



Causes and Consequences of the Abrupt Downturn in US M2 Growth

Introduction and Overview

- Between February 2020 and March 2022 US M2 growth averaged 16 % p.a.
- However, in the three months to June and based on the H.6 data released on July 26, M2 growth has plunged abruptly to -1.3% on a 3-month annualised basis (using seasonally adjusted monthly data), and -4.4% on a 13-week annualised basis (using weekly data which is *not* seasonally adjusted). Either way, this is a dramatic decline.
- This Newsletter explains why the sudden collapse has occurred.
- In one sense this represents a repeat of the Fed errors that led to the repo spike of September 2019.
- In another sense it demonstrates the Fed's obsession with interest rate management and its failure to pay due attention to the quantity of money.
- My past research has shown how abrupt but **sustained** changes in money growth have had a big impact on asset prices and economic activity in the short term and on inflation in the longer term.
- ***If the current decline in money growth is extended through the rest of 2022*** (i.e., nine months from its initial absolute decline in April) it is unavoidable that the US will experience a significant recession starting in late 2022 or in 2023, despite the excess money balances currently in the system.
- However, ***the overhang of excess money balances will continue to contribute to rising prices***, keeping inflation in the 5-8% range in 2023 and possibly into 2024. This is well above the Fed's 2% target, or FOMC projections, even making allowances for the Fed targeting the core PCE deflator. In short, 2023 threatens to be a year of stagflation.

International Monetary Monitor Ltd

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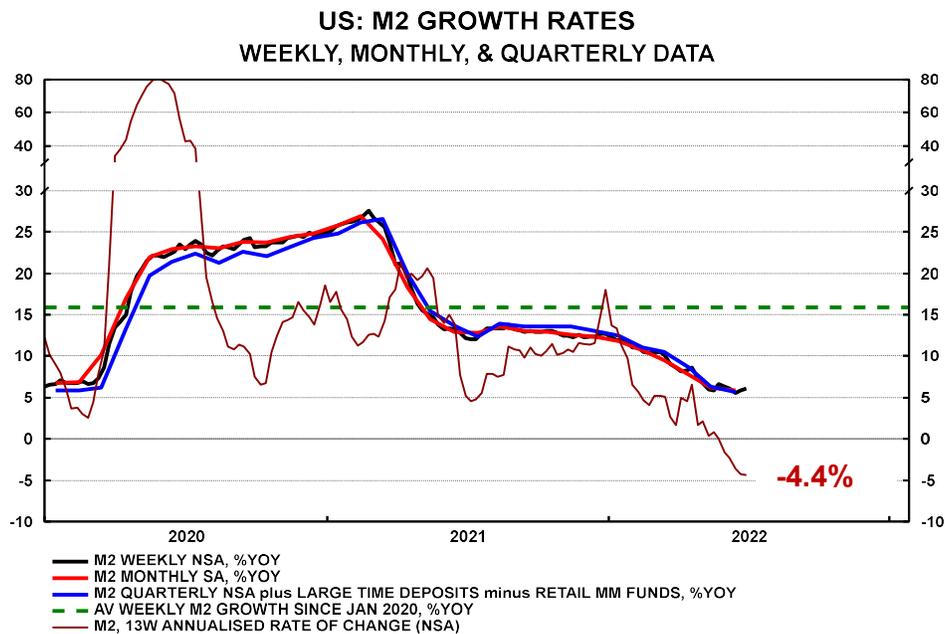
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The Abrupt Downturn in M2

A distinguishing feature of the monetary research that I do is an emphasis on the accounting transactions between central banks, commercial banks, and the non-bank public. This enables us to track how money balances being created and destroyed.

Recently, many people have been puzzled by the sudden downturn of M2 growth even before the Fed had started Quantitative Tightening (QT). The deceleration is historic in scale, speed, and duration. Based on 13-week annualised changes of seasonally adjusted weekly data back to 1980¹, there have been only a handful of such absolute declines in M2. Only one since 1980 lasted for three months or more -- the one from February to April 1993. The remainder were all momentary declines. (NB On p.7 below I mention three other historic declines based on monthly data.)

