

Does Inflation Targeting Lower Inflation and Stimulate Growth in Emerging Economics

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ABSTRACT

The policy of inflation targeting is a monetary regime that is inflation. His practice was marked by a large, observed at the beginning of the 90s and 2000, stability a debate emerges on efficiency and economic performance of the scheme. Many studies have focused on this question has no authority to reach a final consensus. The objective of this paper is to contribute to this debate by clarifying the origin of this monetary regime and offering, thereafter our own gate quantitative analysis. We use the analysis of two macroeconomic aggregates: inflation and economic growth under different samples. This paper analyzes the relevance of the inflation targeting (IT) policy in achieving its primary goal of medium term price stability in emerging countries. It finds that this monetary policy regime has been associated with a general reduction in inflation and spur growth. This study seeks to improve upon these results by identifying the impact of timing on the policy decision as well as its impact as related to specific regions of the world.

Keywords : *Inflation Targeting; Growth; Emerging economies*

1. INTRODUCTION

The theory of monetary policy seems to have been, during the last fifteen years a reformulation of these ancient concepts and the emergence of new foundations dictated by the emergence of the concept of active monetary policy rule centered on the dominance of the objective « inflation targeting ».

Inflation targeting is defined as a monetary policy that encompasses five main elements. Those countries that inflation target do the following: (1) publicly announce a medium-term numerical target for inflation; (2) have an institutional commitment to price stability as the primary goal of monetary policy to which other goals are subordinate; (3) have an information inclusive strategy in which many variables are used for deciding the setting of policy instruments; (4) have increased transparency of monetary policy through communication with public and the markets about the plans, objectives, and decisions of monetary authorities; and (5) have increased accountability of the central bank for obtaining its inflation objectives¹

Since the early 90s, a new monetary policy called “inflation targeting (IT)” policy has been adopted. It has been defined as a framework of monetary policy which consists in announcing an inflation target in advance to the public. The target level (or range) is the main argument in the central bank loss function. The central bank boards are independent in choosing the instrument to be followed, in order to minimize the loss function. In the IT literature, Bernanke et al. (1999) define IT in a relatively precise way as follows: “Inflation targeting is a framework for monetary policy characterized by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy's primary long-run goal. Among other important

features of IT are vigorous efforts to communicate with the public about plans and objectives of monetary authorities, and in many cases, mechanisms that strengthen the central bank's accountability for attaining those objectives”. Another aspect of IT regime considers it as a framework of constrained discretion on the part of the central bank.²

The choice of the inflation targeting policy has been the subject of many economic controversies. Indeed, despite the convergence of literature to a successful policy of inflation targeting, the fact remains that some economists are particularly reluctant to this finding.

Several empirical studies on the effects of the adoption of inflation targeting show that the adoption of this new monetary rule improves the economic performance of countries. Bernanke et al. (1999), and Landerretche al. (2001), Von Neumann & Hagen (2002) and Truman (2003), agree on the success of the policy of inflation targeting in improving the economic situation of countries that target inflation. However, Ball & Sheridan (2003) challenge this assumption and show that the adoption of inflation targeting has an ambiguous effect in improving economic performance. One reason has been presented in the literature about this divergence of results. The duration of adoption of the policy of inflation targeting is sufficiently short to conclude a precise way on the effects of the monetary rule, especially for searches in the late 90s and early 2000s.

The theory of inflation targeting has started with Leiderman and Svensson (1995), Svensson (1997, 1998, 1999), Bernanke and Mishkin (1997), Bernanke and al. (1999). It is with these authors first targeting policy definitions have emerged. The first works

¹ For further information, see Mishkin (2004, 2008).

² Aguir Abdelkader (2014), “ The effects of inflation targeting strategy on the growing performance of emerging countries “International Journal of Economics, Commerce and Management Vol. II, Issue 8

appeared, during the years four twenty - ten, show some differences in the definition of inflation targeting policy. We begin our analysis by presenting the main definitions of inflation targeting policy, which each show a

particular characteristic of this regime. Then we suggest a definition that summarizes the main points that attach to most economists.

Table 1: Summary of some definitions.

