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Inflation Staying Higher for Longer in 2023, then Falling Sharply in 2024

By John Greenwood

Introduction and Overview

- Excess M2 growth showed up first in asset price inflation.
- Inflation next showed up in goods prices as a result of the lockdowns and the inability to spend on services.
- The shift of demand from services to goods created supply chain disruptions and other distortions or shortages.
- Cumulative excess broad money growth will drive ***overall*** prices up by approximately 28% in the US, 17% in the UK, and lesser amounts in Canada, Australia, New Zealand and the euro area – all measured from the start of the Covid pandemic.
- No one can say if the relation between goods and service prices will return to pre-Covid norms after this episode of inflation, but some normalization should be expected.
- Inflation will therefore increasingly migrate from goods prices to stickier service prices such as rents, OER, and wages etc as the latter catch up.
- Some prices such as certain commodities, and some goods prices and freight rates are already falling, reflecting newly tightened monetary growth rates around the world (e.g., since the start of 2022 in the US).
- But for a while we will witness seemingly contradictory signals as some prices continue to rise under the influence of past excess money growth, while others fall under the influence of the newly constrained money growth rates.
- In overall terms inflation will stay high (in the 4-6% range) for longer than most people expect, but then it will plunge – probably in mid or late 2024.
- All this has big implications for profit margins, yield curves, interest rate differentials and currency values which are explored in the article.

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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.*
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1. The Overhang of Excess Money

Any theory about inflation must start with a framework that is applicable to all episodes of inflation – or deflation – in any economy in any era. Most of what we read in current commentaries focuses on *ad hoc* explanations which are related to current circumstances but may have no relation whatever to any past or future episode of inflation. I am referring to all the stories we read about supply chain disruptions, or energy and food price increases associated with the war in Ukraine, none of which provide an adequate theory of inflation. Instead, I prefer to rely on the 500-year-old quantity theory of money. The Quantity Theory of Money implicitly challenges the *ad hoc* explanations by asking its proponents to pinpoint an episode of inflation that was ***not*** preceded by rapid money growth. To my knowledge, no episode has ever been reported.

Figure 1. Cumulative broad money growth rates as a guide to overall price increases

	US M2	UK M4x	CN M3	AU M3	NZ M3	CH M2	JP M2	EZ M3
At Sept 2022, cumulative from Feb 2020	39.1	27.1	26.6	27.0	20.2	29.3	15.6	14.2
Potential Real GDP Growth Rate	2.0	1.5	2.0	2.0	2.0	5.5	1.5	1.5
Measured annual velocity change from 1998 (%)	-1.7	-1.7	-2.4	-2.7	-2.0	-2.7	-2.8	-2.4
Implied increase in P (based on 3 yrs of GDP, 3 years of change in V)	28.0	17.5	13.4	12.9	8.2	4.7	2.7	2.5
CΔP = CΔM –(3*Δy) +(3* ΔV)								

Note: CΔP and CΔM are the cumulative increases in broad money and the price level respectively.

