



ELSEVIER

European Economic Review 47 (2003) 891–911

EUROPEAN  
ECONOMIC  
REVIEW

www.elsevier.com/locate/econbase

# Official central bank interventions and exchange rate volatility: Evidence from a regime-switching analysis

Michel Beine<sup>a,b,\*</sup>, Sébastien Laurent<sup>c,d,e</sup>, Christelle Lecourt<sup>a</sup>

<sup>a</sup>*CADRE, University of Lille 2,1, place Déliot, 59024 Lille, France*

<sup>b</sup>*DULBEA, University of Brussels, CP 140, 50, avenue F.D. Roosevelt, Brussels, Belgium*

<sup>c</sup>*CREPP, Département d'Economie, University of Liège, Boulevard du Rectorat, 7, 4000 Liège, Liège, Belgium*

<sup>d</sup>*CORE, 34, Voie du Roman Pays, 1348 Louvain-la-Neuve, Belgium*

<sup>e</sup>*Department of Quantitative Economics, Maastricht University, P.O. Box 616, 6200 MD Maastricht, The Netherlands*

Accepted 17 October 2002

---

## Abstract

In this paper, we investigate the effect of central bank interventions on the weekly returns and volatility of the DEM/USD and YEN/USD exchange rate returns. In contrast with previous analyses, we allow for regime-dependent specifications and investigate whether official interventions can explain the observed volatility regime switches. It is found that, depending on the prevailing volatility level, coordinated central bank interventions can lead to either a stabilizing or a destabilizing effect. Our results lead us to challenge the usual view that such interventions always imply increases in volatility.

© 2002 Elsevier B.V. All rights reserved.

*JEL classification:* C22; E44; F31; G15

*Keywords:* Central bank intervention; Exchange rate volatility; Markov switching regimes

---

## 1. Introduction

Since the beginning of the 90's, the release of high-frequency data by several major central banks has led to a renewed interest in the empirical assessment of the effect of direct interventions on the short-run evolution of foreign exchange rates. In particular, the empirical literature investigated whether direct purchases and sales made by the

---

\* Corresponding author.

*E-mail addresses:* [mbeine@ulb.ac.be](mailto:mbeine@ulb.ac.be) (M. Beine), [s.laurent@ulg.ac.be](mailto:s.laurent@ulg.ac.be) (S. Laurent), [clecourt@mailsc.univ-lille2.fr](mailto:clecourt@mailsc.univ-lille2.fr) (C. Lecourt).

central banks on the foreign exchange market could be effective in moving the nominal exchange rate in one direction or another. These sought-after dynamics have been implicitly defined in two well-known major international agreements: the 1985 Plaza Agreement that favored central bank cooperation in order to induce a sharp depreciation of the US dollar (USD hereafter) and the 1987 Louvre Agreement that emphasized the need to decrease excess exchange rate volatility. More recently, the interest for direct interventions on the foreign exchange market has been fostered at the European level by the sharp depreciation of the Euro against the major currencies, i.e. the USD and the Japanese Yen (YEN hereafter) and, to a lesser extent, its relatively high volatility. In September 2000, the European Central Bank directly intervened in support of the Euro in coordination with the major other central banks (the Federal Reserve (FED), the Bank of Japan (BOJ), the Bank of Canada and the Bank of England). This was followed by three official unilateral interventions carried out in November 2000. Recently, central bank interventions have also been used extensively as an instrument by the BOJ to depreciate the YEN, in order to support its expansive monetary policy.

In the 80's, the inference of the empirical literature was mainly based on the use of quarterly variations of official reserves as proxies to the direct interventions of central banks on the foreign exchange markets. The public release of daily data regarding these direct interventions by the FED, the Bundesbank (BB) and the Swiss bank (among others) has nevertheless allowed the study of the short-run impact on exchange rates or interest rates. More recently, the BOJ also decided to publish (ex-post) the official interventions made since April 1991. Accordingly, the econometric techniques using these data have been adjusted to account for some of the key features associated with such high-frequency financial data (conditional heteroskedasticity for instance).

The results of the empirical literature on foreign exchange rate interventions seem quite surprising. Generally speaking, there is only some weak evidence that interventions can affect the level of the exchange rate (Baillie and Osterberg, 1997a).<sup>1</sup> When some effects are however detected, net purchases of a particular currency appear to be associated with a subsequent depreciation of this currency (Almekinders and Eijffinger, 1993; Dominguez and Frankel, 1993; Baillie and Osterberg, 1997a; Beine et al., 2002), suggesting leaning-against-the-wind phenomena.<sup>2</sup> Regarding the second moment of the distribution of returns, the main findings of the literature emphasize a significant increase of volatility subsequent to the foreign exchange rate interventions. This last effect is extensively documented in the previously quoted papers and also by Connolly and Taylor (1994), Dominguez (1998) and Baillie and Humpage (1992) that use an ex post characterization of volatility (ARCH and subsequent developments). Focusing on some ex ante measure of volatility leads to the same conclusion (Bonser-Neal and Tanner, 1996, for instance). All in all, these reported effects raise some doubts on the efficiency of such an instrument, at least in the very short run.

As far as the methodological part of the study is concerned, most of the empirical analyses use an ARCH-type specification to model the heteroskedasticity observed on

---

<sup>1</sup> Although Baillie and Osterberg (1997b) find some effects on the risk premium in the forward market.

<sup>2</sup> Leaning-against-the-wind refers to an intervention aiming at reverting the evolution of a particular currency.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات