

Research Brief



Monetary policy stance central to exchange rate developments

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Sören Karau

How does monetary policy affect the exchange rate? This question is important to central banks because the exchange rate has an indirect impact on inflation. It has therefore been looked at extensively in the economic literature. Even so, there is no consensus on how monetary policy impulses take effect over time and on their overall importance for exchange rate developments. A recent study delivers new insights: monetary policy impulses take full effect with no time lag and could play a greater role for exchange rate developments than previously thought.



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The euro depreciated markedly against the US dollar at the end of 2024. Many observers pointed to differences in the monetary policies of the Federal Reserve System (Fed) on the one hand and the Eurosystem on the other. While key interest rates in the euro area were at that time expected to fall throughout 2025, the Fed was expected to make barely any cuts to the interest rate in the United States. Because higher interest rates attract capital, the expected interest rate differential should have strengthened demand for the US dollar and weakened the euro accordingly.

Can we conclude from this that divergent monetary policies are the real reason for the euro's depreciation? Not necessarily – after all, central banks do not set their monetary policies arbitrarily. In fact, they respond to developments in the real economy and in inflation. So if interest rates are expected broadly to fall in the euro area, part of the reason is that market participants are anticipating lower economic growth and price pressures in Europe than in the United States. In addition, a more dynamic US economy should become more attractive to investors, leading to relatively higher demand for the US dollar and thus strengthening the US currency. Viewed from this angle, the real reason for the exchange rate movements would not be diverging monetary policies but rather the divergent economic developments to which monetary policy is merely responding. Determining the causal effect of monetary policy on exchange rate changes therefore is not an entirely straightforward exercise.

A new study (Karau, 2024) investigates the effect of exogenous monetary policy measures – independent of other economic drivers – on the exchange rate. Unlike in previous analyses, monetary policy changes are taken into account as comprehensively as possible – with regard to both their implementation and potential transmission channels.

Causal effect of monetary policy measured by exchange rate responses to central bank announcements

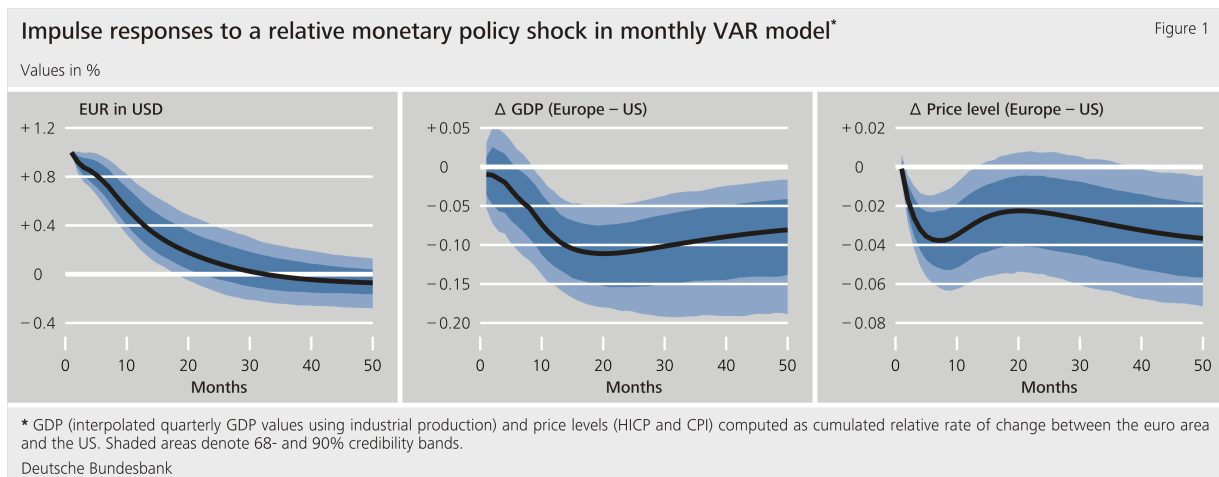
Recent research on the causal effects of monetary policy measures how financial market prices react to monetary policy announcements. If no other important information is released in narrow windows of time around the announcement, it is assumed that only the monetary policy news associated with the announcement is responsible for any observed price changes. A significant increase in money market interest rates immediately after a monetary policy announcement, say, would be a measure of an independent monetary policy impulse that is frequently used in the literature (Rüth, 2020).

However, looking at money market rates alone could underestimate the importance of monetary policy to exchange rates for a number of reasons. First, monetary policy implementation has changed over time. Many central banks have taken unconventional monetary policy measures since the global financial crisis of 2008. Because these often take effect through changes in longer-term yields, these responses would not be captured by changes in money market interest rates. A second reason relates to transmission channels. Central banks have been shown to have a significant influence on financial markets beyond their effect on interest rates – irrespective of whether short-term or long-term – for example through the willingness of financial market participants to take risks (Kroencke et al., 2021). And third, previous analyses are generally confined to an examination of changes in just one central bank's monetary policy. However, as the exchange rate is the relative price between two currencies, what should matter is changes in the relative monetary policy stance, such that both policies should be modelled at the same time.

