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Central bank intervention and exchange rates: the case of Sweden

Javiera Aguilar [a,*], Stefan Nydahl [b,1]

[a] *Sveriges Riksbank, 103 37 Stockholm, Sweden*
[b] *Quantal International Inc., 1936 University Ave., Berkeley, CA 94709, USA*

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Abstract

This paper examines the effect of the Riksbank's currency market interventions on the level and volatility of the SEK/USD and SEK/DEM exchange rates between 1993 and 1996. This is the first study investigating effects on the Swedish krona after the currency peg was abandoned in 1992. To model volatility, both GARCH models and implied volatilities from currency options are used. Some support is found for the idea that interventions affect the exchange-rate level during certain sub periods but, overall, the results are weak. Furthermore, in line with the findings for other countries, little empirical support is found for the hypothesis that central bank intervention systematically decreases exchange rate volatility.

Keywords: Exchange rate; Central bank; Intervention; Volatility

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1. Introduction

During the last decades, economists have changed their views regarding the effects of foreign-exchange-market interventions on the exchange rate. Under the Bretton Woods system of fixed exchange rates, interventions were used frequently to maintain the exchange rate within prescribed margins. After the breakdown of

* Corresponding author. Tel.: +46-8-7870000; fax: +46-8-210531.
E-mail addresses: javiera.aguilar@riksbank.se (J. Aguilar), stefan@quantal.com (S. Nydahl).
[1] Tel.: +1-510-8480470; fax: +1-510-8480473.

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the Bretton Woods system in 1973, the magnitude of interventions initially increased.

In the early 1980s, the Reagan administration viewed interventions as both costly and inefficient and adopted more of a laissez-faire approach towards foreign-exchange markets. European central banks, however, continued to intervene to keep their currencies within the bands prescribed by the exchange rate mechanism (ERM). The US skepticism against interventions was partly based on the fact that research in the late 1970s seemed to show that foreign exchange markets are efficient. Most empirical studies failed to find effects of interventions on the exchange rate. However, even during this period, some economists stressed that foreign-exchange-rate markets do not work as commodity markets. They claimed that in exchange-rate markets without interventions or restrictions on asset holdings, equilibrium-exchange rates will not be determined (Wallace, 1979).

During the first half of the 1980s, the dollar was appreciated by approximately 50% in nominal terms. When the Congress threatened to adopt severe protectionistic measures, the Federal Reserve began to intervene; but this time with the help from the G5 countries. Following the perceived success of these interventions, economists began to reassess the effectiveness of interventions. A majority of the new studies produced concluded, in line with the earlier results, that interventions' effects on the exchange rate are minor at best. Still, most central banks continue to be active in the foreign-exchange market. One explanation could be that countries with floating exchange rates usually try to decrease exchange rate volatility rather than move the level of the exchange rate. Indeed, in the IMF executive board's 1977 guiding principles for intervention policy, it is explicitly stated that countries should use interventions to decrease volatility in exchange rates (Dominguez, 1996).

The empirical studies in this area of research are, to a large extent, concerned with the effects of interventions on the US dollar vs. the German mark (DEM/USD) and Japanese yen (JPY/USD) exchange rates. Very little has been done for other currencies. As pointed out by Edison (1993), one main reason for the lack of empirical evidence for other countries is that it is hard to get access to good data on interventions.

In this paper, we study the effect of sterilized interventions on the Swedish krona from 1993 to 1996 using unique daily data on actual interventions made by the Riksbank. After a period of severe speculative attacks against the Swedish krona, the Riksbank abandoned the fixed exchange rate in November 1992. This was the first time since the thirties that Sweden experienced a floating exchange rate regime. It is of interest to explore the effects of interventions conducted under a floating-exchange-rate regime in a small open economy.

The paper is organized as follows. Section 2 describes theory and different channels through which interventions could affect exchange rates. Section 3 presents empirical results. We test the effects of interventions both on the exchange rate level and on the exchange rate volatility. Section 4 concludes.