Monetary Policy between Mexico, United States of America, and Canada

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Dr. Alberto Merced Castro Valencia

Dr. Alberto Merced Castro Valencia profesor e investigador adscrito al departamento de gestion empresarial

Instituto tecnologico Jose Mario Molina Pasquel y Henriquez

E-mail: Alberto.castro@zapopan.tecmm.edu.mx

ABSTRACT

This article examines the evolution of the monetary policy of the economies that make up the North American Free Trade Agreement (NAFTA), for the period 1980-2015. Based on an empirical analysis, which includes the scrutiny of stylized facts of the monetary variables of Canada, the United States and Mexico, causality tests Granger quality and error correction models (VEC), it is concluded that, in parallel to the trade integration process of these countries, the monetary side of NAFTA exhibits divergences and convergences that imply an asymmetric integration of the economy Mexican with the United States and, to a lesser extent, with Canada.

Keywords: monetary convergence, inflation targeting, Canada, United States, Mexico.

1 INTRODUCCIÓN

The NAFTA sets the trade and financial integration between Canada, the United States and Mexico in a scheme in which each economy has preserved its pia currency and operates with a similar monetary policy framework, that of inflation (MI). Given the high degree of commercial unification between the three countries (co-total trade of US \$ 2.8 billion a day) it is appropriate to question whether this has

fostered a process of monetary convergence (or divergence) between the three economies, that facilitates or hinders commercial exchange, is insufficient I discussed you so far. (Early, 2002; Lederman, Maloney and Serven, 2005; Kammel, 2009; Blecker and Seccareccia, 2008; Puchet and Punzo, 2001).

Canada adopted an IM monetary policy framework in 1991, Mexico formally did so in 2001 and the United States Fed (Federal Reserve) did so used implicitly, flexibly and pragmatically in the years of the so-called Great Moderation (1982-2007), until, due to the influence of the effects of the crisis of 2007, as of December 2008 it began to operate with an unconventional policy focused on quantitative easing in order to stimulate the

economic growth (Bernanke, 2015a). In all three countries, the main instrument MI's monetary policy ment is the interest rate. The objective of this work is to explore the degree of convergence of the policy

monetary policy of the NAFTA countries. The hypothesis is that it has a *formal* convergence occurred in the institutional context of modern politics net (autonomy of central banks, adoption of the MI scheme as

monetary policy scheme and establishment of an exchange rate scheme flexible bio) and a *real* divergence in the evolution of the monetary variables fundamentals (interest rate, exchange rate, money supply and demand) of the three economies that make up the Treaty. The composition of the article is as follows: in addition to this introduction, presents a succinct review of the literature on MI and on integration

monetary policy among the study countries, to later analyze some Relevant figures of the monetary policy of Canada, the United States and Mexico during the study period, 1980-2017. Finally, an ecoof the monetary asymmetries discussed above as stylized facts and the conclusion of the study is raised.

2 DESCRIPCIÓN DEL MÉTODO

The three study countries converge in the adoption of a policy framework

based on the MI model , whose primary objective is the stability of prices (Bernanke and Mishkin, 1997; Taylor, 1993; Clarida, Gali and Gertler, 1999; Torres, 2003; Ball and Sheridan, 2004). The MI model , according to Perrotini (2007), can be expressed with the following basic equations that are interrelated

They work to achieve the proposed objective:

$$and\ t = Y\ 0 - ar + \varepsilon \quad (1)$$

$$\pi\ t = \pi\ t - 1 + \beta (y\ t - y\ T) + \varepsilon\ 2 \quad (2)$$

$$r\ t = r\ * + \emptyset\ \pi\ \pi\ r + \emptyset\ y\ yr \quad (3)$$

Corresponding to the aggregate demand (IS) for the first equation, the Phillips curve for the second and the Taylor rule represented in the third equation, where: r is the real interest rate, $Y\ 0$ is autonomous aggregate demand ma, $and\ t$ is the level of income observed in period t , $and\ T$ consists of the level of target income, $\pi\ t$ is the observed inflation, $\pi\ t - 1$ is the observed inflation of a previous time

period, y_t represents the output gap ($y_t - y^T$), π_t is the inflation gap ($\pi_t - \pi^T$), π^T is the desired inflation, r^* is the natural rate of

interest, ε_1 and ε_2 represent random shocks. The potential product consists of the maximum productive capacity of the economy; the output gap measures the intensity of inflationary pressure and links the real economy to inflation. Its increase raises the prices of due to demand pressure, inducing the monetary authority to adopt higher interest rates that stabilize inflation. In an open economy there is a direct link between the interest rate real (r_t) and the exchange rate (e_t), expressed as follows:

$$e_t = r_t + \varepsilon_3 \quad (4)$$

If the relationship between the exchange rate and the real interest rate is unitary, the former obeys the interest rate parity condition, which represents a equilibrium state in which the expected profit, expressed in national currency, is the same for assets in national currency and those denominated in foreign currency.

foreign, provided there is no arbitrage. The experience of several countries with the MI model has been analyzed by diverse authors (McCallum, 1996; Bernanke, *et al.*, 1999; Cecchetti and Ehrmann,

2002; Neumann and von Hagen, 2002; among others). The use and application of rules monetary policies in Canada, the United States, and Mexico present specific characteristics derived from the respective structural characteristics (Torres, 2003; Philippe, Corbett and Perrier, 2006; Nakata and Schmidt, 2016). Below we present three rules proposed as an approximation to the monetary policy rule used by each central bank, which shows that the adoption of MI has its own characteristics in each country. Philippe *et al.* (2006) propose a monetary policy rule for Canada characterized by minimizing a loss function that reflects preferences of the monetary authority in the face of fluctuations in inflation, output and interest rate, a rule that is represented like this:

$$R_t = \theta R_{t-1} + (1 - \theta) R^* + (1 - \theta) [\theta \pi_t + h - \pi^* + \theta \text{ and } YGAP_t] \quad (5)$$

