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FX intervention to stabilize or manipulate the exchange rate? Inference from profitability

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Central banks generally justify FX intervention as a tool to stabilize the exchange rate against temporary excessive fluctuations. Yet critics argue that FX intervention is often used to manipulate the exchange rate away from equilibrium levels, for example to gain a competitive advantage. To shed light on central banks' intentions, we examine the profitability of FX swaps used by the Central Bank of Brazil. We find that FX intervention is profitable in expectation, suggesting that it is used primarily to lean against temporary deviations of the exchange rate from UIP equilibrium conditions.

Many emerging markets make extensive use of foreign exchange (FX) intervention. In most cases, central banks claim that they intervene to stabilize the exchange rate, by leaning against excessive temporary movements. However, critics see FX intervention as a tool to manipulate the value of the exchange rate away from equilibrium conditions. For example, central banks may want to keep an undervalued exchange rate to improve export competitiveness or resist a fundamental-driven depreciation to shield domestic borrowers with FX debt.

To shed light on central banks' intentions, in a recent paper we analyse the profitability of FX intervention in line with the argument put forward by Friedman (1953). If central banks use FX intervention to lean against temporary deviations of the exchange rate from uncovered interest parity (UIP) conditions, they should make a profit over time. By going long in the domestic currency when the exchange rate is undervalued from a UIP standpoint, the central bank makes money as the exchange rate eventually returns to its equilibrium level. Similarly, by shortening the domestic currency when it is temporarily overvalued, the central bank makes a profit as the currency depreciates over time. If instead the central bank tries to manipulate the exchange rate away from UIP conditions, for example by going long in the local currency when it is bound to depreciate, it would incur a loss. Recent literature provides theoretical underpinnings for this argument (Maggiori and Gabaix, 2015).

The case of Brazil

The analysis is based on data from Brazil between 2013 and 2022 because of two key advantages. First, during this period the Central Bank of Brazil intervened in the FX market using primarily FX swaps rather than intervention in spot markets.[1] FX swaps have an explicit maturity date which makes it possible to transparently calculate the profitability of each FX operation based on the exchange rate dynamics during the life of the swap. Measuring the profitability of traditional FX intervention in the spot market is much more difficult because when the central bank buys or sells FX reserves it does not announce when it plans to reverse the position.