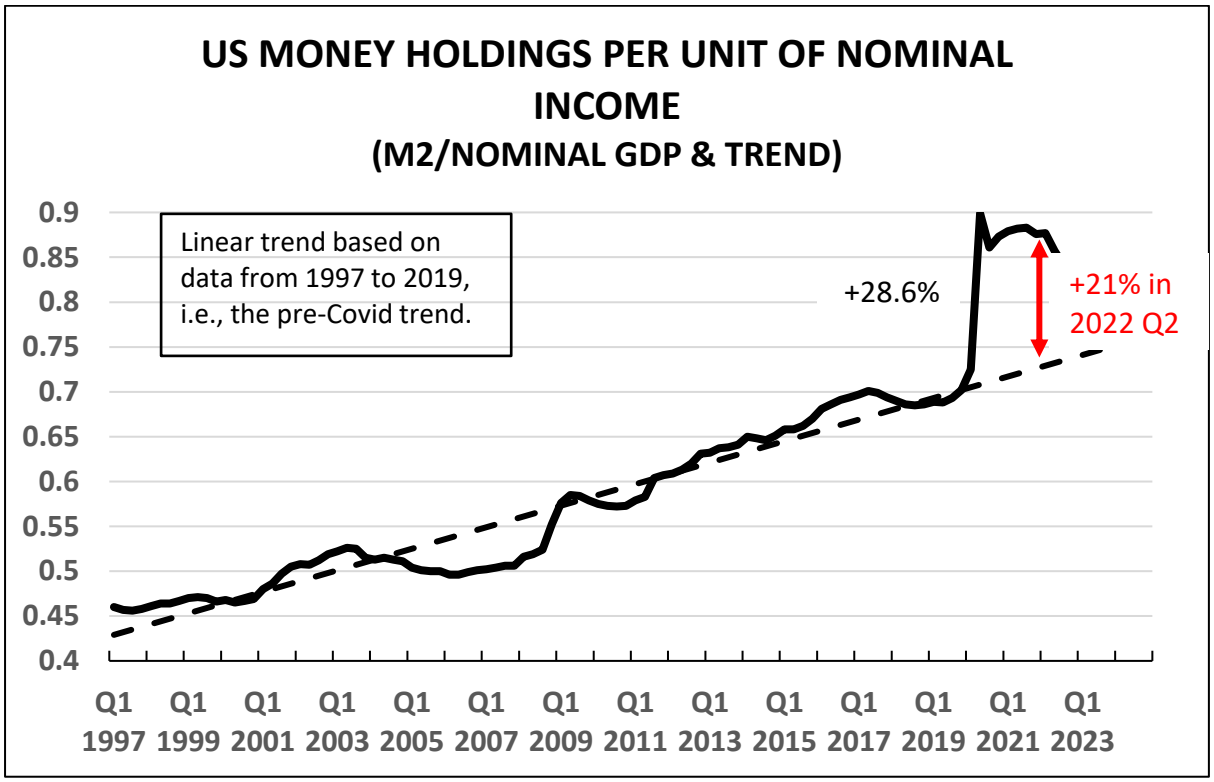
Figure 1 uses the relevant data from the Quantity Theory to show the excess money growth in eight economies since the start of the Covid pandemic. Since we are now almost three years from the onset of Covid, I have deducted three years of potential real GDP growth and three years of additions to money balances (the inverse of trend velocity) from the cumulative increase in broad money to arrive at an estimate of excess of money remaining in each economy to fuel price increases.

The US, having generated the greatest cumulative increase in money over the past three years will also experience the greatest increase in the overall price level. Of course, this need not result in the highest year-on-year inflation rate, only that the cumulative rise in prices will be greater than in other economies.

According to my estimates in the table, the 39.1% increase in US M2 is absorbed by two "drains", namely three years of potential real GDP growth (3x 2.0% = 6.0%) and three years of increases in money balances (3x 1.7% = 5.1%). Together these two deductions absorb 11.1%, meaning the excess M2 is currently approximately 39.1% *less* 11.1%, or 28.0% shown in red in the table. Similar calculations are applied to all other economies in Figure 1.

Another way to view the excess M2 growth in the US is simply to view the deviation of the ratio of M2/Nominal GDP (or NGDP) from its trend. The trend is naturally upward – as it is in a study of 23 other developed and 65 emerging economies that I am in the process of completing – due to the well-known tendency for people to hold larger money balances relative to income as they grow richer. In technical language, the income elasticity of demand for money is positive or more than 1.0. This is also a reason why it is always correct to monitor broad money, not narrow definitions of money – because what matters is people's entire portfolio of money, not just part of it. Note the stability of the ratio relative to trend from 1997 to 2019 in Figure 2.

Figure 2. US holdings of M2 jumped from 70% of nominal GDP to 90% at the start of the Covid-19 pandemic



At the onset of Covid, the government locked down the economy causing the denominator in the ratio M2/NGDP to fall, and Fed's QE pumped up the numerator, so the overall fraction increased from 70% to 90% or by 28.6% as shown in Figure 2.

Monetary theory hypothesizes that the ratio of M2/NGDP will gradually return to trend as people restore their level of money balances relative to income by spending and driving up prices, but the theory does not specify how long this adjustment will take. In my research I have assumed that the adjustment would be complete – i.e., the actual ratio would converge with the trend – by the end of 2024, but it may take longer. As the chart shows, at 2022 Q2 the gap was still 21%, but in Q3 (the final

data point in the chart) it narrowed significantly. During this period, a falling M2/NGDP ratio, or a rising ratio of its inverse, income velocity, would add to inflation.