Figure 1. A Dramatic Downturn in US Money Supply (M2)



What is puzzling to most observers is that the deceleration of M2 started at the beginning of January – well before the Fed began raising rates in March and before the Fed started doing QT in June. Moreover, during this period commercial bank loans, which are normally regarded as the source of new bank deposits and money creation in modern banking systems, have been growing rapidly. What is the explanation?

¹ Regrettably, since February 2021 the Fed no longer releases seasonally adjusted weekly data for M2, although they do publish a weekly unadjusted series. In Figure 1 I have used the Fed's unadjusted weekly M2 data.

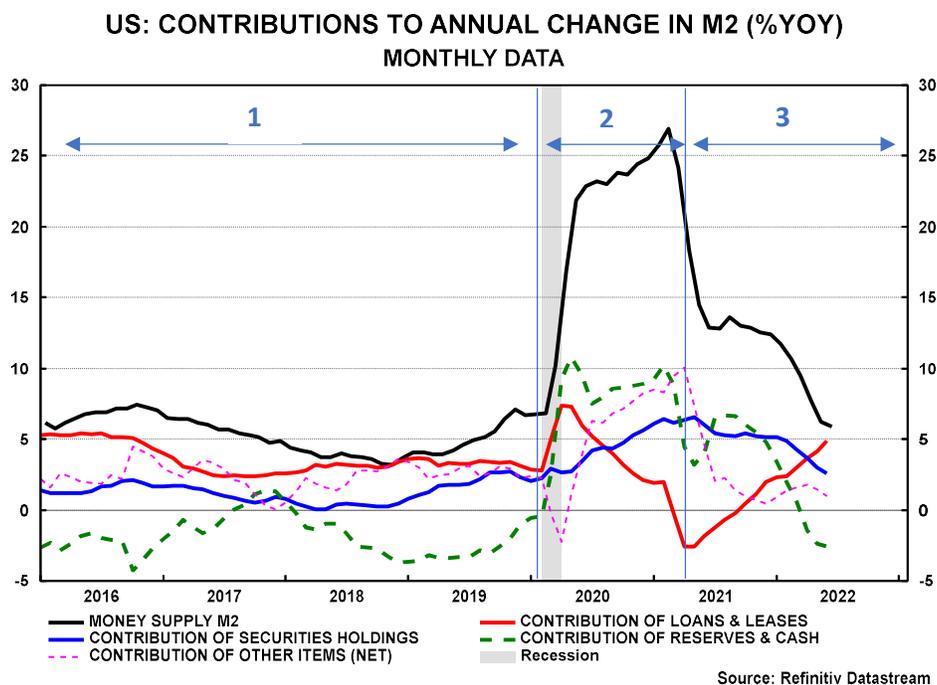
The problem with the “loans-create-money” perspective is that it is not complete -- it overlooks changes in other crucial components of the balance sheets of the central bank and the commercial banks.

Sources of the Downturn in M2

A straightforward way to explain the abrupt downturn in M2 and wider measures such as proxies for the now sadly – and mistakenly -- discarded M3 is to use counterpart analysis. (A description of the method is set out in the Appendix, p. 11.)

Figure 2 shows the contributions of the key asset counterparts to M2 growth in the period since 2016. Percentage changes in the components sum to the percentage year-on-year growth rate of M2.

Figure 2. Explaining the Downturn in US Money Supply (M2)



We can divide the chart above into three periods:

1. Normal times (2016-19). In the “normal,” pre-pandemic period, bank lending (in red) was the major driver of M2 growth, while bank holdings of securities (in blue) generally made a smaller positive contribution to M2 growth. Since the Fed was doing QT from December 2017 to September 2019, the contribution of reserves (the green dashed line) was mostly negative. The residual (the pink dashed line) was also positive most of the time.



