



Economic Commentary

# **Exchange rate pass-through to consumer prices in Sweden: the case of bilateral exchange rates**

Stefania Mammos and Dmytro Stoyko

No. 12 2024, 28 June

# Exchange rate pass-through to consumer prices in Sweden: the case of bilateral exchange rates<sup>1</sup>

---

Focusing on changes in bilateral exchange rates of the Swedish krona, this Economic Commentary provides estimates for the Exchange Rate Pass-Through (ERPT) to consumer prices. We find that the krona's variation against the US Dollar is associated with a lower ERPT compared to variation against the Euro. We elaborate on the possible economic rationales behind this result and comment on some of the statistical limitations of our exercise.

---

Authors: Stefania Mammos and Dmytro Stoyko of the Monetary Policy Department.<sup>2</sup>

## Introduction

The relationship between changes in exchange rates and prices is known as the Exchange Rate Pass-Through (ERPT). The ERPT can influence inflation and real economic activity and, hence, monetary policy. Currencies of small open economies such as Sweden are typically particularly volatile, which may further magnify the importance of the ERPT for monetary policy.

The Riksbank does not have a target for the exchange rate. However, as changes in the Swedish krona affect the inflation outlook, they are often a debated topic. It is common practice to refer to a trade-weighted basket of currencies (KIX) when discussing the krona's movements.<sup>3</sup> While variants of the KIX index are also regularly used, there could be reasons to also focus on bilateral exchange rates. This can be the case, for example, when movements in the KIX index are driven by movements against one specific currency only. There could be additional reasons related to the configuration of an economy, such as the share of imports invoiced in a given currency.

In this Economic Commentary, we complement the existing evidence about the ERPT to consumer prices in Sweden by estimating the ERPT against two bilateral exchange rates. Specifically, we investigate whether a depreciation of the Swedish krona against

---

<sup>1</sup> Economic Commentaries are brief analyses of issues with relevance for the Riksbank. They may be written by individual members of the Executive Board or by employees at the Riksbank. Employees' commentaries are approved by their head of department, while Executive Board members are themselves responsible for the content of the commentaries they write. The opinions expressed in Economic Commentaries are those of the authors and are not to be seen as the Riksbank's view.

<sup>2</sup> We would like to thank Björn Lagerwall, Hanna Armelius, Vesna Corbo, Jens Iversen and Oskar Tysklind for valuable comments.

<sup>3</sup> The KIX is a weighted average against 31 countries that are important for Sweden's international trade.

either the US Dollar or the Euro is associated with an ERPT to consumer prices of similar magnitude.

Our results can be summarized as follows. First, according to our point estimates, the krona's variation against the US Dollar is associated with a lower ERPT compared to variation against the Euro. This is to be expected, as the weight on the US Dollar in the KIX index is much smaller than the weight on the Euro. However, the ERPT against the Dollar is lower than implied by the weights in the KIX index. A possible economic explanation for this is that the Swedish krona tends to depreciate against the US Dollar in states of elevated economic uncertainty and weak domestic and/or global aggregate demand. Hence, while the depreciation in itself pushes up Swedish consumer prices, the associated depressed demand pushes down consumer prices leaving an ERPT close to zero. Second, our point estimates are characterized by a non-negligible degree of statistical uncertainty, as statistical tests do not reject the hypothesis of equality of ERPT coefficients across the two currencies.

## Diverging economic developments might affect the bilateral exchange rates

Recent economic developments point to different performances across economic blocs. In the US, output indicators and economic confidence have been higher than in the Euro area and Sweden. In both the US and the Euro area inflation has continued to fall, although at a slower pace in the former. This divergence has affected monetary policy. For instance, the US Federal Reserve has recently opted for an unchanged interest rate, while the ECB has lowered it by 25 basis points.

The uneven economic developments have raised the question about to what extent they might be translated into relative prices of currencies. A possible scenario is to observe a broad US Dollar appreciation over time, driven by continuous economic over performance and tighter monetary policy. In this sense, the implications of an appreciation of the US Dollar for Swedish consumer prices appear worth analyzing.

