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Central Banks: Data and Narrative Dependent

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Abstract

Central banks act "data-dependent", but they remain stuck in old models. Investors could benefit if they paid more attention to the money supply and its influence on inflation.

Zusammenfassung

Zentralbanken agieren „datenabhängig“, doch bleiben sie in alten Modellen verhaftet. Investoren könnten profitieren, wenn sie die Geldmenge und deren Einfluss auf die Inflation stärker berücksichtigen.



Central banks actively pursue an inflation target, primarily via interest rate policy. They discarded their previous inflation models after failing to predict the post-pandemic surge in inflation. Now, they claim to be “data-dependent,” yet their data selection remains rooted in the old “output gap” model. Market participants, aware of the importance of interest rate policy, closely monitor the same data central banks use to make decisions. They overlook, however, the development of the money supply, which offers relevant signals for inflation trends. Investors with a longer time horizon could benefit by focusing on the true drivers of inflation rather than on the data central banks prioritize.

Data-dependent central banks: what data?

Macroeconomic models commonly used to explain inflation rely on the Phillips curve, according to which there is a negative relationship between inflation and the production potential of an economy. Potential output estimates the level of production achievable if labor and capital operate at full capacity. When production exceeds this potential, labor and capital are strained, leading to rising prices as supply struggles to meet demand.

These models assume that central banks can control the economy. When inflation arises, the central bank is expected to raise policy rates to make borrowing more expensive, thereby “cooling demand” and reducing capacity utilization, which should, in theory, bring inflation down.

However, the empirical evidence supporting this narrative is weak. For years, academics have debated why the Phillips curve have flattened or who has killed it.¹ Because central banks nevertheless used this model as a guide, they incorrectly interpreted the rise in inflation in 2021 as temporary.

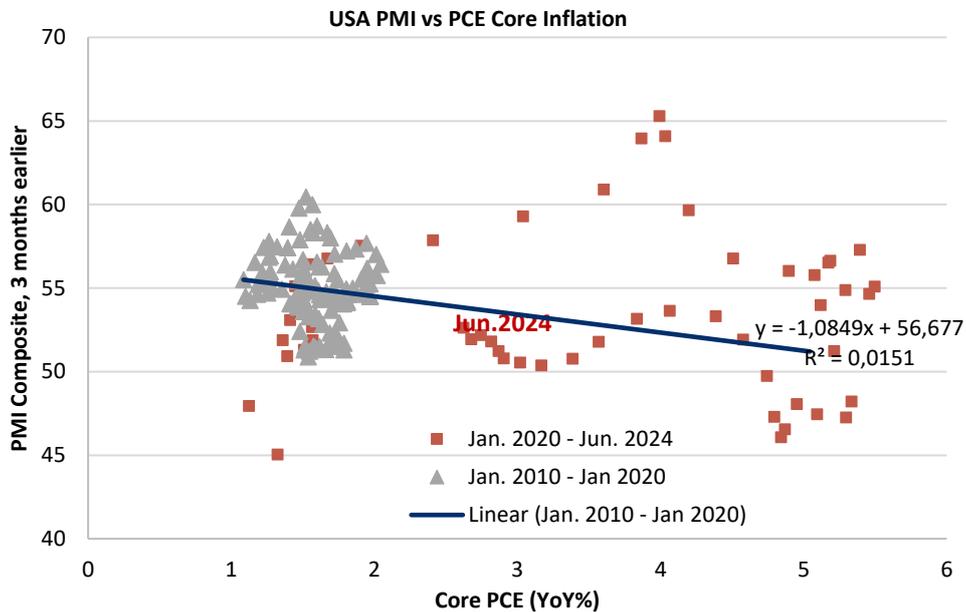
Although the central banks have since discarded this model for interest rate policy making and, according to their own statements, are “data dependent”, they still follow the old approach conceptually. They look for signals of “overheating” or “cooling” of the economy from indicators of the real economy.

