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# The present monetary policy framework is seriously flawed

MICHAEL BIGGS<sup>1</sup> AND THOMAS MAYER<sup>2</sup>

## Abstract

The present approach to monetary policy is perhaps best described by the Taylor Rule, the Phillips curve, and a belief that the monetary policy stance can be defined by the level of the real policy rate ( $r$ ) relative to a perceived real natural or neutral rate ( $r^*$ ). But there is no mechanism in practice that would induce the economy to respond when central bankers discern a difference between financial market rates and a hypothetical  $r^*$  regarded as consistent with long-term non-inflationary growth.

## Zusammenfassung

Der gegenwärtige geldpolitische Ansatz wird vielleicht am besten durch die Taylor-Regel, die Phillips-Kurve und die Annahme beschrieben, dass der geldpolitische Kurs durch die Höhe des realen Leitzinses ( $r$ ) im Verhältnis zu einem als natürlich oder neutral angesehenen realen Zinssatz ( $r^*$ ) definiert werden kann. In der Praxis gibt es jedoch keinen Mechanismus, der die Wirtschaft zu einer Reaktion veranlassen würde, wenn die Zentralbanker eine Differenz zwischen den Finanzmarktzinsen und einem hypothetischen  $r^*$  feststellen, der als mit einem langfristigen nichtinflationären Wachstum vereinbar angesehen wird.

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<sup>1</sup> Portfolio manager, GAM Investment Management, London, UK.

<sup>2</sup> Founding Director of the Flossbach von Storch Research Institute, Cologne, Germany.



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The present approach to monetary policy is perhaps best described by the Taylor Rule, the Phillips curve, and a belief that the monetary policy stance can be defined by the level of the real policy rate ( $r$ ) relative to a perceived real natural or neutral rate ( $r^*$ ). This framework is rooted in Wicksell's (1898) definition of the natural rate of interest as the real short-term interest rate consistent with output growth at its long-term rate and inflation stable. It has been captured in many modern empirical models of US output and inflation that are used to assess monetary policy, including Rudebusch and Svensson (1999) and Laubach and Williams (2003).

These models contain a Phillips curve equation that relates inflation to the output gap, and an "IS curve" equation that relates the output gap to its own lags and the monetary policy stance ( $r - r^*$ ). Inflation is seen as stable – ideally at the central bank's target when inflation expectations are anchored there – and economic growth at trend, when the real market interest rate is equal to the real natural or neutral rate. To quote Laubach and Williams (2003, p.1063): "The natural rate or equilibrium real rate of interest provides a benchmark for measuring the stance of monetary policy, with policy expansionary (contractionary) if the short-term rate interest rate lies below (above) the natural rate". Thus, if the real market interest rate is above (below) neutral, all else being equal, GDP falls (rises) below (above) trend, a negative (positive) output gap opens, and inflation declines (increases).

### **Monetary policy transmission via rate changes**

*But in the literature on monetary policy transmission, there is no mention of a transmission channel for the case of the policy rate simply being above or below the neutral rate without any changes.*

But how do interest rates above a neutral level cause GDP to fall below trend? The literature on monetary policy transmission does not yield an answer. Monetary policy transmission, to quote Burr et al. (2024), "describes how monetary policy – conducted through *changes* in the policy interest rate – affects financial conditions, expectations, economic activity and, ultimately, inflation." The literature on monetary policy transmission, from Mishkin (1995) to Burr et al. (2024), highlight a range of channels of transmission, including 1) the inflation expectations channel, 2) the investment channel, 3) the wealth channel, 4) the interest channel, 5) the credit channel, and 6) the exchange rate channel (Burr et al., 2024, p. 8). But in all these channels, the impact on economic activity is felt via changes in the policy rate. There is no mention of a transmission channel for the case of the policy rate simply being above or below the neutral rate without any changes.