## The US Dollar and the Euro are global reserve currencies

The Euro and the US Dollar are both reserve currencies, with the latter having a stronger status. One of the characteristics of a reserve currency is that it is extensively used in cross-border transactions around the world. In practice, this results into a disproportionate share of global trade in goods, such as commodities, being priced in US Dollars.

The weights of the Euro and the US Dollar in the KIX index are about 46 and 8 percent respectively. Thus, the weights point to a larger importance of the Euro for the Swedish economy. In fact, a simple calculation suggests that the ERPT of krona movements against the Euro should be roughly 6 times as large as movements against the Dollar. However, the weight of the US dollar might be larger than the KIX implies, not

least because roughly half of the Swedish import from outside the EU is priced in US Dollars.

Recent empirical evidence suggests that the currency in which the imports are priced, and its development against the domestic currency, might have a particularly important impact on the development of inflation (Boz et al., 2022). One could therefore posit that the importance of the US Dollar for the development of the Swedish consumer prices might be underestimated by the weights in the KIX index.

## Bilateral exchange rates and the ERPT in Sweden

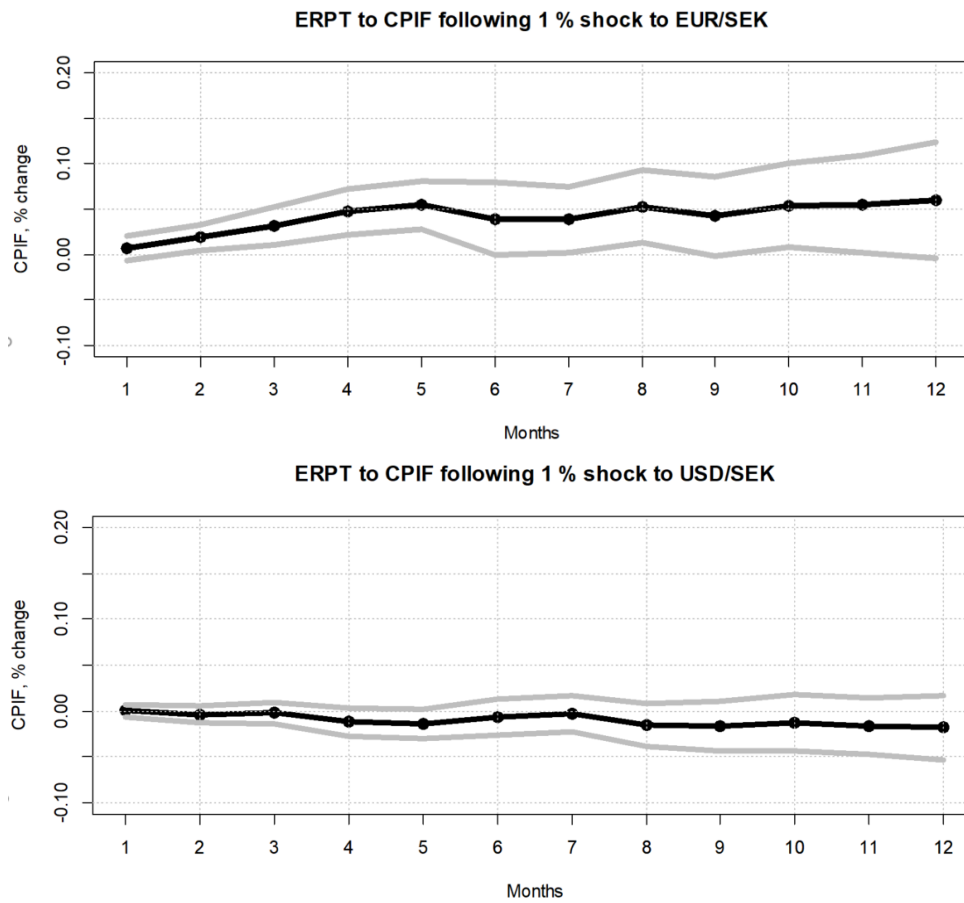
To estimate the ERPT of changes in krona against the US Dollar and the Euro, we perform an empirical exercise inspired by Almgren and Stoyko (2024). We refer to that paper for further discussion of the methodology.<sup>4</sup>

Figure 1 below shows the cumulative changes in the CPIF index with 90 percent confidence intervals, for both bilateral exchange rates and at different horizons. According to Figure 1, a permanent 1 percent depreciation of the Swedish krona against the US Dollar is associated with an ERPT to the consumer prices that is not statistically different from zero after 12 months. An equivalent depreciation against the Euro is associated with a positive ERPT and significant throughout nearly the entire estimation horizon.