2. The Monetary Transmission Mechanism

The process by which money growth is transmitted to the economy is known as the monetary transmission mechanism. If there has been a *substantial and sustained* change in the rate of broad money growth, it will first impact the money markets and the asset markets, and after a lag of 6-18 months it will impact real economic activity. Finally, after a period of typically two years it will impact goods and services prices, though there may be some spill-over into the third year. (Note that it is not advisable to rely on interest rates to judge or assess the progress of the transmission process first because interest rates are a symptom of prior money growth - see p.5 below, and second because interest rates reflect other factors such as the perceived credit-worthiness of the borrower.) Using this monetary framework, in Figure 3 we track the progress of the transmission process in the current cycle using annual data.

Figure 3. The transmission mechanism in the current cycle

% YOY	M2	INCOME VELOCITY	REAL GDP	CPI	IPD
	ΔM	ΔV	Δy	ΔP	ΔP
2018	3.8	1.6	2.9	2.4	2.4
2019	5.1	-0.9	2.3	1.8	1.8
2020	19.2	-17.3	-2.8	1.2	1.3
2021	16.2	-4.7	5.9	4.7	4.5
2022	0	5	2.4	8.2	7.2
2023	5	3	2	6	5
2024	5	1	2	4	3
2025	5.7	-1.7	2	2	2

The top two lines of the table show the variables in the quantity theory of money expressed in words and symbols. Two measures of the price index are shown: the CPI since it is the most widely followed, and the implicit price deflator for the GDP which is, strictly speaking, the correct measure to use in any application of the quantity theory. In the table the variables are shown as year-to-year percentage changes of annual data. Already published data are shown in black. My estimates for 2022 – for which we already have most of the data – are shown in blue, while forecasts for the future are shown in red.

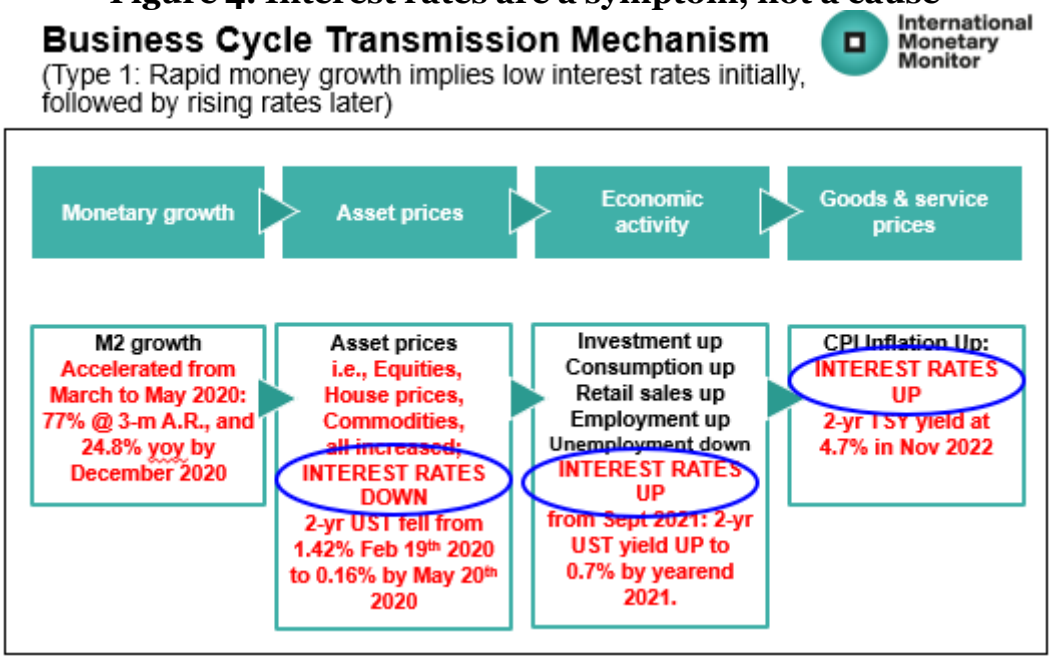
The orange-coloured cells indicate how in 2020 the major changes were in M2 (ΔM) and income velocity (ΔV), and although there was a strong impact on asset prices, these are not included in the quantity theory equation, so we note but omit that important process here. There was no impact on output (real GDP) or prices in 2020.