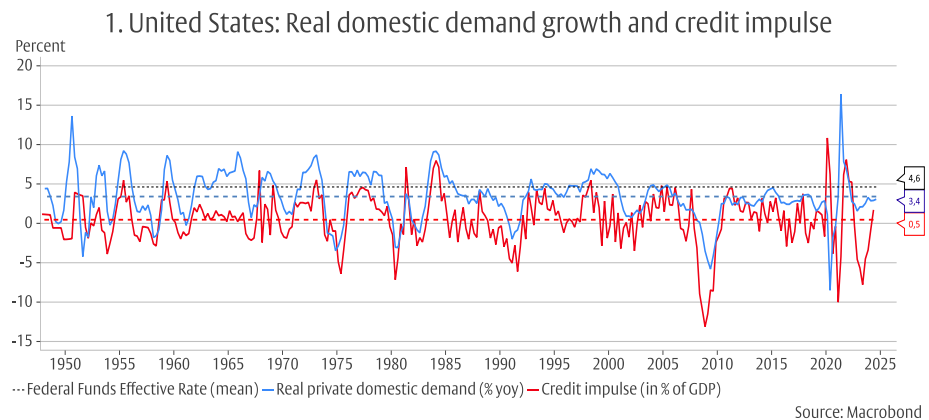
From the demand perspective, it makes intuitive sense that changes in interest rates should affect economic activity, but that the level of interest rates should have no direct impact. When the central bank hikes interest rates, credit conditions tighten, new borrowing falls, and spending declines. But if interest rates remain simply stable there is no reason why new borrowing



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should fall further, even if the interest rate is deemed to be above of an estimate of the neutral rate. And if new borrowing remains stable, then so should spending and inflation.

This is illustrated in Chart 1, where growth of US real private domestic demand is plotted against the change in credit flows to the private sector (in % of GDP, dubbed credit impulse, see Biggs and Mayer, 2012). As can be seen from there, since 1947 a credit impulse of 0.5 % of GDP has on average been associated with real private domestic demand growth of 3.4% without any discernible trends. During this period, the effective Federal funds rate moved around an average of 4.6%, inducing (among other drivers) deviations of demand growth and new borrowing from their mean.



A very literal extension of this logic would suggest that any interest rate level could be compatible with stable inflation and GDP growth at trend, so long as the interest rate remains stable. To avoid this implausible conclusion, followers of the present approach to monetary policy turn to growth theory to establish a longer-term anchor for real interest rates.

### Returns to capital and interest rates

*If the real neutral rate  $r^*$  is assumed to equal a real natural interest rate determined by the marginal return to capital when the economy is in long run equilibrium (in Wicksell's sense), levels of  $r$  and  $r^*$  begin to matter.*

Standard growth theory relates in equilibrium the level of the real interest rate to inter-temporal consumption choices and the marginal return to capital, which in turn affects the level of investment and capital stock growth. If the real neutral rate  $r^*$  is assumed to equal a real natural interest rate determined by the marginal return to capital when the economy is in long run equilibrium (in Wicksell's sense), levels of  $r$  and  $r^*$  begin to matter.

If we assume a well-behaved production function with declining marginal returns to capital, an increase in  $r$  initiated by the central bank to quell inflation would raise the expected required marginal product of capital, decrease investment, and slow the rate of capital stock growth. In time this would lead to rising unemployment, falling wages and lower inflation. This would induce



the central bank to cut interest rates until  $r$  is once again equal to the equilibrium real natural interest rate, which is equal to  $r^*$ , the rate consistent with non-inflationary growth. Thus,  $r > r^*$  would signal a restrictive stance of monetary policy, and a decline in  $r$  would make monetary policy only less restrictive, as long as  $r > r^*$  continues to hold.

