Emerging Markets Review 23 (2015) 1–25

Contents lists available at ScienceDirect

Emerging Markets Review

journal homepage: www.elsevier.com/locate/emr

Options and central bank currency market intervention: The case of Colombia☆

Helena Glebocki Keefe [a,*], Erick W. Rengifo [b,1]

[a] Department of Economics, Fordham University, 441 East Fordham Road, Dealy Hall, Office E543, Bronx, NY 10458, United States
[b] Department of Economics and the Center for International Policy Studies (CIPS), Fordham University, 441 East Fordham Road, Dealy Hall, Office E513, Bronx, NY 10458, United States

A R T I C L E   I N F O

Article history:
Received 3 October 2014
Received in revised form 10 February 2015
Accepted 2 April 2015
Available online 10 April 2015

JEL classification:
F31
G15

Keywords:
Exchange rates
Intervention
Foreign exchange markets
Currency options
International reserves
International finance

A B S T R A C T

Many central banks in emerging economies are concerned with excessive volatility in foreign exchange markets, especially those with inflation-targeting regimes. Historically, many have intervened using foreign exchange reserves in directly the spot market. However, these are not the only strategies available for intervention. The Colombian central bank implemented various intervention strategies while maintaining its inflation-targeting goals. In this paper we analyze the strategies employed by Colombia, with a special focus on the volatility option strategy. We argue that the abandonment of the currency options program for intervention was premature and that its success was not fully appreciated in previous literature.

1. Introduction

In several emerging market economies, policy makers intervene into currency markets to exert control over exchange rates.[2] Some intervene to calm disorderly markets and relieve liquidity shortages, while others

☆ The authors would like to thank the Global Association for Risk Professionals for their support in the funding of this research, as well as the participants of the First Annual Meeting of the Peruvian Society of Economists and members of the Peruvian Central Bank. The usual disclaimers apply.

* Corresponding author at: 441 East Fordham Road, Dealy Hall, Office E543, Bronx, NY 10458. Tel.: +1 718 817 4048; fax: +1 718 817 3518.

E-mail addresses: hglebocki@fordham.edu (H.G. Keefe), rengifomina@fordham.edu (E.W. Rengifo).

[1] Tel.: +1 718 817 4061; fax: +1 718 817 3518.

[2] Emerging markets are economies where some market segments are developed, while others are still not developed or underdeveloped.

http://dx.doi.org/10.1016/j.ememar.2015.04.011

try to correct misalignment and stabilize volatile exchange rates.[3] According to a Bank of International Settlements survey of 19 central banks in emerging markets, two-thirds reported conducting some type of currency market intervention and found it to be an effective tool for controlling exchange rate volatility (Mihaljek, 2004). All policy makers surveyed stated that interventions which influence future expectations and signal a future stance of monetary policy are the most effective ones. Moreover, these interventions are understood to primarily have a short-term influence on currency markets. Since currency markets are very dynamic, especially in emerging markets, the most effective intervention strategies will be the ones that are consistent.

In this paper, we analyze the Colombian central bank intervention strategies, with a specific focus on the central bank's use of currency options to mitigate exchange rate volatility.[4] Historically, currency interventions have consisted of using foreign exchange reserves to purchase and sell foreign currency directly in the spot market. However, these spot market interventions are not the only type of intervention available for central banks. The Colombian central bank has implemented various strategies to intervene into currency markets to smooth volatility, build reserves, and influence the direction of the exchange rate. Moreover, it has been one of the only economies to auction options as a tool for smoothing exchange rate volatility. This intervention technique was abandoned in favor of daily discretionary interventions in the spot market.

In this paper, we argue that the abandonment of options was premature. Past analyses of currency options as a central bank intervention mechanism lacked the data to support the conclusion that options were only moderately successful in curbing volatility. Using event study methodologies, we find that in fact in 80 to 90% of the cases the currency options auctioned by the central bank were successful in lowering volatility and countering persistent appreciation or depreciation of the currency. With this research, we contribute to the literature by reexamining the success of the use of options to curb drastic exchange rate movements and revisiting the discussion of the use of options as a viable alternative to continual or excessive reserve accumulation for the purpose of foreign exchange market intervention using all available data on options in Colombia.

The remaining sections of the paper are structured as follows. Section 2 presents a review of past literature on central bank intervention, linkages between policy goals and exchange rates, and macroeconomic fundamentals of currency markets. Section 2.1 illustrates the current macroeconomic situation in Colombia. Section 3 describes Colombia's central bank currency intervention strategies, and section 2.2 discusses the historical use of options as an intervention mechanism. Section 4 details the methodology used for analysis and section 5 presents the results of the analysis for the case of Colombia. Section 6 discusses implications of the findings and future extensions of the research.

2. Literature review

This section summarizes the literature on central bank interventions in foreign exchange markets. First, we address the main macroeconomic fundamentals that influence exchange rate movements as well as the linkages between inflation-targeting goals and exchange rates in emerging markets. Then, we present central banks' interventions in currency markets and describe their goals and the transmission mechanisms to lower volatility and provide liquidity to currency markets.

2.1. Macroeconomic fundamentals, inflation-targeting and exchange rates

The value of a country's currency reflects the market's expectation about its current and future macroeconomic conditions, as well as its political and social climate. In this paper, we concentrate on the former. Many theoretical models have linked exchange rate movements to changes in macroeconomic conditions.[5] Among them, the *monetary model* presented in Dornbusch (1976) determines that changes in the domestic money supply that affect the domestic interest rate relative to the foreign interest rate will translate into adjustments in nominal exchange rates. For example, an increase in the domestic money supply will require a decrease in

[3] Such volatility can cause banking crises, economic instability, slowing growth and decrease in trade.

[4] The central bank of Colombia used currency options as a tool for both controlling volatility as well as adjusting international reserves. We focus our analysis on the former strategy and the impact of volatility options on the Colombian peso–US dollar exchange rate.

[5] A currency's value will react to changes in macroeconomic fundamentals including trade, monetary policy, balance of payments, aggregate demand and supply (Obstfeld and Rogoff, 1999).