Auteurs	Définitions
Leiderman and Svensson (1995)	"The inflation targeting regime has two characteristics: an explicit numerical inflation target by specifying the index, the target level, the tolerance interval, the horizon and the definition of possible situations which the monetary authorities will change the target. . . [And] the absence of an explicit intermediate target such as monetary aggregate target or exchange rate targeting."
Martin and Rogers. (1997)	"Inflation targeting is based on the definition of an explicit inflation target,..." [the definition] clear and unambiguous indications which constitute the overarching objectives leading to the stability of inflation [...]. Method for Inflation Forecasting is to use all information that could provide an indication of future inflation and implement a procedure prospective (forward looking) in order to manage the driving instrument which will depend on the early assessment compared to the predefined target rate. "
Bernanke and Mishkin (1997)	The inflation targeting policy as a new framework for monetary policy analysis which consists of an official announcement from an interval target for one or more horizons. They evoke the uniqueness of the objective: that of price stability. They suggest the explicit announcement of this strategy. In addition, they consider that this policy generates a growth of the degree of communication with the public around the plans and objectives to be implemented.
Mishkin (2000)	Inflation targeting is a monetary policy strategy that encompasses five essential elements: (i) An announcement of a numerical inflation target over the medium term; (ii) an institutional commitment to consider the stability of prices as the overriding objective of monetary policy, which are subordinated the other objectives. (iii) An information strategy in which several variables are used (not not only monetary aggregates, the exchange rate) determining the implementation of the policy instrument. (iv) The increase of the degree of transparency via the communication with the public and the market on plans, objectives and decisions of the monetary authorities. (v) The increase in the responsibility of the Central Bank in order to achieve the inflation targets." A structure of monetary policy designed to redress inflation... The countries pursuing inflation targeting undertake to consider the price stability as their primary objective. They consider inflation as the single nominal anchor on the medium-term."
Capistrán, Ramos-Francia. (2010)	Defines the inflation targeting policy as a monetary policy strategy aimed at maintaining price stability using all the information available to the Central Bank mainly the prices of financial assets.

Following these definitions, we propose a definition about which there is a consensus. The definition that we develop is similar to that of Bernanke and Mishkin (1999). Indeed, we consider the inflation targeting as a framework for the analysis of monetary policy and not as a simple rule for action on inflation. In other words, its primary objective is to maintain price stability without however, excluding the autonomy of monetary authorities to pursue other secondary objectives such as such as stability of the economic activity, the stability of the exchange rate.

According to this definition, the success of inflation targeting is based on the respect of certain institutional forms and some strategic choices.

2. STABILITY, GROWTH, ECONOMIC PERFORMANCE: THE RELATIONSHIP ACCORDING THE LITERATURE REVIEW

This relationship has been treated in different ways because of the evolution of the theory of economic growth in recent years. This theory began with the work of Solow (1956). It was characterized by the classical growth theory which identifies three determinants of growth: capital, labor and technology. One of the criticisms that came to this theory is related to variable "technology": it was considered as an exogenous variable. This weakness will be resolved later by the so-

called endogenous theory. However, these both theories are considered currently as the traditional theories growth. A major revolution in the theory of growth emerged following the work of Nelson and Plosser (1982). This work is the origin of the link between growth theory and the real business cycle. Since then, work multiplied to determine the nature of this relationship. A first wave of literature was in favor of a positive relationship between volatility and growth cycles. The thesis was supported is that business cycles are more volatile (plus there is uncertainty in the economic environment), more growth is high. This first wave of literature is based largely on traditional growth theories. On this feature, it was criticized by a new literature that evolves in the opposite direction. A second wave of theoretical work has denied the thesis. These studies supported the hypothesis that volatility cycling results in poor economic growth. In other words, the more the economic environment is uncertain, the effects are more harmful to economic growth.

The table below illustrates the review of literature since the 1980s, on the relationship between volatility of cycles and economic growth, the main work investigating the effect of macroeconomic stability on growth; the work identifies a link between the stability of the monetary environment and economic performance through the effect on the determinants of growth.

Table 2: Summary of work identifies a link between the stability of the monetary environment and economic performance through the effect on the determinants of growth.