However, it’s doubtful that an interest rate policy based on these signals can effectively control inflation. While purchasing managers’ indices (PMIs) are seen as reliable economic indicators and summarize the data central banks monitor, the correlation between PMI and core PCE inflation—the Fed’s target—in the United States is statistically insignificant (Figure 1). This holds true for both simultaneous and lagged relationships between the variables.

¹ See, for example, Del Negro et al. (2020), Ratner & Sim (2022), Stock & Watson (2020).



Figure 1: There is no correlation between the PMI and core inflation in the United States



Source: Flossbach von Storch Research Institute, S&P Global, BEA. Data from: 02.08.2024. Note: both variables are 3 month moving averages while the PMI leads inflation by three months

If purchasing managers' indices do indeed provide a good and timely summary of economic development and capacity utilization, it means that central banks are relying on data that are not very relevant for understanding inflation. Nevertheless, many market participants follow this approach because central bank decisions are more important to them than the actual development of inflation.

What are the markets looking at?

Robert Armstrong and his team regularly discuss the mood and concerns of financial market participants in the Financial Times column "Unhedged." It's evident from their discussions that market participants closely monitor actual data and leading economic indicators.²

A study by the Bank for International Settlements (BIS) shows that PMIs and financial market variables are indeed highly correlated.³ Financial market variables also react to surprises in the PMI data.⁴ In recent years, PMI readings that were higher than the median of a Bloomberg survey have been accompanied by slight reductions in yields on 2-year US government bonds (Fig. 2, correlation coefficient -0.24).

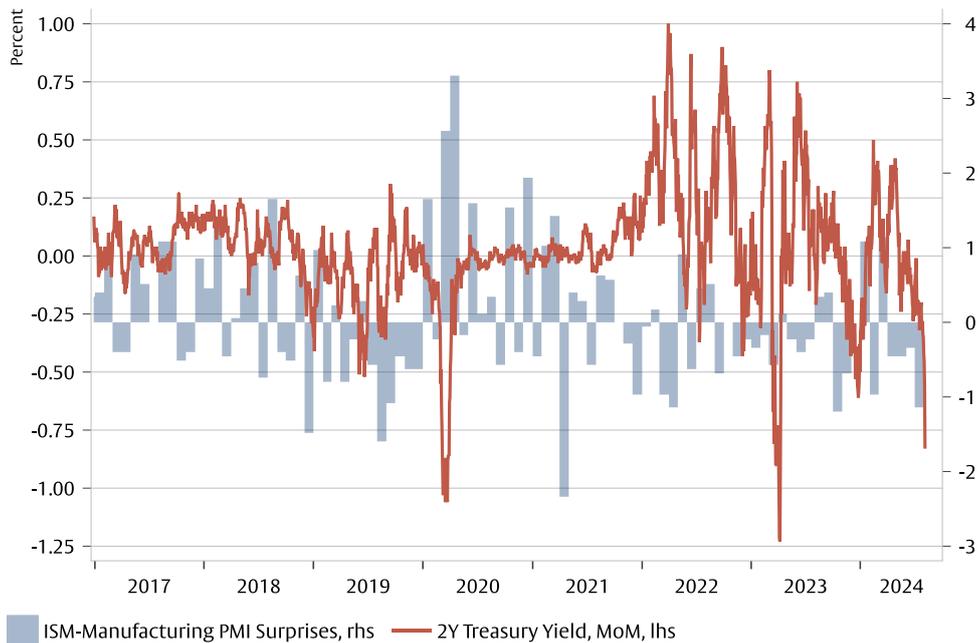
² See [Falling inflation, sturdy economy, happy Fed \(ft.com\)](#).

³ See Erik et al. (2019).

⁴ See Datta et al. (2021).



Figure 2: The two-year US Treasury yield and PMI surprises sometimes go hand in hand



Source: Flossbach von Storch Research Institute, S&P Global, Macrobond. Data from: 05.08.2024.