In 2021, the impact of ΔM on real GDP (with Δy rising 5.9%) is very clear, and in 2022 the impact of 2020's rapid money growth starts to impact prices (ΔP) which increased 8.2% in CPI terms and 7.2% in IPD terms.

Since M2 growth continued to be rapid through 2021 in addition to 2020, we can track a similar set of effects shown by the yellow-coloured cells. The only significant difference is that this time the impact of additional M2 growth on real GDP in 2022 is negligible (+2.4%, only slightly faster than potential growth) since the upside capacity of the economy is limited. The impact of 2021's rapid M2 growth on inflation will be in 2023 and 2024 – so the data in the cells are forecasts.

Notice that so far there has been no resort to reliance on interest rates as a driver of the transmission process. Figure 4 helps to explain why interest rates have at best a less important or even superficial role in the transmission process.

Figure 4. Interest rates are a symptom, not a cause



In any episode of *substantial and sustained* acceleration or deceleration of broad money growth, interest rates will be impacted first in one direction and then in the other. Figure 4 shows in diagrammatic form the three stages of the impact of money growth on asset prices, on real economic activity, and on goods and service prices. The text in black shows the generic impact to be expected, while the text in red shows, with numeric examples, the actual changes that occurred in the US economy following the surge in M2 growth from March 2020.

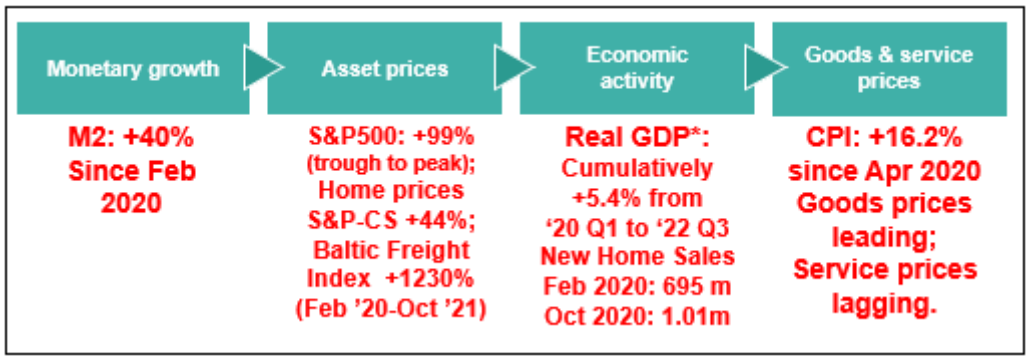
The key point of Figure 4 is to show that interest rates (circled in blue) first fell, but subsequently have risen. These increases would have mostly occurred even in the absence of any response by the Fed to the current inflation. For example, it is inconceivable that, with inflation at over 8%, bonds yields would have remained as low as they were in 2020 or in the first half of 2021.

More generally, it is better to think of the transmission of *substantial and sustained* changes in broad money growth as impacting the prices of ***all*** assets and percolating later to spending on goods and services by businesses and consumers and still later again to goods and service prices. This is equivalent to saying that changes in lending or borrowing rates for new loans only constitute a minor part of the transmission mechanism.

3. Inflation in the Current Cycle: Overall and Relative Price Changes

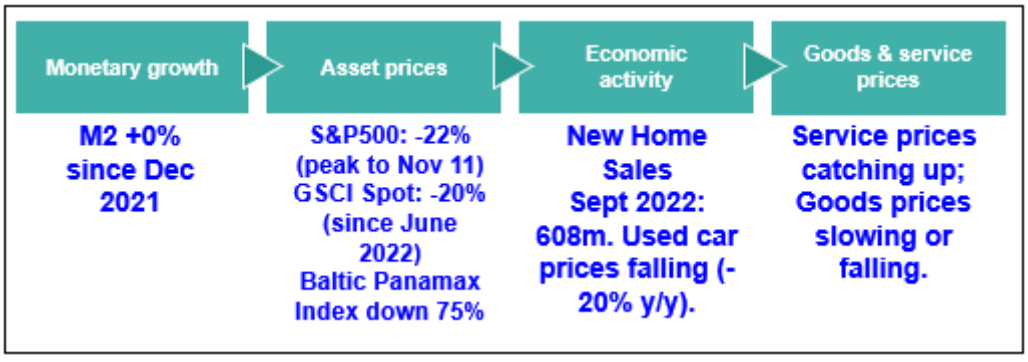
We can also trace out the major parts of the transmission mechanism as they affect different types of prices. Figure 5 shows some of the effects of the cumulative increase of M2 by 40% since February 2020 – which works out at about three times the appropriate annual growth rate required to hit the 2% annual inflation target.