<i>Studies</i>	<i>Problematic</i>	<i>Methodology</i>	<i>Result</i>
Ho (1996)	What is the effect of monetary instability on economic growth (the accumulation of capital through)?	Monetary instability is measured by the volatility of money growth and the inflation volatility. It adopts an endogenous growth model where the currency is introduced.	High monetary cash creates an increase in the desired level of capital. High inflation generates a reduction in the desired capital.
Beaudry and al. (2001)	What is the impact of monetary instability on economic performance (via the investment rate)?	This effect is studied via the impact of currency instability (measured by the volatility of inflation) on the distribution rate of investment. This study is conducted on English firms during the period 1961-1990.	Monetary policy in an uncertain Environment. The uncertainty of the monetary policy environment negatively affects the distribution rate of investment.

Kormendi and Meguire (1985)	To examine the effect of monetary instability (via the volatility of inflation on economic growth).	the average growth of output as a function of aggregate inflation volatility.	The results were in favor of a negative effect.
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The conclusion was supported is that the policy of inflation targeting is efficient when it generates greater stability in the monetary environment Aguir.A(2014)³.

Table 3: Survey analysis.

Author	Methodology	Time span	Frequency	Size of sample	Impact on inflation	Impact on GDP	R ² of GDP regressions
Angeriz and Arestis (2006)	SURE	1980–2004	Quarterly	10 IT	No impact	N/A	N/A
Ball and Sheridan (2005)	Diff-in-diff	1960–2000	Quarterly	7 IT, 13 non-IT	Small decline	Weak increase	02–.23 depending on sample
Batini and Laxton (2007)	Diff-in-diff	1985–2004	Quarterly	31 countries, 21 IT, 10 non-IT	Strong decline	N/A	N/A
Brito and Bystedt (2006).	Diff-in-diff	1994–2005	Quarterly	5 IT, 8 non-IT	Strong decline	Strong increase	12 and .28
Brito and Bystedt (2011)	OLS, fixed effects	1980–2006	3 year periods	13 IT, 33 non-IT	Weak decline	Weak increase	.15, .18, .20
Goncalves and Salles (2008)	Diff-in-diff	1980–2005	Annual	13 IT 23, non-IT	Strong decline	N/A	N/A
Lin and Ye (2009)	Probit propensity scores	1985–2005	Annual	52 countries, 13 IT	Strong decline	N/A	N/A
Mishkin and Schmidt-Hebbel (2007)	OLS, IV	1989–2004	Quarterly	13 non-IT, 21 IT	Decline	N/A	N/A
Levin et al. (2004)	Impulse responses	1994–2003	Quarterly	5 IT, 7 non-IT	Reduces inflation persistence	N/A	N/A
Neumann and von Hagen (2002)	VARs, impulse responses	1978–2001	Monthly, quarterly	7 IT, 3 non-IT	Decline	N/A	N/A

A summary of prior studies can be found in Table 3 as well as the survey paper by Svensson (2011).

³Aguir Abdelkader (2014) « Inflation Targeting: An Alternative to Monetary Policy » International Journal of Economics and Finance Vol 6, No 7

3. METHODOLOGY

Our objective is to identify the direct impact of inflation targeting on real economic growth by keying in on the length of time in which an inflation targeting regime change will need before positive and substantive growth is garnered. To begin with, we utilize the base framework set up by Brito and Bystedt (2011), that is, an OLS model regressing the rate of inflation on inflation targeting, previous term of inflation, as well as a dummy variable capturing high inflation, as seen in Eq (1)

$$\pi_{it} = \beta_0 + \beta_1 IT_{it} + \beta_2 \pi_{it} + \beta_3 \pi_{it}^H + u_{it} \quad (1)$$

With respect to our data, the high inflation dummy takes a value of 1 if that inflation rate is more than four standard deviations above the mean. Otherwise it takes a value of 0.9. As with Brito and Bystedt (2011), we further augment this model with a time-measure dummy variable and then run it both in OLS and in a fixed effects (FE) framework, with the latter utilizing a robust standard error correction. We expect to see results similar to Brito and Bystedt (2011), namely that inflation targeting is an effective tool in reducing inflation. Additionally, for verification purposes we also include a dummy variable that captures the impact of the Asian Financial Crisis on the sample.