2. The Pandemic (February 2020-March 2021). At the start of the pandemic corporate America drew down close to \$1 trillion of credit lines, hence the upward spike in the red line. However, corporate treasurers soon found that the decline in economic activity combined with support from the federal government meant they needed less loans from the banks, so the bank lending contribution to M2 growth fell away. Contrasting with the pre-pandemic period, bank holdings of securities made a greater contribution to M2 growth than loans and leases. But the biggest contributing factor (until March 2021 on a year-on-year percentage basis) most of the time was the expansion of banks' reserves, reflecting QE purchases by the Fed. (This roughly corresponds to the contribution of Federal Reserve credit mentioned in the WSJ op-ed that I wrote with Prof. Steve H. Hanke, published on July 7.²)
3. Post-Pandemic. Now that the economy is recovering vigorously, the contribution of bank lending to M2 growth has picked up, whereas the acquisition of securities (Treasuries, MBS, agencies etc) by the banks has slowed. But the major change has been the shift to negative of the contribution of reserves as reverse repos (RRPs) have expanded and the Fed has embarked on QT. The recent contribution of the residual has been small.

The decline in reserves is further elaborated on p. 5 and in Figure 3 below. However, the key point about the QT period the US has just entered is that even if loans are growing strongly, they can be offset either by declining reserve growth and/or by slowing securities growth. Contrary to what Janet Yellen and other Fed officials have said, the runoff of securities from the Fed's balance sheet is **not** "like watching paint dry." In my view, the runoff of reserves from the Fed's balance sheet was the underlying cause of the rate spike in the repo market in September 2019, an episode when reduced reserves squeezed banks' holdings of High-Quality Liquid Assets (HQLA), putting pressure on non-bank borrowers and lenders in the repo market. In turn this forced the Fed to abandon its balance sheet runoff.

As an aside it is worthwhile addressing the frequently made claim that QE -- in the form of new deposits at investment institutions deriving from Fed asset purchases -- has less impact on GDP spending than bank lending to corporations or households. From this, it is claimed, fiscal handouts are a better way to stimulate the economy. Proponents of this view are making the mistake of only considering the first-round effects. The institution that sells securities to the Fed will receive a new deposit, and will no doubt soon convert that deposit to a higher earning asset, transferring those funds to another entity or entities in the economy. It takes time for this "portfolio rebalancing" to be completed and to percolate right across all sectors of the economy. Also, as explained by the permanent income hypothesis, it takes time for consumers and businesses to adjust to the QE-derived windfall additions of cash to their portfolios. These are two major reasons why there are "long and variable" lags between the growth of money and its impact on asset prices, the real economy, and

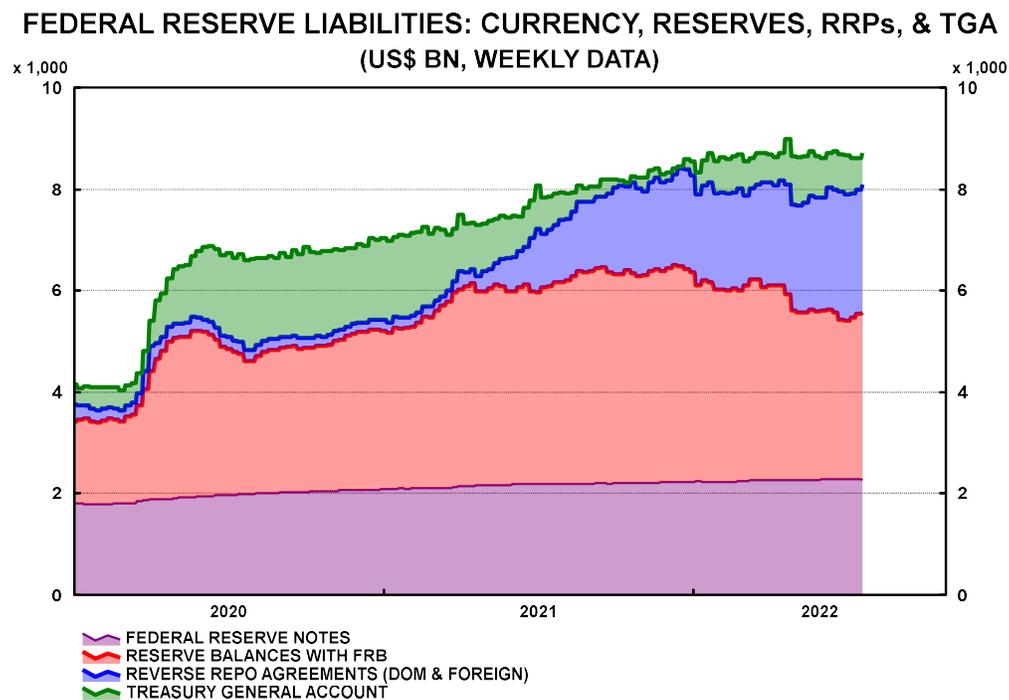
² https://www.wsj.com/articles/federal-reserve-ignored-the-money-supply-and-inflation-recession-coming-11657210800?mod=Searchresults_pos6&page=1