Where R is the interest rate, R^* is the natural interest rate, π^* is the goal of inflation, π_t

$\pi_t + h$ is the quarterly inflation rate (annualized), R_{t-1} is the interest rate of the previous period, θR is the coefficient of the lagged interest rate, the rise of h is the feedback horizon, $\theta \pi$ is the long-term response of the interest rate to movements in inflation, $\theta \Delta Y$ is the long-term response of the rate of interest to changes in the output gap, and ΔY_{t-1} is the output gap. Equation (5) is a proposed rule for the quarterly inflation rate,

based on forecasts with a two-quarter retro-effects horizon, a high inflation coefficient (20.0), a much smaller coefficient in the output gap (0.35) and a relatively large coefficient of the rate of lagged interest (0.95). The optimal parameterization is calculated using stochastic simulations that estimate volatility, the persistence of inflation, the output gap and interest rates. A relevant assumption of the model is that agents have perfect knowledge of the model and the disturbances that affect the economy

nomia (Philippe *et al.*, 2006). Before the financial crisis of 2007-2009, in the United States the Fed operated pragmatically sticking to some kind of Taylor rule during stages of financial tranquility (Woodford, 2003) and drastically decreasing the rate discount interest and / or federal funds and increasing credit

banks in times of financial turbulence 4 (Bernanke, 2012). Is by This means that the Fed is said to have practiced an opportunistic disinflation policy (Orphanides *et al.*, 1997). The achievement of the monetary policies applied in The United States is based on obtaining low and stable inflation levels (Goodfriend, 2003). Obtaining bilateral correlation coefficients of the variables of monetary policy denotes a significant increase in the correspondence in its behavior in the post- NAFTA phase . The test of Granger causality, applied to both the objective and the policy instrument monetary policy between countries, denotes the hegemony of the United States over Mexico and to a lesser extent on Canada, a corollary than when contrasted with the analysis

VEC is insufficient, since the short- and long-term dynamics between objectives Tives and instruments show a stronger reciprocity between the variables. The existence of cointegration vectors confirms a relationship of length time between interest rates and price levels in the three countries. The ICT is more sensitive to TIEU than to TIM , while TIM is highly perceptual of the changes in TIEU and TIC . Finally, the TIEU is sensitive to both rates, but to a much greater extent in the face of ICT. Regarding the long-term correspondence between price levels, Canadian inflation is rigid in the face of movements in the MI and less so in the face of variations in UIS ; the IM is highly sensitive to variations in prices United States and Canada, and United States prices are affected by the deviations in Canadian prices, and they are sticky relative to changes in IM .In the short term, both interest rates and price levels will adjust for their own lags, added to those of their partners, being of greater influence the United States, followed by Canada. The contribution to the commitment of the hypothesis raised in

this work in this last section, based on of econometric scrutiny, allows to evidence the existence of a link desitthe same among the monetary policy variables of the NAFTA partners , which is

accompanied by important divergences of structural origin, which represent disadvantages for Mexico, such as its need to attract private capital financial instruments, among other conditions, in order to offer a higher prize to Zionists who decide to place capital in Mexico.

3 CONCLUSIONS

In this document we have explored the monetary performance of the three economies that ake NAFTA. L to trade and financial liberalization has led to a substantial integration of their real sectors. On integration

trade has not corresponded to a concomitant convergence between the monetary rules, and monetary policy priorities differ among the three economies, although in this sense there are greater coincidences between Canada and the United States The results of our analysis allow us to confirm the hypothesis planned

teed in this research, with additional nuances from the following con clusions: first, although there is *formal* convergence , the economies of the NAFTA they operate with the same monetary policy framework, aimed at primary mordial and instrument are a low and stable inflation rate and the interest rate, espectively. In addition, there is an institutional context that is based on a autonomous monetary authority. Second, the empirical evidence available for the period 1980-2015 reveals that there are *non-formal* asymmetries in the monetary *modus operandi* of these economies. Within each one the inflation and interest rates converge

around low levels (in the case of Mexico the interest rate falls slightly slower than inflation, and the exchange rate tends to appreciate during the process of convergence towards monetary ability). Comparatively, yes While the inflation rates of the three economies tend to converge, the inflation rate Mexico's interest persistently exceeds those of Canada and the United States. two, which limits product growth, but contributes to stability macroeconomic and attracts foreign capital. On the other hand it generates pressures in the national currency and exchange risk associated with the loans in currency foreign banks, in addition to higher funding costs for national banks. them. Likewise, the differential between inflation and interest rates favors a tendency towards misalignment between exchange rates that is expressed in the form of appreciation of the Mexican currency, which reduces competitiveness to national commercial goods. Third, the correlation coefficients, the Granger causality tests and the VEC estimates reveal a closer correlation between the variables monetary policy in the post- NAFTA phase ; bidirectional causality relationship between TIEU and TIC , and both cause TIM. A ifitself, IEU and IC jointly determine IM. P last or, dynamics short- and long-term interest

rates and inflation levels denote a close relationship between the three countries, characterized by the presence of a

American hegemony, growing Canadian autonomy, and dependence Monetary of Mexico. Therefore, it is recommended that, when prioritizing price stability and low inflation levels, policies aimed at a change are also adopted structure that allows reducing the interest rate differential with respect to the States and accelerate economic growth without incurring imbalances of balance of payments and higher inflation.

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