3.1 Data

We examine a large set of twenty four emerging countries including thirteen explicit inflation targeters. Since developing countries are so diverse, it is important to obtain a sample of similar countries to compare the effects of inflation targeting on inflation levels. The purpose of this study is to establish the methodology we adopt to assess the economic performance of the inflation targeting policy. We will try in what follows to judge the performance of the inflation targeting policy based on the effect of macroeconomic stability and in particular the environment of monetary policy.

The data is pulled from the International Monetary Fund's Financial Statistics database. When data was not available for a country from the IMF, data was obtained from the Global Financial Database.⁴ The frequency of the data is quarterly and spans the time period 1985–2013.

⁴Data for CPI, GDP, population, and interest rates were pulled from the 2010 version of IMF IFS.

<http://www.ejournalofbusiness.org>**Table 4: IT time period and sample period**

Country	Time frame of study	IT time period	Country	Time frame of study	IT time period
Africa			Slovak Republic	1993: Q1–2013:Q2	2005:Q1–2013:Q2
Cape Verde	1993:Q1–2013:Q2		Slovenia	1993:Q1–2013:Q2	
Mauritius	1985:Q1–2013:Q2		Ukraine	1993:Q1–2013:Q2	
South Africa	1998:Q1–2013:Q2	2000:Q1 2013:Q2			
Asia			Latin America and the Caribbean		
China	1992:Q1–2013:Q2		Argentina	1993:Q1–2013:Q2	
Hong Kong	1994:Q1–2013:Q2		Brazil	1991:Q1–2013:Q2	1999:Q3–2013:Q2
Korea	1985:Q1–2013:Q2	1998:Q2–2013:Q2	Chile	1985:Q1–2013:Q2	1991:Q1–2013:Q2
Macao	1988:Q1–2013:Q2		Colombia	1994:Q1–2013:Q2	1999:Q4–2010:Q2
Thailand	1993:Q1–2013:Q2	2000:Q2–2013:Q2	Costa Rica	1985:Q1–2013:Q2	
Eastern and Southern Europe			Dominican Republic	1996:Q1–2013:Q2	
Belarus	1996:Q1–2013:Q2		Guatemala	1986:Q1–2013:Q2	
Bulgaria	1994:Q1–2013:Q2		Jamaica	1985:Q1–2013:Q2	
Croatia	1994:Q2–2013:Q2		Mexico	1985:Q1–2013:Q2	1999:Q1–2013:Q2
Czech Republic	1994:Q1–2013:Q2	1998:Q1–2013:Q2	Paraguay	1991:Q1–2013:Q2	
Estonia	1993:Q3–2013:Q2		Peru	1992:Q1–2013:Q2	2002:Q1–2013:Q2
Georgia	1996:Q1–2013:Q2		Trinidad and Tobago	1985:Q1–2012:Q4	
Hungary	1992:Q1–2013:Q2	2001:Q3–2010:Q2	Uruguay	1985:Q1–2013:Q2	
Kazakhstan	1994:Q1–2013:Q2		Venezuela	1985:Q1–2012:Q4	
Latvia	1994:Q1–2013:Q2				
Lithuania	1994:Q1–2013:Q2				
Macedonia	1994:Q1–2013:Q2				
Poland	1992:Q1–2013:Q2	1998:Q4–2013:Q2			
Romania	1995:Q1–2013:Q2	2005:Q3–2013:Q2			
Russia	1995:Q1–2013:Q2				

Middle East and North Africa			Oceania		
Algeria	1985:Q1–2013:Q2		Indonesia	1990:Q1–2009:Q4	2005:Q3–2013:Q2
Egypt	1985:Q1–2013:Q2		Philippines	1985:Q1–2009:Q4	2002:Q1–2013:Q2
Israel	1985:Q1–2013:Q2	1992:Q1–2010:Q2	Singapore	1985:Q1–2013:Q2	
Iran	1986:Q2–2012:Q2				
Jordan	1993:Q1–2013:Q2				
Morocco	1994:Q1–2013:Q2				
Syria	1985:Q1–2013:Q2				
Tunisia	1988:Q1–2013:Q2				
Turkey	1987:Q1–2010:Q2	2002:Q1–2013:Q2			