inflation. Recipients of fiscal handouts may spend those additional sums quickly, but the excess money remains in the economy. The important question is how long it takes for the ratio of total money balances to spending on nominal GDP (or its inverse, income velocity) to revert to its pre-crisis trend.

Factors Driving Reserves

How can it be that the reserve deposits of banks at the Fed – which we have identified as the main source of the decline in broad money or M2 growth – have declined so much before any significant reduction has occurred in the overall size of the Fed’s balance sheet?

Figure 3. Factors Affecting Reserve Balances of Banks at the Fed



Source: Refinitiv Datastream

Taking them in turn, there are four main factors which account for the size of banks’ reserves at the Fed.

1. When the Fed conducts asset purchases (QE) of securities, the deposit account of the seller (usually a non-bank) at a commercial bank is credited, and the bank seeks settlement from the Fed. This is obtained by the Fed crediting the reserve account of the seller’s bank at the Fed. These two transactions (a) increase the money supply (deposits held by the non-bank public) and (b) increase the reserves of banks at the Fed. The surge of reserves between March 2020 and December 2021 can be clearly seen in Figure 3. However, there are also continuous or intermittent drains of reserves occurring.



2. The first source of steady outflow is the growth of currency outstanding. To be ready for currency withdrawals by domestic or overseas customers, a bank must top up its inventory of banknotes, purchasing them from the Federal Reserve. The amount is debited to the reserve account of the bank at the Fed. As shown in the chart, currency outstanding tends to grow very steadily. Since purchases of currency by banks are matched by debits to bank reserve accounts, the overall size of the Fed's liabilities does not change, only its composition.
3. The second source of reserve rundown is the growth in the volume of Reverse Repurchases or RRP.³ Until April 2021 this facility – a deposit facility against collateral offered by the Fed – was only available to foreign central banks and other sovereign agencies. As shown in Figure 3, the amounts were typically \$200-300 billion per day. However, to prevent money market rates falling below the lower end of the range set for the administered Fed funds rate, the Fed began to offer RRP facilities to domestic institutions. Initially the rate was set at 0% in April 2021. It was raised to 0.05% (5 basis points) in June 2021, and subsequently, as the Fed began raising rates, it has moved up to reach 2.3% as of July 28, 2022. Based on recent data from the New York Fed which operates the RRP facility, just over 100 counterparties are eligible to participate -- mainly Money Market Funds, but also Government Sponsored Enterprises (GSEs), Federal Home Loan Banks (FHLBs), and Primary Dealers. They are all incentivised to participate because they are not entitled to receive the higher interest on reserves (IOR) like member banks that hold reserves at the Fed. As of July 26, the amount of overnight RRP stood at \$2.189 trillion. To access the RRP facility, participants will instruct their bank to make payments to the Fed, which requires a debit to the reserve account of the participant's main or member bank at the Fed. In effect, funds are transferred from reserves to the RRP account at the Fed, but the overall size of the Fed's balance sheet remains unchanged.
4. Finally, there is the Treasury General Account, or TGA. This account receives payments of federal tax or other obligations from the private sector, and it funds expenditures of the federal government. These payments are again settled by debits or credits to banks' reserve accounts at the Fed. In recent years due to disputes with Congress over raising the debt ceiling, successive administrations have built up funds in the TGA against a period when they may not be able to issue new Treasury debt. In addition, at the start of the Covid crisis, there was a huge "dash for cash" and a "dash for safe, liquid securities." The Treasury responded by issuing large volumes of Treasury bills