---

<sup>4</sup> Our specification is equivalent to that eq. (1) in Almgren and Stoyko (2024, p. 7). In this Economic Commentary, however, every variable denominated in the KIX-2 index is unweighted and enters the equation separately. Moreover, it has been observed that the Swedish krona often tends to depreciate against both the Euro and the US Dollar at the same time. We take into account this stylized fact by controlling for the Euro when studying the effects of a depreciation of the Swedish krona against the US Dollar, and vice versa.

Figure 1. Bilateral exchange rates and the ERPT to consumer prices in Sweden



Note: ERPT estimates for the CPIF index following a 1 percent permanent depreciation of the Swedish krona against the Euro and US Dollar, denoted by the black dotted lines. The grey solid lines represent the 90 percent confidence intervals. Based on monthly data between 2000m2 and 2023m10.

Sources: Authors' calculations using data from Macrobond.

The point estimates in Figure 1 suggest that the ERPTs are different with the ERPT against the US Dollar being close to zero. This is consistent with the structure of the KIX index, where the US Dollar has a considerably smaller weight. But it does not explain why the ERPT is zero or even slightly negative. An interpretation of this latter result is the following. The US Dollar acts as the global reserve currency while the Swedish krona is a volatile currency of a small open economy. Overall, these features might translate into a tendency of the Swedish krona to depreciate against the US Dollar in times of heightened uncertainty and associated weak states of global and/or domestic demand. While such a depreciation might increase the costs for importing firms, these firms might nevertheless choose to not pass on the increased costs, as demand is low. In turn, the net effect of this process could result into an ERPT close to zero.<sup>5</sup> Finally, despite the difference between the two point estimates in Figure 1, statistical tests at 90 percent confidence level lead to the conclusion that is not possible

<sup>5</sup> Corbo and Di Casola (2022) show that the ERPT to consumer prices might even be negative, following global or local negative demand shocks.

to reject the hypothesis of identical ERPTs across the two exchange rates at any point in the estimation horizon.<sup>6</sup>

## Conclusion

This Economic Commentary provides estimates for the bilateral ERPT to consumer prices in Sweden. We find that a depreciation of the Swedish krona against the US Dollar is associated with a lower ERPT than an equivalent depreciation against the Euro. One possible explanation is that depreciations of the Swedish krona against the US Dollar, as opposed to the Euro, tend to coincide with periods of economic uncertainty and weak states of aggregate demand. Overall, our results involve a non-negligible degree of statistical uncertainty implying that we cannot reject that the ERPTs are identical. Further work, for example using identified exogenous exchange rate shocks, is needed to arrive to more conclusive evidence.

---

<sup>6</sup> Imposing a lower confidence level leads to a partial rejection of the hypothesis of identical ERPT to consumer prices across the two bilateral exchange rates.

## References

Almgren, Märta and Dmytro Stoyko (2024), "Is there state-dependence in the exchange rate pass-through to inflation in Sweden?", Staff memo, Sveriges Riksbank, April 2024.

Boz, Emine, Camila Casas, Georgios Georgiadis, Gita Gopinath, Helena Le Mezo, Arnaud Mehl, and Tra Nguyen, (2022), "Patterns of invoicing currency in global trade: New evidence." *Journal of International Economics* 136: 103604.

Corbo, Vesna and Paola Di Casola, (2022), "Drivers of consumer prices and exchange rates in small open economies.", *Journal of International Money and Finance* 122: 102553.



**SVERIGES RIKSBANK**

Tel +46 8 - 787 00 00

[registratorn@riksbank.se](mailto:registratorn@riksbank.se)

[www.riksbank.se](http://www.riksbank.se)

PRODUCTION SVERIGES RIKSBANK