Figure 5. Under the Hood of the Current US Business Cycle: Price Changes at Different Stages of the Transmission Mechanism



As explained in Newsletter#02, the growth of US M2 has slumped in 2022, so Figure 6 shows the early effects of this second *substantial and sustained* change in M2 growth.

Figure 6. The Early Effects of the Slump in M2 Growth in 2022



While so far we only have US M2 data to September, it already appears that there will be zero growth of M2 during calendar 2022. As long as the Fed is raising rates steeply and conducting QT operations at the same time (which have the effect of directly shrinking the outstanding money supply[1]), M2 is likely to be either falling or static. In effect, having put their foot too hard on the monetary accelerator in 2021-22, the Fed is now putting its foot too hard on the brake.

On the face of it, the consequences of the monetary slump for asset markets, for economic activity, and for goods and service prices are likely to be abrupt and potentially painful. The text shown in blue in Figure 6 tracks some of the consequences (under Asset Prices and Economic Activity) of this latest contractionary phase of M2 growth. However, there is as yet no impact on goods and service prices, and we should not expect any until late 2023 or early 2024. But when that time comes, inflation could fall abruptly – especially if the current low growth of M2 persists.

However, there is one important mitigating factor: the overhang of excess M2 from the prior period of egregious growth in 2020-21. Currently it is not possible to say precisely what the effect will be of the interaction of the extremely rapid M2 growth (averaging almost 18% p.a. in 2020-21) with the slump to zero growth so far in 2022. My hunch is that the two processes – monetary excess followed by monetary overkill – will operate separately and in succession rather than becoming intermixed. In this view, 2023 will see a continuation of the inflationary effects from the excess M2 growth in 2020-21 (perhaps an average of 5-6% CPI or IPD inflation as in Figure 3) but we will start to see the effects of the abrupt switch to zero M2 growth in the form of a steep downturn of economic activity during 2023. In other words, 2023 will be a year of genuine "stag-flation" – i.e., an economy in recession simultaneously with continued inflation from the previous 2020-21 monetary injections.

Many observers pay close attention to the labour market for signals that may help them to interpret the business cycle. However, as Figure 7 shows, the peaks in wage growth (shown by red arrows but measured by two indicators in black and in red) almost always come after the onset of recession, while the peaks in unemployment (pinpointed by blue arrows) invariably occur after the recession is over. The same principles apply to attempts to use the Phillips curve for policy purposes – by the time the curve indicates a problem it will be too late!

More insight can be gained from studying relative price changes during the current cycle. In fact, price changes across different sectors have been so diverse and are likely to continue to be so that they will affect the perception of many – including policymakers at the Fed – as to what is causing the inflation.

[1] The process works as follows: (1) maturing Treasury bonds are removed from the Fed's assets and the Treasury's General Account (TGA) at the Fed is debited by a corresponding amount; (2) because the Treasury needs to refund the maturing debt, it must issue new debt instruments, this time to be purchased by the non-bank public; (3) when the public subscribes to the new Treasuries, their deposits will be debited, causing a decline in M2.

