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Monetary policy and macroeconomic stability in Latin America: The cases of Brazil, Chile, Colombia and Mexico

Luiz de Mello*, Diego Moccero

OECD Economics Department, 2, rue André Pascal, 75775 Paris Cedex 16, France

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ABSTRACT

In 1999, new monetary policy regimes were adopted in Brazil, Chile, Colombia and Mexico, combining inflation targeting with floating exchange rates. These regime changes have been accompanied by lower volatility in the monetary stance in Brazil, Colombia and Mexico, despite higher inflation volatility in Brazil and Colombia. This paper estimates a conventional New Keynesian model for these four countries and shows that: i) the post-1999 regime has been associated with greater responsiveness by the monetary authority to changes in expected inflation in Brazil and Chile, while in Colombia and Mexico monetary policy has become less counter-cyclical, ii) lower interest-rate volatility in the post-1999 period owes more to a benign economic environment than to a change in the policy setting, and iii) the change in the monetary regime has not yet resulted in a reduction in output volatility in these countries.

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1. Introduction

There is mounting empirical evidence, based on work pioneered by Taylor (2000) and Clarida et al. (2000), among others, on how changes in a country's monetary policy regime affect macroeconomic volatility.[1] The main finding in this literature is that, at least as far as the United States is concerned, a more pro-active policy stance since the mid-1980s, whereby the monetary authority responds

* Corresponding author. Tel.: +33 1 45 24 87 52; fax: +33 1 44 30 63 84.
E-mail address: luiz.demello@oecd.org (L. de Mello).

[1] See Cecchetti and Debelle (2006) for evidence and a survey of the recent literature on univariate analysis, Cecchetti et al. (2004) for cross-country evidence based on structural models, and Boivin and Giannoni (2005) for evidence based on VAR modelling.

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strongly to changes in expected inflation, has contributed to anchoring expectations at low, stable levels and has reduced business-cycle fluctuations in economic activity. Greater macroeconomic stability is also due to the fact that the shocks hitting the economy have become milder over the last 20 years or so (Ahmed et al., 2002; Stock and Watson, 2002; Cecchetti et al., 2004; Boivin and Giannoni, 2005). This is related to the "Great Moderation", a phenomenon characterised by a reduction in the volatility of inflation and output in the United States (Kim and Nelson, 1999; Blanchard and Simon, 2001), most G7 countries (Smith and Summers, 2002) and, to a lesser extent, emerging-market economies. Another factor militating in favour of lower inflation volatility in the United States is a change in price-setting mechanisms, which have become more forward-looking since the 1980s (Moreno, 2004).

A complementary strand of literature focuses on how the adoption of inflation targeting in many emerging-market economies, coupled with exchange rate flexibility, has affected macroeconomic volatility. The argument is that, by allowing the exchange rate to float freely the monetary authority can respond more forcefully to changes in the inflation outlook in pursuit of its inflation target, instead of defending a nominal exchange rate peg. Empirical evidence for industrial countries suggests that, where the policy regime is credible and monetary policy is conducted in a transparent, forward-looking manner, adoption of inflation targeting has delivered lower volatility in the monetary stance (Kuttner and Posen, 1999; Woodford, 1999, 2004). However, as suggested by the empirical evidence surveyed by Mishkin (2006), to the extent that the fall in macroeconomic volatility since the 1990s is a worldwide phenomenon, inflation targeters in the developed world have not necessarily done better than non-inflation targeters at reducing macroeconomic volatility. They have nevertheless done a better job at anchoring expectations in the sense of reducing the sensitivity of expected inflation to shocks in current inflation. With regards to emerging-market economies, de Mello and Moccero (2009) use cointegration and M-GARCH analysis to test for the presence of long-run relationships among the policy interest rate, inflation expectations and the inflation target, as well as of volatility spillovers between inflation expectations and the monetary stance in Brazil, Chile, Colombia and Mexico. The authors conclude that the monetary stance has become more persistent under inflation targeting and exchange rate flexibility, which has contributed to anchoring inflation expectations around the pre-announced targets in these countries.

Against this background, this paper tests the hypothesis that a change in the monetary regime has reduced macroeconomic volatility in four Latin American countries (Brazil, Chile, Colombia and Mexico), where inflation targeting has been complemented by flexible exchange rate regimes since 1999.[2] To this end, a small New Keynesian structural model comprising aggregate supply and demand equations and an exchange rate-augmented monetary reaction function is estimated. Impulse response functions are computed for the structural model and, for the sake of comparison, for an unrestricted VAR in the interest rate, inflation and the output gap. A counterfactual exercise is performed using the structural model's parameter estimates to assess the role played by changes in the policy regime and in the shocks hitting the economy in explaining changes in macroeconomic volatility across policy regimes. The counterfactual exercise allows for the estimation of the volatilities that would arise from a given combination of shocks and monetary policy parameters, thus identifying the factors that make for greater macroeconomic stability.

The paper's main findings are as follows. *First*, the post-1999 regime, characterised by inflation targeting and exchange rate flexibility, has been associated with stronger, more persistent responses by the monetary authority to changes in expected inflation in Brazil and Chile. The monetary stance has become less counter-cyclical in Colombia and Mexico than in the previous policy regime, but more counter-cyclical in Brazil. Mexico is the only country in the sample where changes in the nominal exchange rate were found to be statistically significant in the central bank's reaction function. *Second*, the structural impulse reaction functions, as well as those computed for unrestricted VARs on the interest rate, inflation and the output gap, suggest that the responsiveness of monetary policy to inflationary shocks

[2] Peru is another inflation targeter in Latin America, but it was not included in the sample. This is because inflation targeting was formally adopted in 2002, which would have severely reduced degrees of freedom in the post-regime change sample. The Peruvian economy is also highly dollarised, which makes the monetary transmission mechanism somewhat different from those in the countries under examination (Leiderman et al., 2006).

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