Table 5 illustrates the descriptive statistics of the variables in the study for the entire sample period. From Table 5, we can see that the average inflation rate experienced by the entire sample is around 5%. The rate experienced in Eastern and Southern Europe and the Latin America and the Caribbean regions are slightly higher with rates around 5%. Table 5 lists the replication results of Brito and Bystedt's (2010) models 1 through 3

using our data set. The two OLS specifications match up well with the earlier results in that inflation targeting directly negatively impacts, or lowers, the inflation rate, and augmenting the OLS models with a dummy for the Asian Financial Crisis does not significantly change the coefficients. However, when using a fixed effects panel regression the coefficient for inflation targeting, while still negative is no longer significant.

	n	Mean	Std dev	Min	Max
Overall					
Inflation rate (as ΔCPI)	3984	-0.130	10.080	-347.367	325.505
Interest rate	4062	-0.925	196.387	-11300.240	3617.163
Growth real GDP per capita	2389	0.144	1.755	-44.737	14.927
Asia					
Inflation rate (as ΔCPI)	392	-0.037	1.468	-5.529	6.096
Interest rate	390	-0.041	1.442	-8.463	7.490
Growth real GDP per capita	237	0.173	2.100	-9.073	4.460
Eastern and Southern Europe					
Inflation rate (as ΔCPI)	1093	-0.337	17.781	-347.367	325.505
Interest rate	1116	-0.335	23.057	-314.533	427.647
Growth real GDP per capita	984	0.004	2.070	-35.010	14.927
Latin America and the Caribbean					

Inflation rate (as ΔCPI)	1204	-0.078	5.361	-144.233	31.418
Interest rate	1232	-0.045	355.839	-11300.240	3617.163
Growth real GDP per capita	469	0.009	0.105	-0.504	0.613
Middle East and North Africa					
Inflation rate (as ΔCPI)	803	-0.049	5.247	-38.762	35.656
Interest rate	820	0.078	13.717	-154.9	209.103
Growth real GDP per capita	451	-0.098	2.107	-44.737	0.256
Oceania					
Inflation rate (as ΔCPI)	276	-0.001	1.986	-15.295	16.248
Interest rate	282	0.006	3.670	-21.42	30.920
Growth real GDP per capita	205	0.142	0.653	-2.893	3.118
Sub-Saharan Africa					
Inflation rate (as ΔCPI)	216	-0.011	1.926	-8.309	5.696
Interest rate	222	0.019	1.316	-3.300	13.717
Growth real GDP per capita	43	0.004	0.032	-0.064	0.045

4. CONCLUSION

In this paper we addressed the monetary policy of inflation targeting from a theoretical and empirical perspective. Initially, we presented a genealogy of this monetary regime. We show that the development of monetary policy led to the emergence of inflation targeting regime in the early ninety years. In a second step, we study the question of the effectiveness of the policy of inflation targeting. To summarize, while inflation targeting is a helpful tool in reducing inflation, the direct impact on growth is fairly limited. Middle Eastern and North African and Southern and Eastern European nations are able to lower their inflation rates substantially by undergoing a regime change to begin inflation targeting And along with Latin American and Caribbean nations, all of these nations are able to turn that into direct success in short-term economic growth. From the analysis of inflation and economic growth we can conclude that the policy of inflation targeting has improved macroeconomic performance of the country by ensuring a level of stable and low inflation with sustainable economic growth.