Figure 7. Signals from the labour market lag the cycle

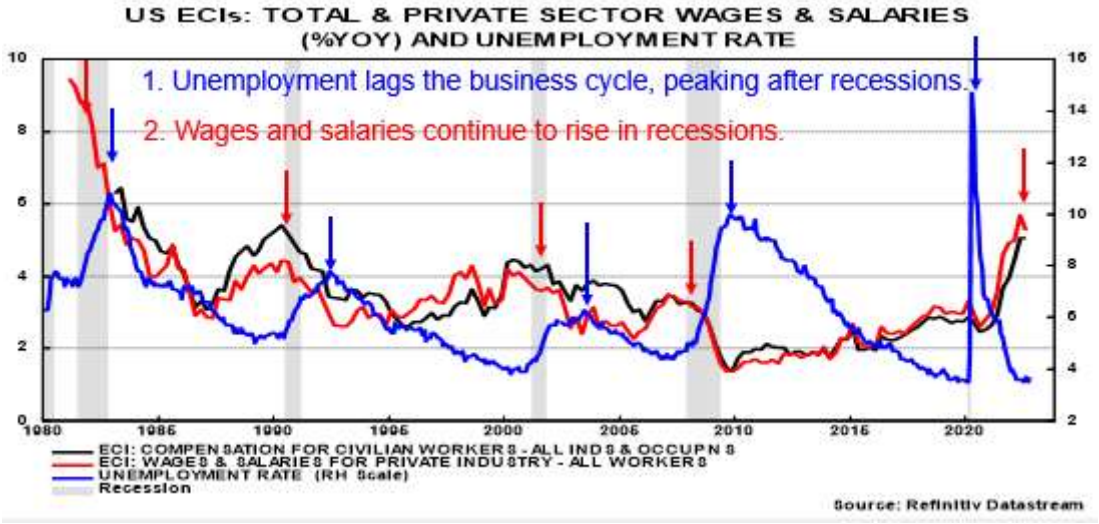


Figure 8. Goods Prices Led the Inflation during Lockdown; but from here on, Service Prices will be Catching up and may Appear to be "Leading"

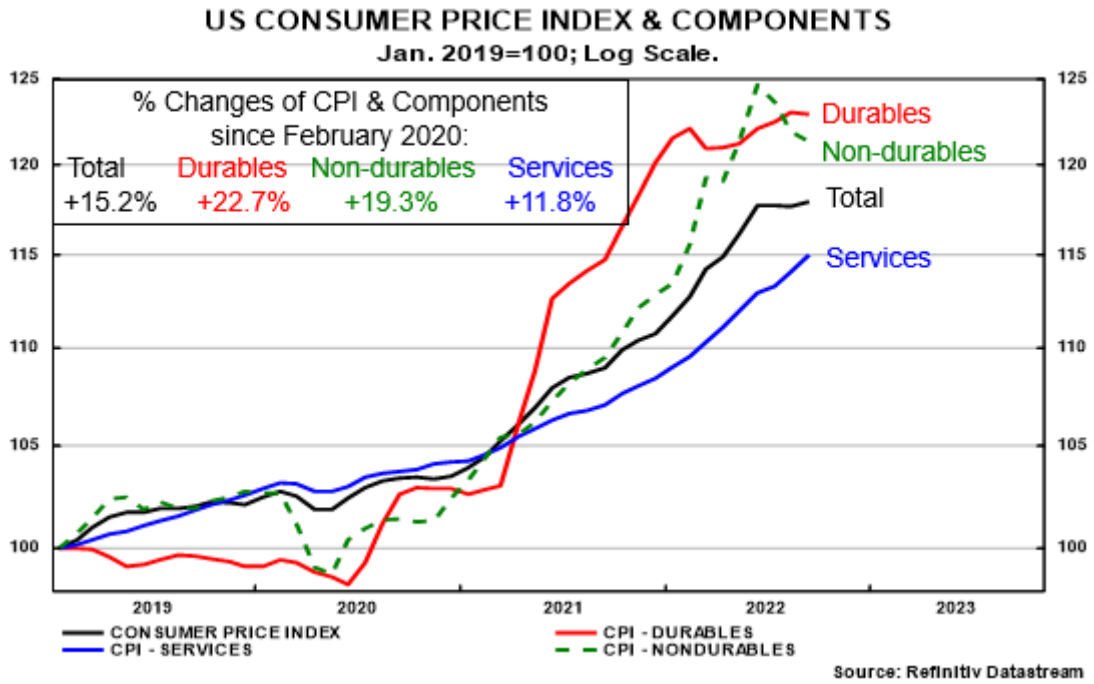


Figure 8 shows the trends in some relative prices within the US CPI. Prior to Covid the pattern of prices was for goods prices, particularly durable goods prices, to be flat or falling thanks to cheap manufactured goods imported from China and other EMs. By contrast, service prices tended to rise somewhat more than the overall CPI. Those tendencies are reflected in the lower left of Figure 8 where durable goods prices were falling in 2019 and the first half of 2020. But then with lockdowns, the demand for durable goods soared as demand for services was suppressed, causing goods prices to

rise rapidly – a trend that continued until the end of 2021.Meanwhile, service prices remained much more subdued, falling – unusually -- below the overall CPI. Non-durables, of which a large part is food, have risen steeply during 2022, no doubt because of the war in Ukraine.