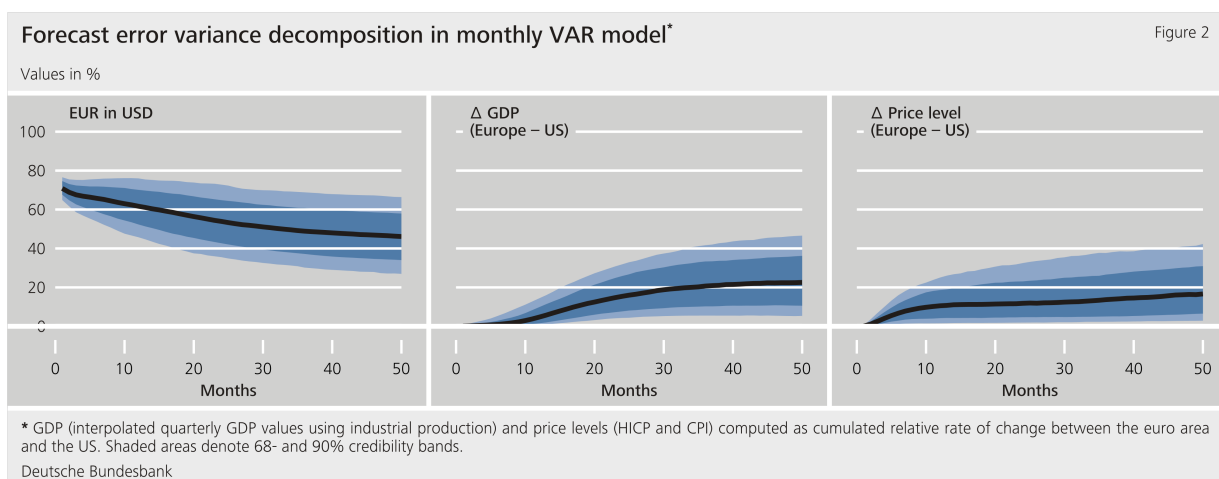
Given the above reasons, the study presented here uses the immediate response of the exchange rate to announcements by the two central banks involved as a measure of a relative monetary policy impulse. In other words, it uses changes in the euro/US dollar exchange rate in response to announcements by the Fed and the Eurosystem, for example. This approach ensures that all changes in monetary policy related to the exchange rate are fully captured. In line with the more recent literature, this measure is then used as an instrumental variable in a structural vector autoregressive (VAR) model (Stock & Watson, 2018). This means the analysis can be extended over time: instead of confining it to the narrow windows of time around central bank announcements, the effect of monetary policy impulses ("shocks") can be calculated over weeks and months and their significance quantified.

Monetary policy impulses take full effect for exchange rates immediately

Figure 1 shows how some of the model variables respond to a relative monetary policy shock that causes the euro to appreciate by 1 % relative to the US dollar. The shock is a tightening of the Eurosystem's monetary policy stance compared with that of the Fed. In line with theoretical predictions, economic activity and the price level in the euro area decline with some delay compared with the United States.



The exchange rate response shows no signs at all of a delay. This is in fact consistent with the theoretical predictions of classic exchange rate models. These state that after a restrictive monetary policy shock a currency should immediately appreciate steeply and then gradually depreciate again over time. By contrast, most empirical studies find that the exchange rate responds with at least a little delay, meaning that the effect does not peak until a few months or even years later (for example, Eichenbaum & Evans, 1995; R  th, 2020). One possible explanation for these differences is that exogenous changes in monetary policy previously have not been captured sufficiently.



Changes in the relative monetary policy stance responsible for a large part of exchange rate developments

Figure 2 shows the share of the unexpected variation in the exchange rate and economic developments that can be explained by the monetary policy shock over time. Likewise in contrast to many empirical studies, the model shows that monetary policy is highly relevant to the exchange rate. Immediately after the monetary policy shock occurs, it explains just over two-thirds of the exchange rate variation, and it is also important over longer periods. By contrast, exogenous changes in the relative monetary policy stance play a much smaller role in how economic activity and prices develop in the two currency areas relative to each other.

Conclusion

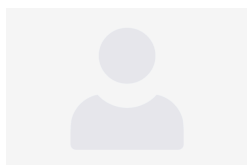
Although the exchange rate is not a variable targeted by monetary policy, it has indirect effects on inflation. It is therefore important for central banks to understand how monetary policy affects exchange rates. When monetary policy impulses are captured more comprehensively than before using high-frequency data, it becomes clear that exchange rates do not respond with delayed overshooting. The overall monetary policy stance also appears to be more significant to exchange rate developments than has been documented in the literature so far.

References

- Eichenbaum, M. and Evans, C. L. (1995). Some Empirical Evidence on the Effects of Shocks to Monetary Policy on Exchange Rates. The Quarterly Journal of Economics, 110 (4):975-1009.
- Karau, S. (2024). Relative Monetary Policy and Exchange Rates. Bundesbank Discussion Paper No 40/2024.
- Kroencke, T. A., Schmeling, M., and Schrimpf, A. (2021). The FOMC Risk Shift. Journal of Monetary Economics, 120:21-39.
- Rüth, S. K. (2020). Shifts in monetary policy and exchange rate dynamics: Is Dornbusch's overshooting hypothesis intact, after all? Journal of International Economics, 126: 103344.

Stock, J. H. and Watson, M. W. (2018). Identification and Estimation of Dynamic Causal Effects in Macroeconomics Using External Instruments. *Economic Journal*, 128(610): 917-948.

Authors



Sören Karau

Deutsche Bundesbank, Directorate General Economics

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