### The epiphenomenal $r^*$

*As market rates and inflation have declined over the last four decades, estimation of the unobservable  $r^*$  have led to the result that the neutral rate of interest has declined and may even have become negative.*

These considerations have given rise to the view that  $r$  fluctuates cyclically around  $r^*$ . But what is the level of  $r^*$ ? Since it cannot be directly observed, conventional practice has been to estimate  $r^*$  as a trend of an actual series of market rates, or to back it out from a simple IS-Phillips curve state space model with data smoothed with a Kalman filter as in Laubach and Williams (2003) and Holston, Laubach and Williams (2023). As market rates and inflation have declined over the last four decades, these approaches have led to the result that  $r^*$  has declined and may even have become negative. But why should investors accept very low returns to capital and keep investing even when marginal rates of return turn negative? Would it then not make much more sense to consume (or perhaps hoard money when inflation is as low as it was before the Covid-19 pandemic)? The question comes up: Does this make sense?

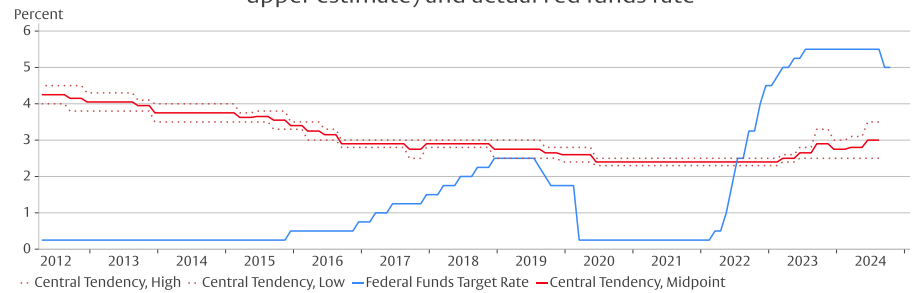
Probably not. For instance, US policy interest rates were very low by historical standards for most of the 2010s, but credit growth, private demand and inflation did not respond as expected and remained subdued. This led many observers to suspect that the neutral real interest rate  $r^*$  was much lower than imagined, perhaps because of “secular stagnation” (see below). Expectations of Federal Reserve Open Market Committee members for the longer-term Fed funds target rate came down accordingly (see Chart 2).

*As financial rates increased again, the debate has been about whether  $r^*$  could also have increased - perhaps because of higher productivity growth due to structural changes in the wake of the Covid-19 pandemic and other developments.*

Over the past 12 months, the debate has reversed as demand growth has remained resilient despite interest rates that are perceived to be well above neutral. Now the debate is about whether  $r^*$  could have increased - perhaps because of higher productivity growth due to structural changes in the wake of the Covid-19 pandemic and other developments (Schnabel, 2024). Interest rate expectations of FOMC members have increased as well, but the range of estimates has also widened. Uncertainty seems high as there is no hard evidence for why  $r^*$  should be moving around in this way.



2. United States: Expected longer-run Fed funds target rate (mid-point, lower and upper estimate) and actual Fed funds rate



As a result of the difficulties of empirical estimation of the unobservable “neutral rate”, Orphanides and Williams (2002) have suggested to modify the classical Taylor Rule given by:

$$i_t = r^* + \pi^e + 0.5(\pi_t - \pi^T) + 0.5(GDP_t - GDP^T)$$

with  $i$  the nominal interest rate,  $r^*$  the real neutral rate,  $\pi^e$  expected inflation,  $\pi_t$  actual inflation,  $\pi^T$  target inflation,  $GDP_t$  actual real GDP and  $GDP^T$  trend real GDP. Since we have little idea what  $r^*$  is, they suggest a more general rule abstracting from it (Orphanides and Williams, 2002, p.69):

$$i_t = \theta i_{t-1} + (1-\theta)(r^* + \pi^e) + 0.5(\pi_t - \pi^T) + (1-\theta)0.5(GDP_t - GDP^T) + \theta 0.5(GDP_t - GDP_{t-1})$$

The classical Taylor Rule is the special case where  $\theta = 0$ . If we acknowledge the uncertainty and put  $\theta = 1$  we get

$$i_t - i_{t-1} = 0.5(\pi_t - \pi^T) + 0.5(GDP_t - GDP_{t-1})$$

Thus, deviations of inflation from target and changes in GDP induce changes in policy rates, which in turn induce changes of inflation and GDP in the future. This fits into the exhibition of monetary transmission channels but does not allow to measure the stance of monetary policy as suggested by Laubach and Williams (2003).