If the relationship between growth and inflation does not correspond to the output gap model, then central banks are on the wrong track. Market participants follow them because to many the interest rate policy decisions are more important than what they achieve.

What should we focus on?

Inflation can arise through several channels, all of which should be considered (Mayer, 2024). In a recent commentary in the *Journal of Monetary Economics*, US economist Gregory Mankiw (2024) recommended a stronger focus on the money supply. His argument is simple: those who accurately predicted inflation did so by correctly assessing the development of the money supply.

The fact that there is a relationship between money supply and the price level is nothing new. The quantity theory of money ($M * v = P * Y$), which originated in the 16th century, states that nominal income over a given period must correspond with a certain money flow.⁵ This money flow ($M * v$) consists of the money supply (M) and the frequency with which money changes hands, known as the velocity of money (v). Income ($P * Y$) is composed of real income (Y) and the price level (P). Originally, this relationship was defined as an identity. However, the velocity of money (v) tends to change slowly over time, while production (Y) is determined by real economic factors. Therefore, the development of the money supply should at least temporarily influence the price level.

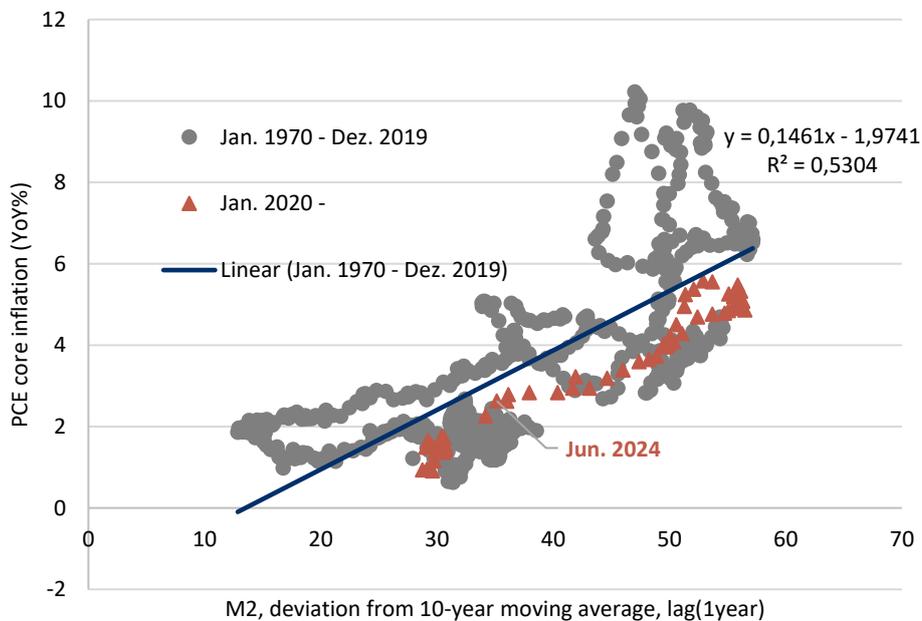
⁵ See Mayer (2022).



Mayer (2022) defines a money overhang as “an expansion of the money supply (M) that is not compensated for by a corresponding fundamental increase in the demand for money (permanent decline in v).” A money overhang must therefore be reflected in a higher nominal income. Since real income is not primarily dependent on the money supply, but on productivity growth, a money overhang is likely to be accompanied by an increase in the price level.

Given that both the money supply and nominal income in the U.S. are trending upward, it is useful to examine deviations from this trend. Unlike with PMIs, the correlation between deviations in the M2 money supply from the 10-year average and the (annual) core PCE inflation one year later is positive and statistically significant, both before and after the pandemic (Fig. 3). This relationship has proven to be robust over time.

