ELSEVIER

Journal of International Money and Finance
21 (2002) 619–649

Journal of International Money and Finance

www.elsevier.com/locate/econbase

The determinants of foreign exchange intervention by central banks: evidence from Australia

Suk-Joong Kim [a], Jeffrey Sheen [b,*]

[a] *School of Banking and Finance, The University of New South Wales, NSW 2052, Australia*
[b] *School of Economics and Political Science, The University of Sydney, Syndey, NSW 2006, Australia*

Abstract

Intervention by the Reserve Bank of Australia on foreign exchange markets from 1983 to 1997 is conjectured to have been determined by exchange rate trend correction, exchange rate volatility smoothing, the US and Australian overnight interest rate differentials, profitability and foreign currency reserve inventory considerations. Using Probit and friction models, we show that these factors were significant influences on intervention behavior. Consistent with the constraint of intervening only when a clear trend is apparent, we find that above average measures of deviations from trend and of volatility muted the response of the Reserve Bank.

JEL classification: E44; G14; G15

Keywords: Foreign exchange intervention; Exchange rate volatility; Intervention profitability

1. Introduction

Central banks intervene frequently in foreign exchange markets, even if they have not adopted explicitly some form of an exchange rate target regime. However, there are often long stretches of time when central banks withdraw from the market, and this can occur when markets are very orderly or even in periods when there has

* Corresponding author. Tel.: +61-2-9351-3075; fax: +61-2-9351-4341.
E-mail addresses: s.kim@unsw.edu.au (S.-J. Kim); jeffs@econ.usyd.edu.au (J. Sheen).

0261-5606/02/$ - see front matter
PII: S0261-5606(02)00011-6

been considerable turbulence. In this paper, our aim is to unravel some of the factors that lead to central bank involvement and withdrawal.

We test five primary determinants of the behavior of a central bank (in particular, the Reserve Bank of Australia)—daily deviations from a representative trend of the spot exchange rate, the conditional volatility of daily changes in the spot rate, the differentials between the US and Australian overnight interest rates, a measure of the conditional profitability of past interventions, and foreign currency reserve inventory considerations. With regard to the first two, we conjecture that the response of a central bank is non-linear. That is, for sufficiently large disorderliness of the foreign exchange market, the central bank might back off from its normal intervention strategy. This may be because there is a very large probability that intervention will be ineffective at best, and at worst the bank may incur big and pointless losses. However, in normal times, we might expect the bank to intervene to bring the exchange rate closer to a perceived trend, and to reduce any upsurge in volatility. When the overnight foreign interest rate rises more than the domestic one, a rational overshooting weakening of the domestic exchange rate may be expected to kindle bandwagon effects, which might prompt a defense of the currency. From an operational view, central banks need to take profitability and inventory factors into consideration. One way of modeling these factors is as constraints on the objective function of the central bank. These constraints will not bind at various times, and in such circumstances, an inventory or profitability measure should not have a significant effect on intervention behavior. However, there are likely to be periods when either or both of these constraints does bind, and therefore will have an important effect on the intervention response. Our introduction of profitability and inventory factors is a novel feature of this paper.

With many central banks now willing to release data[1] on their daily net market purchases of foreign currency assets undertaken for intervention purposes, important research can be conducted to evaluate the effectiveness and the determinants of this intervention behavior. A substantial literature has built up to conduct this evaluation.[2] In this paper, we apply many (and extend some) of the ideas in this literature by using daily intervention data released by the Reserve Bank of Australia. This application is of general interest for a number of reasons: first, the RBA participates in an official arrangement with Pacific-Basin nations (including USA and Japan) and can access loans and support from associated central banks; secondly, the RBA has published its views on its intervention strategies and so it is of interest to see whether the data reflects its statements; thirdly, though Australia is a small economy, its currency is the ninth largest traded in the world (A$70 b per day), reflecting its perceived importance as a commodity-based currency; and fourthly, the size and higher frequency of active intervention in the sample, relative to that of the Fed and Bundesbank, provides many more observations for testing the hypotheses.

[1] Typically, this data is released after a lag—in the case of the Reserve Bank of Australia, this lag is six months.

[2] For example, see Dominguez (1998), Baillie and Osterberg (1997), Almekinders and Eijffinger (1994, 1996), Bonser-Neal and Tanner (1996), Dominguez and Frankel (1993) and Edison (1993).