### A “real-financial” divergence

Implicit in the argument for a convergence of  $r$  to  $r^*$  as described above is that policy and financial market interest rates are aligned with marginal returns to capital in the real economy. The data, however, suggest that movements in financial market interest rates can deviate from returns to capital in the real economy for very long periods. To illustrate this point, we take as a proxy for real financial market rates (for the sake of simplicity and to obtain

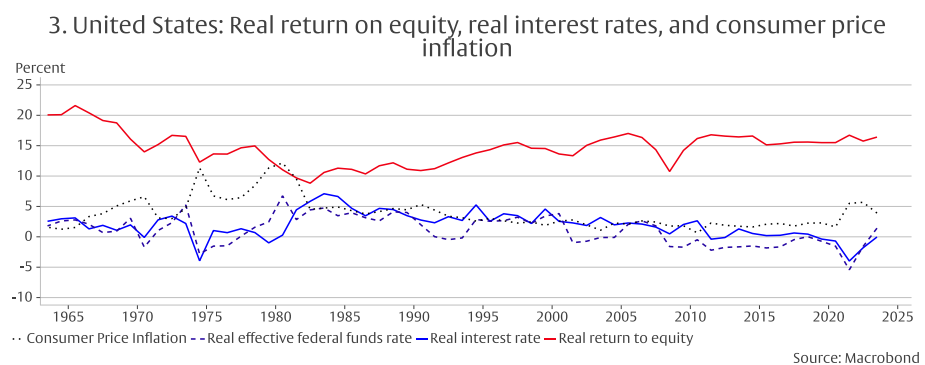
*As a result of the difficulties of empirical estimation of the unobservable “neutral rate”, Orphanides and Williams (2002) have suggested to look at changes instead of levels. This fits into the exhibition of monetary transmission channels but does not allow to measure the stance of monetary policy as suggested by Laubach and Williams (2003).*



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a longer time series) US 10-year yields less consumer price inflation.<sup>3</sup> We estimate returns to capital by taking corporate profits and proprietors' incomes and divide that by the non-residential capital stock.<sup>4</sup> As Chart 3 – which also includes consumer price inflation and the real federal funds rate – shows, real financial market interest rates declined steadily from 1980 to 2020 and slumped during the pandemic. Longer-term rates were well aligned with the real effective federal funds rate, which may have played an important influence bringing them down (Hillenbrand, 2023).

By contrast, real returns to capital came down from their high level of the early 1960s as inflation picked up as of the mid-1960s. They hit a low in the early 1980s, when the Federal Reserve under Paul Volcker ended inflation with record high interest rates. Thereafter, they increased again as inflation moved lower. There is reason to believe that the rise in inflation from the mid-1960s to the end-1970s diminished the return to capital (Zucchi, 2023). After this, the decline of inflation coupled with the decline in real interest rates contributed to its renewed rise.



*Brand et al. (2018) assert that “while real interest rates have declined for more than 30 years across advanced economies, rates of return on capital have not.”*

Using similar analysis, Brand et al. (2018) assert that “while real interest rates have declined for more than 30 years across advanced economies, rates of return on capital have not.” This has also held true as interest rates have increased. Shah et al. (2024) find that hurdle rates used by UK firms as criteria for undertaking investment projects have responded sluggishly to the recent increase in interest rates. Fukui, Gormsen and Huber (2024) show that hurdle rates are sticky with respect to expected inflation, with the implication that “... sticky discount rates make the short-term interest rate less effective at stimulating investment.”

<sup>3</sup> Using expected inflation from breakeven inflation rates gives an almost identical picture, but for a shorter observation period given the introduction of US inflation-index bonds (TIPS) not until January 1997.

<sup>4</sup> As proprietors' incomes especially for small firms contain an “entrepreneurial wage” this may overstate somewhat the true return to capital, but most likely in an insignificant amount.