Figure 3: United States, money overhang vs PCE core inflation

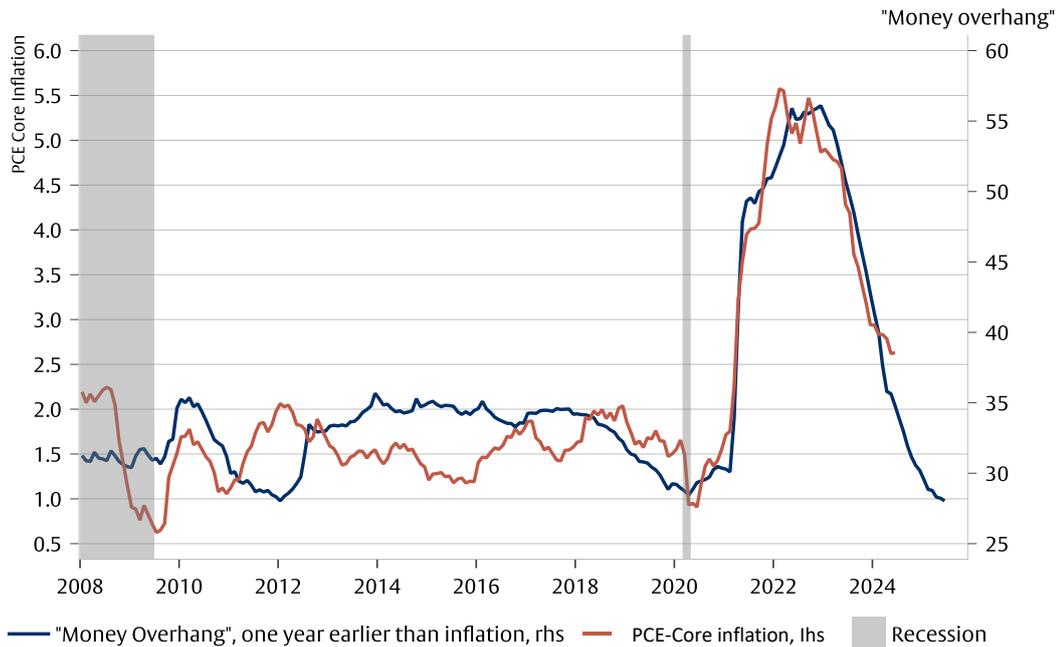


Source: Flossbach von Storch Research Institute, S&P Global, BEA. Data from: 02.08.2024.

Between 2009 and 2019, the gap between the money supply and its 10-year average ranged from 30 to 35% (Fig. 4). With the expansive monetary measures implemented to combat the pandemic, this gap increased to 55% and remained at that level for several months. Core inflation rose to over 5% twelve months later and stayed at that level as well. The decline in our money surplus indicator coincides with a subsequent decrease in inflation. If this correlation persists over the next twelve months, it could suggest that the money surplus has diminished, meaning prices may no longer rise as sharply. Consequently, inflation would likely return to pre-pandemic levels.



Figure 4: Core inflation has so far followed the money overhang



Source: Flossbach von Storch Research Institute, Macrobond, Fed, BEA, NBER. Data: 8/5/2024.

However, this forecast comes with some uncertainties. First, a change in the velocity of money due to a structural shift in money demand could alter the correlation, causing the gap from the trend associated with 2% inflation and real U.S. growth to be higher or lower. Potential reasons for this include higher energy prices due to geopolitical tensions or increased wages driven by labor shortages. Second, a recession could trigger an expansionary monetary policy, potentially creating a new money overhang. However, if the current trend in the money supply remains relevant, a moderate decline in core inflation in the US over the next twelve months seems likely.

Conclusion

Although central banks emphasize that they are “data-dependent”, their selection of indicators shows that they continue to follow models that focus on the real economy. However, the development of the money supply provides other important indications of inflation developments. Short-term investors will likely continue to follow the central banks' perspective, as interest rate movements are crucial for them, even if monetary policy misses the mark on inflation. However, longer-term investors should keep an eye on the development of the money supply, as it significantly impacts inflation and could force central banks to adjust their interest rate policies.



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