The question is, what will happen next?

Given the 40% helicopter drop of money into the US economy since March 2020, we should expect (according to Figure 1) a rise of roughly 28% in the overall price index, spread roughly evenly across all categories of goods and services. So far, as shown in the box in Figure 8, overall prices have risen by 15.2% (to October 2022); while durable goods prices have risen by 22.7%, and non-durable goods prices by 19.3%, whereas service prices have risen by just 11.8%.

If prices are going to rise by roughly equal amounts by the time this episode of inflation draws to a close, then from here onwards service prices – which include rents, the OER or owner equivalent rent component of the CPI and wages – will start to lead the inflation process. It is even possible that numerous goods prices will fall as we have already observed in the freight markets or in the used car market.

In reality, service prices will be catching up, not leading. But policymakers on the FOMC may well interpret the signals wrongly, jumping to the conclusion that strong wage growth contains the seeds of a wage-led, wage-price spiral, or the kind of self-sustaining cycle that some authors (wrongly) use to explain the inflation of the 1970s and 1980s. Needless to say, this is the worst nightmare of such policymakers and may well elicit a further tightening of monetary policy – which again would be a mistake. But to be forewarned is to be forearmed.

4. Implications for Corporate Profit Margins, Yield Curves and Currencies

What does all this mean for financial markets?

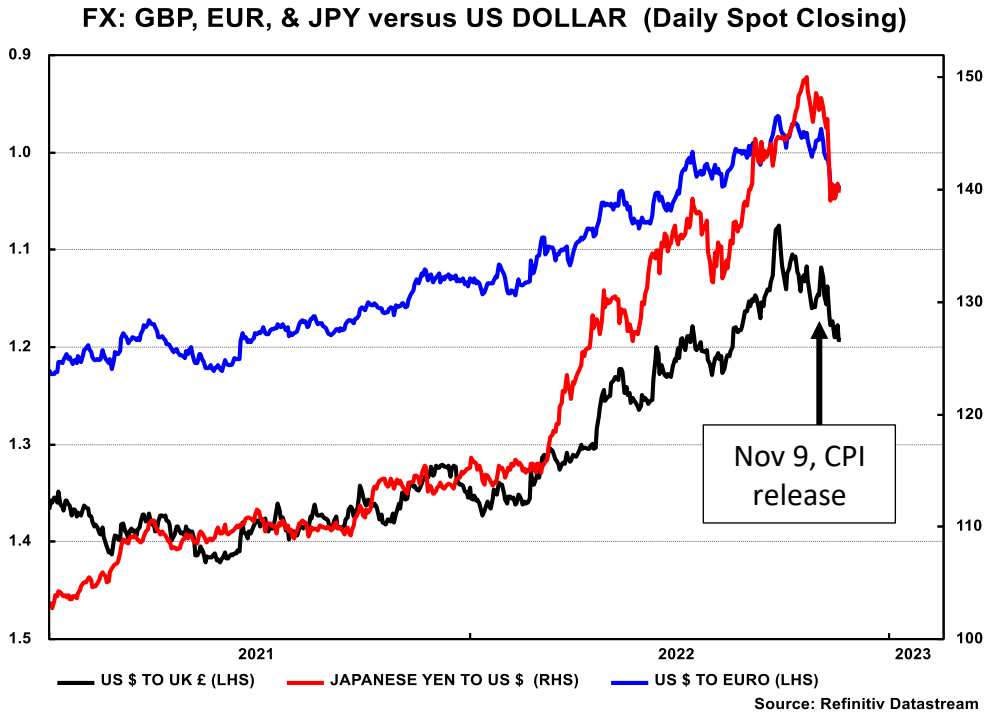
Margins. First and foremost, since wages comprise about 60% of corporate costs on average, the upward pressure on costs will be damaging to corporate profit margins. How will this be viewed by stock market investors? For most of 2022 I have maintained that the stock market was weakening on account of concerns about rising interest rates. In practice this has meant that earnings multiples have been eroded due to the close relation between interest rates and PE ratios. However, the stock market has not yet discounted the decline in earnings due to the recession that is to come in 2023. In fact, until very recently estimates of corporate earnings in 2023 remained very buoyant. For example, FactSet, a firm which collects and publishes analysts' forecasts, were forecasting 6.5% earnings growth for the S&P500 in 2023.