*According to Garrison (2021), the real neutral interest rate is an artefact resulting from an incomplete representation of reality in a Keynesian economic framework (which, for instance, has no theory of capital formation).*

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This is of course not meant to say that the impact on the economy of a financial real interest rate of 10% is identical to one of 0%. At some point, the impact of the returns to capital should be felt. Over the past 40 years, however, the demand-side oriented approach to monetary policy succeeded in separating financial real interest rates from real returns to capital, arguably affecting asset prices more than new investment.

Changes in time preferences or technical progress will obviously lead to changes of the real interest rate consistent with an equilibrium growth path. Referring to the concept of Wicksell (1898), Garrison (2021) has called this interest rate the natural real interest rate, which is conceptually different from the neutral real interest rate discussed above. The natural real interest rate reconciles consumption, savings and investment to allow technical progress to translate into higher economic growth.

According to Garrison, the real neutral interest rate is an artefact resulting from an incomplete representation of reality in a Keynesian economic framework (which, for instance, has no theory of capital formation). In his view, the real neutral rate is entirely unrelated to the real natural interest rate. A central bank designing monetary policy based on fictitious differences between market and neutral interest rates is unable to change either time preferences or the rate of technical progress. It operates in a parallel financial world, where it can impact the real world only by creating boom-bust inflation and credit cycles.

### **Monetary policy implications**

The neutral rate concept played an important role in central banks' aggressive monetary policy easing during the 2010s and (again) the early 2020s. In an influential speech at an IMF conference on 8 November 2013, Larry Summers reintroduced the hypothesis of secular stagnation of the economies of industrial countries first raised by Alvin Hansen after the Great Depression.<sup>5</sup> The environment prevailing after the Great Financial Crisis of 2007-08 suggested that real neutral policy rates had fallen below zero, Summers argued. His speech prompted further research apparently supporting the argument. For instance, Holston, Laubach and Williams (2016) estimated a real neutral rate of only 0.4% for the US and -0.5% for the euro area for 2015.

Based on the notion that the nominal policy rate could not be lowered to the level commensurate with a negative real neutral rate when inflation was very low, the Federal Reserve implemented three rounds of "Quantitative Easing" (QE) during 2008-2014 and another round during the pandemic in 2020-21). The European Central Bank adopted two programmes of QE in 2015-18 and

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<sup>5</sup> See <https://www.youtube.com/watch?v=KYpVzBbQIX0> and Summers (2013).



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2020-22. During the 2010s the very easy monetary policy had no discernible influence on consumer price inflation, apparently confirming the secular stagnation hypothesis. Instead, high hurdle rates – perhaps reflecting increased risk premia required for undertaking new projects - may have discouraged real investment and been responsible for economic weakness.

But the policy of easy money triggered a strong rally of real asset prices, including equities and real estate, as investment in existing assets may have been regarded as less risky than the creation of new capital. In view of this rally, policy makers could have questioned the validity of the secular stagnation hypothesis as strong and sustained growth of real asset prices was not consistent with economic stagnation.<sup>6</sup> However, they continued to believe in the hypothesis. Only after five years of virtually zero rates, the Federal Reserve raised the Fed Funds target rate to 0.5 percent at the end of 2015 and kept it there for a year. During 2016-2018, they continued to lift rates in several steps, reaching 2.5 percent at the end of 2018, on the view that a somewhat less easy monetary policy was now justified. Had this raised  $r$  closer to  $r^*$ , things should have been fine. But asset markets sold off, and the Fed had to reverse course as of August 2019. Clearly, the hikes had triggered a response inconsistent with a monetary policy turning only somewhat less easy.