³ A reverse repurchase agreement conducted by the NY Fed, also called a "reverse repo" or "RRP," is a transaction in which the Fed sells a security to an eligible counterparty with an agreement to repurchase that same security at a specified price at a specific time in the future. The difference between the sale price and the repurchase price, together with the length of time between the sale and purchase, implies a rate of interest paid by the Federal Reserve on the transaction. [FAQs: Reverse Repurchase Agreement Operations - FEDERAL RESERVE BANK of NEW YORK \(newyorkfed.org\)](https://www.newyorkfed.org/faqs/Reverse-Repurchase-Agreement-Operations)



and Cash Management Bills (CMBs), which resulted in a build-up of funds in the TGA. Such build-ups drain reserves from commercial banks. Figure 3 shows the surge in TGA balances in 2020-21 and a renewed but smaller build-up since the start of 2022. Again, transfers to the TGA reduce reserves but do not change the overall size of the Fed's balance sheet.

We have said enough to show that substantial declines in reserves can occur even without the Fed reducing the size of its balance sheet. In fact, this is exactly what has happened during the first seven months of 2022. Between December 31 and July 29 reserves **fell** by \$859 billion while the Fed's total balance sheet **increased** by \$133 billion. As QT ramps up towards the Fed's target of \$95 billion per month from September, the debits to reserve accounts will need to be offset on the books of commercial banks by strong loan growth if commercial bank balance sheets and the money supply are not to decline continuously.

Implications for Financial Markets, the Economy and Inflation

Needless to say, the consequences of the monetary downturn – if **sustained** – for financial markets and the US economy could be dramatic. Currently financial market participants appear to be assuming a benign outcome as oil and gas prices fall back and supply chain problems are gradually resolved. Therefore, despite Fed Chair Powell indicating at his July 26 post-FOMC meeting press conference that there could be further increases of the Fed funds rate of 50-75 basis points, bond and equity markets have taken some reassurance from the notion that these hikes will mark the end of the financial squeeze and have rallied.

In my view such optimism is dangerously premature.

The last **sustained** absolute decline in M2 was in 1948 and before that 1929-32 and 1937 – the two pre-war episodes associated with deep recessions. Squeezing the money supply invariably has adverse effects on financial markets which hardly need to be spelled out. In addition, after 6-9 months the impact will be felt on output or real GDP as the outstanding real purchasing power of households and firms (i.e., M2 or wider definitions of money expressed in real terms) is eroded -- not only by on-going inflation but also by the shrinkage of the outstanding money stock.⁴

I have stressed several times in this article that it is **sustained** changes in the rate of growth of money that matter for changing the direction of real GDP 6-9 months later, and the same applies for inflation. However, with inflation there is an even longer lag – typically another 6-9 months after the impact on output, making for a

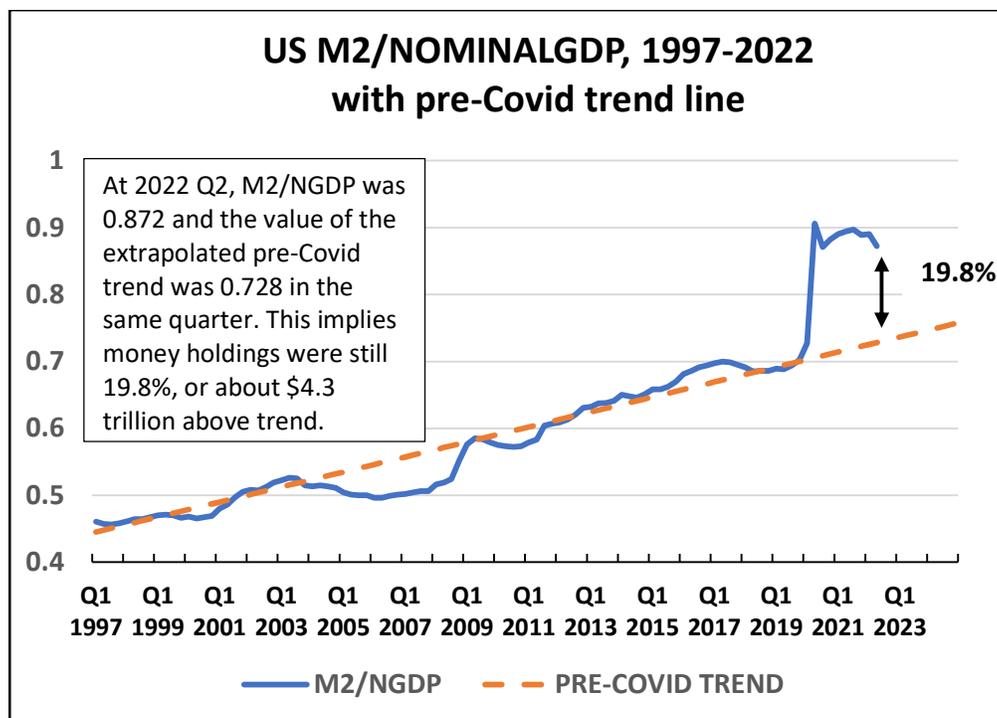
⁴ For a description of the transmission process and a summary of the different lags-in-effect of changes in monetary growth, please see my Business Cycle Basics, Parts 1 & 2, available at www.eri-c.com or "The Counter-Revolution in Monetary Theory" by Milton Friedman (IEA Occasional Paper 33, 1970), pp. 22-23.