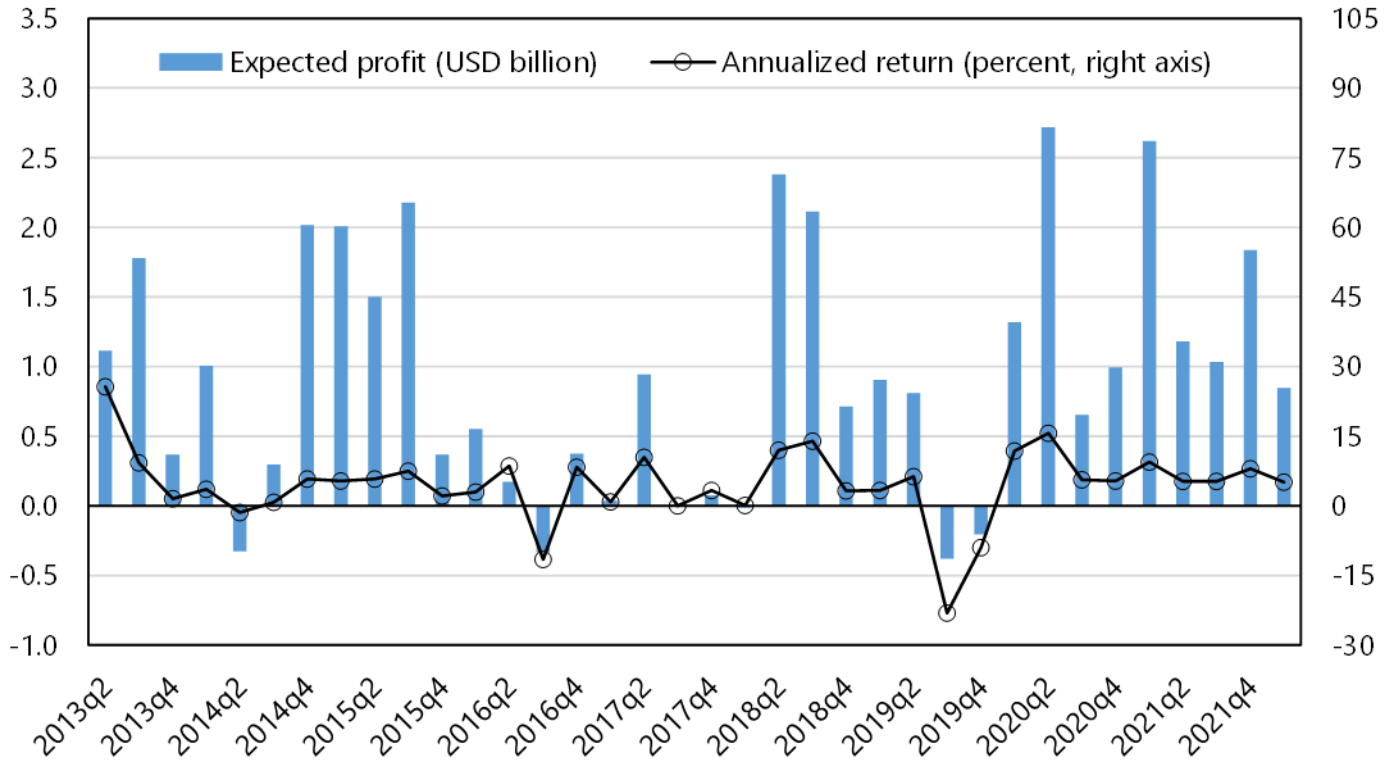
Second, the Central Bank of Brazil collects rich survey data on exchange rate and interest rate forecasts by market participants and other institutions. Using these data, we can examine the profitability of FX swaps from an ex-ante perspective, considering the expected evolution of the exchange rate at the time of the intervention rather than its ex-post realized values. By focusing on the ex-ante/expected (rather than ex-post/realized) profitability of FX intervention, the analysis provides a more accurate test of whether the central bank intervened in the FX market when the exchange rate was perceived to be out of equilibrium based on the expectations at the time of the intervention.

FX intervention was profitable in expectation

The analysis finds that FX intervention was considerably profitable in expectation, generating expected annualized returns of about 10 percent on average (Figure 1). FX intervention was profitable both when the central bank took short positions in the Brazilian *real* as well as when it took long positions. Furthermore, the direction and scale of FX intervention responded to UIP deviations. The central bank issued more swaps by going long in the *real* when the exchange rate was more undervalued from a UIP standpoint and vice versa. These findings provide robust and consistent evidence that FX intervention was used to smooth perceived temporary excessive movements of the exchange rate.

[1] Despite the name, these instruments are more similar to non-deliverable futures than conventional currency swaps.

Figure 1: Profitability of FX intervention



Notes: The blue bars report the total expected profits for the central bank from the sale or purchase of FX swaps during each quarter. The black circles show the average annualized return on the FX swaps sold or bought by the central bank in each quarter.

We also document that FX intervention was more aggressive when there was less uncertainty about the future level of the exchange rate, captured by a narrower distribution of survey forecasts. Thus, greater clarity about the future exchange rate level emboldened the central bank to intervene more aggressively when UIP deviations emerged. Finally, we find that the central bank responded more strongly to an overvaluation of the *real* by reducing the stock of outstanding swaps than to an undervaluation. This asymmetry may reflect the equivalence between the issuance of swaps and a reduction in FX reserves since they both reduce the central bank's net position in foreign currencies. As such, the central bank may have been more hesitant to increase swaps than to reduce them.

Open questions

The analysis poses two important questions for future research. First, if FX intervention responds systematically to UIP deviations as measured using survey forecasts, should central banks explicitly link FX intervention to such UIP deviations? Could this provide investors with greater clarity about the FX intervention strategy and possibly contribute to stabilize market conditions? Second, there is generally a presumption that FX intervention using swaps is sustainable only if the central bank has large holdings of FX reserves. In this case, if an exchange rate depreciation imposes losses on long positions in the domestic currency held via swaps, those losses are compensated with valuation gains on the holdings of FX reserves. Yet if FX intervention is used to lean against UIP deviations and is thus likely to be profitable on average, can intervention based on FX swaps be a viable option even for countries with limited reserves?

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