowed steeply in 1998 and in 2000 ahead of the tech bubble bursting, and again in 2007-08 ahead of the GFC (after the circled episodes). Since that time shadow banks have undergone a major retrenchment while regulated banks were being re-capitalised and supported by the federal government. However, the revival of shadow banks from 2017-18 onwards has not repeated the extreme past patterns of amplified cycles superimposed on the conventional banking system cycle. Even so, current shadow banking trends are in the same downward direction as the broad money cycle.

The last two leading indicators consist of the Conference Board's overall leading economic index (LEI) and one of its most reliable components, new private house-building permits. The overall index is comprised of ten key variables such as stock prices, a leading credit index, a yield curve spread, and an index of new orders which

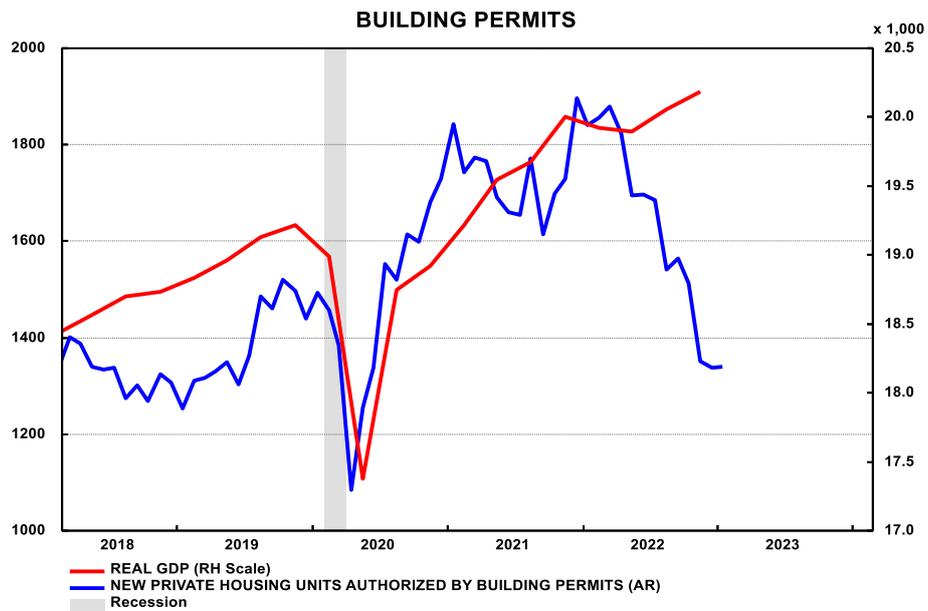
have historically turned downward before a recession and upwards before an economic recovery. The index has an excellent track record.

Figure 11. The Conference Board LEI points to recession in 2023



Source: Refinitiv Datastream

Figure 12. Housing downturn in place since March 2022.
US LEADING ECONOMIC INDICATOR COMPONENT AND REAL GDP



Source: Refinitiv Datastream



These conventional lead indicators complete this brief survey of leading indicator data. They corroborate the message from monetary growth that the US economy is heading for recession either towards the end of 2023 or in early 2024, depending on how rapidly the excess money balances created in 2020 and 2021 are absorbed – either by spending on real GDP and inflation, or by unusually large reductions in outstanding money balances relative to income as M2 continues to decline.

Summary and Conclusions

- Interpreting the current US business cycle and how long it can continue to expand is especially tricky at present.
- One reason is that there have been two dramatically different rates of growth of money impacting on asset prices, the economy and prices. In 2020-21 US M2 **averaged** +17.4% p.a., but in 2022 it **declined** by -1.2%.
- Second, the lags in the transmission mechanism of monetary growth mean that some indicators are already contracting while others are still expanding.
- The **lagging indicators** are measures such as employment, wages, and the price of many services.
- These parts of the economy are still looking strong and will likely continue to do so until the excess money balances or excess savings held by the household and business sectors are eliminated.
- However, the very sudden change in the trend of M2 growth from positive to negative in 2022 is already having adverse effects on numerous **leading indicators**.
- These lead indicators include money (M2) itself, senior bank loan officer surveys on lending attitudes, the growth of shadow banks, and conventional LEIs such as the Conference Board measure and some of its components like housing permits.
- If negative M2 growth persists, as seems likely, due to the yield curve inversion, the Fed paying market rates on reserves and RRP, plus QT, these adverse effects will percolate more widely, leading to a recession starting in late 2023 or in early 2024.
- Investors should position for a steep downturn in US economic activity later this year, and a shift from gradually moderating or declining inflation in 2023 to outright deflation in 2024.
- Equity investors in US equities should be prepared for a significant setback in markets when the recession becomes imminent since the decline in corporate earnings will outweigh any benefit from prospective cuts in interest rates or increases in PE ratios.
- At that stage, commodity prices would likely suffer sizeable falls, irrespective of any recovery in China.
- Having been slow to recognise the seriousness and persistence of inflation in 2021-22, the Fed is likely to be equally slow to act ahead of the downturn in 2023-24.

Disclaimer

The information in this report has been prepared by International Monetary Monitor Ltd. (IMM). Materials available herein have no regard to the specific business objectives, financial situation or particular needs of any specific recipient. The research is published for information purposes and is not to be construed as a solicitation or an offer to buy or sell any securities or related financial instruments. The opinions, estimates and projections in this report reflect the current judgment and express views of the author as at the date of the report. They do not necessarily reflect the opinions of IMM and are subject to change without notice. Unless specifically stated otherwise, all price information is indicative only. No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness, or reliability of the materials, nor are they a complete statement of the securities, markets or development referred to herein. The material should not be regarded by recipients as a substitute for the exercise of their own judgment. The financial instruments discussed in this report may not be suitable for all investors.

Copyright © 2023 International Monetary Monitor, not for distribution without express permission.
Registered office: c/o PKF Littlejohn, 15 Westferry Circus, Canary Wharf, London E14 4HD, UK.