lag of 12-18 months between changes in money growth and changes in inflation, though the lag can be as long as 2-3 years or more if the society affected has experienced a long period of very stable prices so that expectations of price stability are firmly embedded.

The US has enjoyed almost three decades of relative price stability since the early 1990s. Nevertheless, inflation expectations have become more elevated for short time horizons of 2-3 years, as indicated by the difference between the yield on nominal Treasury securities and Treasury inflation-protected securities (TIPS) which show a “breakeven” rate of about 3%. Even so, it is puzzling that bond yields have remained so low for so long. Have investors been so completely hoodwinked by Fed propaganda to the effect that the inflation, although no longer “transitory”, will be short-lived and fall back to the FOMC’s median projection (in June) of PCE inflation of 2.2% by 2024? To me this seems fanciful.

More importantly such projections are based on false models of inflation -- such as the idea that inflation is a product of the Phillips curve and the output gap, or is generated by exogenous supply chain problems, or by the effects of the war in Ukraine on food and energy prices. These “models” misdiagnose the underlying causes and the process by which inflation spreads through the economy.

Figure 4. The Overhang of Excess Money Balances in the United States



Sources: M2 from the FRB and nominal GDP from the BEA via Refinitiv Datastream.



To illustrate the problem, consider the large overhang of money balances currently threatening price stability in the United States as shown by the ratio of M2 to nominal GDP (or the inverse of velocity) in Figure 4. The excess of money balances relative to trend is a result of (a) the Fed ignoring the quantity of money over the past few decades and (b) more specifically implementing QE during the Covid pandemic. By purchasing securities and by engaging in a variety of lending schemes, the Fed not only expanded its balance sheet by \$4.8 trillion between March 2020 and March 2022 when QE finally stopped, but also caused the broad US money supply to increase by an extraordinary \$6.3 trillion, or by 41% on a cumulative basis. *(This had not happened in 2009-14 under QE1, QE2 and QE3 because at that time the banks were either shrinking their loan books or raising capital, both of which tended to offset the impact of the Fed's purchases of securities on the money supply.)* .

As background, it needs to be appreciated that velocity (or its inverse, the ratio of broad money to nominal income or GDP) is, in the words of Nobel laureate and pioneer of econometrics, Lawrence Klein, “one of the five great ratios of economics”.⁵ In almost all economies – developed and emerging – except those experiencing high inflation, velocity has a steady *downward* trend. Conversely, this implies a steady *upward* trend for M2/Nominal GDP (or Cambridge k), which generally rises at between +1% and +3% p.a. In this respect the US is no different to other countries, although from 1945 until the late 1990s it was an anomaly – though for specific, identifiable reasons. (See my Business Cycle Basics, Part 6 on Income Velocity at www.eri-c.com or contact IMM@eri-c.com).