When economic activity slumped during the lockdowns in den Corona pandemic, policy makers expected deflationary effects and stepped-up QE again. Governments implemented large scale fiscal transfers to private households and companies to compensate them for the loss of income during the lockdowns. To fund government spending they issued government bonds, a large part of which was bought by central banks in their QE programmes. The combination of fiscal and monetary policy during the pandemic was like the monetary financing of wars in the 20th and 19th century (Bordo 2023). As during these earlier episodes, the forceful combination of expansionary fiscal and monetary policies triggered a rise of consumer price inflation not seen since the 1970s. Fiscal and monetary policy inspired by the neutral rate theory had misfired.

In response, central bankers de-emphasized the role of model-based inflation forecasts in the design of monetary policy and declared further decisions to be “data-dependent”. They also allowed for the possibility of an increase in  $r^*$  (Schnabel, 2024) and acknowledged the uncertainty of estimates (see

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<sup>6</sup> The Gordon Growth formula of the dividend discount model states that  $P = \frac{D}{k-g}$ , where  $P$  is the price of equity,  $D$  dividends,  $k$  the cost of capital (given by the sum of the risk-free rate and the equity risk premium), and  $g$  long-term earnings growth. If a decline in the risk-free rate would have reflected “secular stagnation”,  $k$  and  $g$  would have fallen simultaneously and  $k-g$  should have changed little, if at all. Hence,  $P$  should have remained unaffected. But if the risk-free rate was lowered by the central bank under otherwise unchanged circumstances,  $k-g$  declined and  $P$  increased, as we could observe over last decades.



Chart 2). But they did not abandon the framework and have continued to use it to assess the stance of monetary policy.

### **Why did recent aggressive rate hikes not cause a recession?**

When central banks reversed course and raised interest rates significantly and rapidly, most economists expected a recession. The yield curve, a reliable early warning indicator of recessions in the past, inverted. Yet, economic developments defied expectations. An explanation for this can be found in the examination of the interest rate channel identified by the Burr et al. (2024).

First, the pass-through of policy rate increases to borrowing rates of private households may have been delayed as borrowers used the low levels of longer-term rates during the pandemic to borrow at rates fixed for an extended period. Higher policy rates are only felt when the period during which the rates were fixed has expired and borrowers feel the upward adjustment to higher market rates. Second, at any given level of interest rates, the interest expenses of debtors match the interest income of lenders. Interest rate increases only depress demand when borrowers reduce spending by more to cover interest payments than lenders increase spending from additional interest income. This should normally be the case as savings rates between the two groups tend to differ. However, the effect is neutralized when borrowers have accumulated cash which they can run down as interest rates rise. This seems to have been the case during the pandemic.

While the first effect will bite borrowers eventually when their borrowing rates are reset, the second effect could have neutralized the impact of rate increases and hence made monetary tightening ineffective. If both effects have played a role, it follows that the post-pandemic tightening of monetary policy was less effective than usual (see also Ferreira et al., 2024). And if, as we suggest in this note, we cannot claim that monetary policy is still restrictive because the actual rate is above some fictitious neutral rate as there is no sound theoretical and empirical foundation for such a claim, recent and prospective rate cuts may impart a positive credit impulse to the economy with the result that demand increases and inflationary pressures rise again.

### **Conclusions**

If fluctuations in demand are driven by changes in financial market rates in response to changes in policy rates, and if marginal returns to capital can diverge from financial interest rates for long periods, then the stance of monetary policy cannot be measured by differences between  $r$  and (a hard to pin down)  $r^*$ . There is simply no mechanism in practice that would induce the economy to respond when central bankers discern a difference between financial market rates and a hypothetical  $r^*$  regarded as consistent with long-

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*There is simply no mechanism in practice that would induce the economy to respond when central bankers discern a difference between financial market rates and a hypothetical  $r^*$  regarded as consistent with long-term non-inflationary growth.*



term non-inflationary growth. A monetary policy framework built on the assumption that the policy stance can be gauged by  $r - r^*$  is therefore flawed.

Thus, when central bankers presently view rate cuts from recently high levels as a merely less restrictive monetary policy stance because they imagine a low  $r^*$  (well below returns to capital), they run the risk of again inducing excess demand growth and its inflationary consequences.

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