In my view, this is too optimistic. The combination of very slow M2 growth in 2022 and tightening profit margins in 2023 will make for a further significant leg down in stock markets before a turnaround can reasonably be expected.

Yield curves. The combination of continued inflation at 5-6% in 2023 together with very slow broad money growth and a sharply weakening economy suggests a yield curve that has a hump in the centre. The shortest yields (out to two years), effectively controlled by the Fed's policy rates, will stay elevated at least through the first half of 2023, but in the second half there could well be increasing expectations of a Fed pivot – as there was last summer. But in the 2- to-5-year space, Fed talk of keeping financial conditions tight until inflation is forecast to be back at 2% could keep yields high in the "belly" of the curve. However, in view of the severity of the downturn, and the prospect of a rapid decline in inflation in 2024, long-term yields should start to decline significantly in the second half of 2023.

Currencies. On the currency front, we have already seen the USD weaken sharply on the prospect of less rapid rate hikes by the Fed going forward. This was especially notable after the CPI data for October were released on November 9. Lower prints than expected led to a sudden sell-off of the USD (Figure 9) on the grounds that this would lead the Fed to raise rates more slowly in the future. In effect, the USD was weakening not on lower differentials between US and foreign interest rates, but on the prospect of narrower differentials, even if that policy had not yet been delivered.

Figure 9. The US Dollar: Up on the Escalator, Down in the Lift



This opens the prospect for all the USD gains since late 2021 or early 2022 to be swept away as the Fed gradually shifts from record-fast tightening to slower or zero tightening, and sometime in 2023 or 2024, a shift to easing. Here the discussion is in conventional terms – i.e., what happens to the Fed funds rate, whereas what really matters from an economic and forecasting perspective is what happens to broad money growth.

Summary and Conclusions

- Excess US M2 growth showed up first in asset price inflation, then in a strong economic recovery, and finally in the form of CPI inflation – initially in goods prices, but shifting in recent months to service prices – hotel rates, restaurant prices, airline tickets, rents, and wages…
- Along the way, the shift of demand from services to goods created supply chain disruptions and other distortions or shortages.
- The helicopter drop of excess broad money growth will drive ***overall*** prices up by approximately 28% in the US, 17% in the UK, and lesser amounts in Canada, Australia, New Zealand and the euro area – all measured from the start of the Covid pandemic.
- No one can say if the relation between goods and service prices will return exactly to pre-Covid norms after this episode of inflation, but some degree of normalization should be expected.
- Already inflation is increasingly migrating from goods prices to stickier service prices such as rents, OER (owners' equivalent rent in the CPI and PCE measures of inflation), and wages as all these prices catch up.
- The prices that increased rapidly in the early stages of Covid -- such as certain commodity prices, electronic chip prices, auto prices, and freight rates are already falling, reflecting the newly tightened monetary growth rates around the world (e.g., since the start of 2022 in the US).
- For a while we will witness seemingly contradictory signals as some prices continue to rise under the influence of past excess money growth, while others fall under the influence of the newly constrained money growth rates.
- In overall terms, US inflation will stay high (in the 5-6% range) for longer than most people expect, but then it will plunge – probably in mid or late 2024. The economy will suffer a deeper recession than is currently discounted.
- All this has big implications for profit margins, yield curves and interest rate differentials, as well as currency values.
- **Margins** in 2023 will be squeezed between rising wages and rents on the one side and falling pricing power – as demand weakens due to a more serious recession than is currently expected – on the other side.
- **Yield Curves.** In the 2- to-5-year space, Fed talk of keeping financial conditions tight until inflation is forecast to be back at 2% could keep yields high in the "belly" of the curve. However, in view of the severity of the downturn, and the prospect of a rapid decline in inflation in 2024, long-term yields should start to decline significantly during the second half 2023.
- **Currencies** will remain volatile until markets have a clear view of the Fed's future interest rate trajectory. However, as the investment community becomes more convinced of a pivot by the Fed towards easing in mid- to late-2023, the USD will weaken sharply.

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