Given the remarkable stability of the trend in either velocity or its inverse (the ratio of money-to-income in Figure 4), if an excess of money is created, the monetarist hypothesis is that Americans collectively will seek to restore their ratio of money balances to income to the trend that prevailed before the increase. This requires spending excess money balances.

Based on the trend of the ratio of money balances to income since 1997, Figure 4 shows that the amount of money Americans are now holding relative to their income is about 20% above its pre-Covid trend line. The question is, how long will it take to work off that excess and for the actual holdings to re-converge to the trend?

Inflation Forecast and Conclusion

Since mid-2020 I have assumed that it will take until at least the end of 2024 for the ratio of money balances to income to return to its pre-Covid trend. This means that during the three years 2022-24, spending in nominal terms will be higher than one would normally expect based on money growth and income velocity alone. There is

⁵ The reference for the seminal article is: Lawrence Klein and Richard Kosobud, “Some econometrics of growth: great ratios in economics” *Quarterly Journal of Economics*, 1961.



not only the spending due to any increase in broad money, but in addition there is the spending due to the attempt to reduce the excess money balances accumulated during the Covid period.

Spending, or nominal GDP, comprises a real component and an inflation component. Since real GDP can only account for about 2 percentage points of the additional nominal spend, this means that inflation will account for the residual. This in turn means inflation will remain elevated until those excess money balances have been substantially reduced. (We cannot expect all the excess balances to be spent in one year.) In broad terms, the convergence of money balances relative to income back to trend – running down the excess 20% in Figure 4 -- implies an inflation profile for the GDP deflator something like this:

2022: 8%

2023: 6%

2024: 4%

A return to 2% is only achieved in 2025 at the earliest. This forecast is necessarily conditional on numerous underlying assumptions, and the decline of inflation could easily be accelerated or delayed by numerous factors such as a renewed outbreak of the pandemic, or large changes in energy prices that would change the profile of measured inflation but would not affect the underlying inflationary pressure.

My forecast stands in marked contrast to the FOMC's projections for inflation (in June 2022) when the median forecast was for 2.6% PCE inflation in 2023 and 2.2% in 2024. In the light of the non-trivial need to run down the excess money balances I have discussed in this paper, the FOMC forecasts seem overly optimistic.

In closing I wish to address one important, related issue. Given the excess money balances relative to trend, many people ask why is it not possible to eliminate the excess rapidly? The answer is that **substantial and sustained** changes in money growth first impact asset prices, then economic activity, and finally -- after about two years -- inflation. Therefore a policy of abruptly draining the excess money balances would have serious consequences for asset prices and the economy well before it started to impact inflation. This is why I have advocated a policy for the Fed of moving directly to a broad money growth rate of around 5-6% and not trying to correct for past mistakes.

Unfortunately, having stepped too hard on the accelerator during the Covid period, the Fed now seems intent on stepping too hard on the brake.

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Appendix

To measure the contributions to US money growth of different items, we first consolidate the balance sheets of the Federal Reserve System and the commercial banks. Since money (= currency + deposits) is in part a liability of the central bank (i.e., the currency held by the public) and in part a liability of the commercial banks (i.e., the deposits), we can examine trends on the asset side of the balance sheets of the two sets of banks to identify the sources of changes in the money supply. Next, we sum the changes in the key asset counterparts that match the change in deposits or money supply. In simplified arithmetic form we have:

Liability side:

$\Delta M2 = \Delta \text{Bank deposits} + \Delta \text{Cash in circulation with the public, and}$

Asset side:

$\Delta M2 = \Delta \text{Federal Reserve Credit} + \Delta \text{Commercial Bank Credit} +/- \Delta \text{Others (net)}$

where:

$\Delta \text{Commercial Bank Credit} = \Delta \text{Loans and Leases} + \Delta \text{Holdings of Securities.}$

Note that in this formulation the residual “ Δ Others (net)” includes items like changes in the cash currency holdings of the non-bank public, which is part of M2 but is not reflected in the first two items on the right-hand side of the equation. Also, commercial banks’ balance sheets may change for other reasons such as debt or equity issues by banks which can lead to increases in bank credit that do not correspond to changes in the deposits comprising M2.

For the US, the weekly commercial bank data are drawn from the H.8 release, and M2 from H.6.

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