REFERENCES

- [1]. Aguir Abdelkader (2014) « Inflation Targeting: An Alternative to Monetary Policy » International Journal of Economics and Finance Vol 6, No 7
- [2]. Aguir Abdelkader (2014), “ The effects of inflation targeting strategy on the growing performance of emerging countries“International Journal of Economics, Commerce and Management Vol. II, Issue 8
- [3]. Aguir Abdelkader (2014) « The Effects of Inflation Targeting on Macroeconomics Performance» International Journal of Advances in Management and Economics Vol.3 Issue 5
- [4]. Aguir Abdelkader (2014) « Price Stability in Open-Economy under Inflation Targeting Regime with Factors Influencing Inflation Volatility » International Finance and Banking Vol. 1, No. 2
- [5]. Aguir Abdelkader (2014) « Effects of Adopting Inflation Targeting Regimes in Emerging Country»
- [6]. International Journal of Academic Research in Economics and Management Sciences Vol. 3, No. 6
- [7]. Abo-Zaid, S., & Tuzemen, D. (2012). Inflation targeting: A three decade perspective. Journal of Policy Modeling, 34, 621–645.
- [8]. Angeriz, A.,&Arestis, P.(2006). Has inflation targeting had any impact on inflation? Journal of Post KeynesianEconomics, 28, 559–571.
- [9]. Ball, L., & Sheridan, N. (2005). Does inflation targeting matter? In B. Bernanke, & M. Woodford (Eds.), The inflation targeting debate (pp. 249–276). Chicago: The University of Chicago Press.

- [10]. Batini, N., & Laxton, D. (2007). Under what conditions can inflation targeting be adopted? The experience of emerging markets. In F. Mishkin, & K. Schmidt-Hebbel (Eds.), *Monetary policy under inflation targeting* (pp. 1–38). Santiago: Central Bank of Chile.
- [11]. Brito, R., & Bystedt, B. (2006). The macroeconomic effects of inflation targeting in Latin America. *Ibmec Sao Paulo Working Papers*.
- [12]. Brito, R., & Bystedt, B. (2011). Inflation targeting in emerging economies: Panel evidence. *Journal of Development Economics*, 91, 198–210.
- [13]. Cecchetti, S., & Ehrmann, M. (2002). Does Inflation Targeting Increase Output Volatility?: An International Comparison of Policymakers' Preferences and Outcomes. In N. Loayza, & K. Schmidt-Hebbel (Eds.), *Monetary Policy: Rules and Transmission Mechanisms* (pp. 247–274).
- [14]. Dincer, N., & Eichengreen, B. (2007). Central bank transparency: Where, why, and with what effects? *NBER Working Paper* 13003.
- [15]. Goncalves, C., & Salles, J. (2008). Inflation targeting in emerging economies: What do the data say? *Journal of Development Economics*, 85, 312–318.
- [16]. Holub, T., & Hurnik, J. (2008). Ten years of Czech inflation targeting: Missed targets and anchored expectations. *Emerging Markets Finance and Trade*, 44(6), 67–86.
- [17]. Levin, A., Natalucci, F. M., & Piger, J. (2004). The macroeconomic effects of inflation targeting. *Federal Reserve Bank of St. Louis Review*, 86(4), 51–80.
- [18]. Lin, S., & Ye, H. (2009). Does inflation targeting make a difference in developing countries? *Journal of Development Economics*, 89, 118–123.
- [19]. Mishkin, F. (2004). Can inflating targeting work in emerging market countries? *NBER Working Paper* 10646.
- [20]. Mishkin, F. S. (2008). Challenges for inflation targeting in emerging market countries. *Emerging Markets Finance and Trade*, 44(6), 5–16.
- [21]. Mishkin, F., & Schmidt-Hebbel, K. (2007). Does inflation targeting make a difference? *NBER Working Paper* 12876.
- [22]. Mollick, A., Cabral, R., & Carneiro, F. (2011). Does inflation targeting matter for output growth? Evidence from industrial and emerging economies. *Journal of Policy Modeling*, 33, 537–551.
- [23]. Neumann, M. J. M., & von Hagen, J. (2002). Does inflation targeting matter? *Federal Reserve Bank of St. Louis Review*, 84(4), 127–148.
- [24]. Siklos, P. L. (2008). Inflation targeting around the world. *Emerging Markets Finance and Trade*, 44(6), 17–37.
- [25]. Singh, K., & Kalirajan, K. (2003). The inflation-growth nexus in India: An empirical analysis. *Journal of Policy Modeling*, 25, 377–396.
- [26]. Svensson, L. E. O. (2011). Inflation targeting. In B. Friedman, & M. Woodford (Eds.), *Handbook of monetary economics* (pp. 1237–1302). Elsevier.
- [27]. Tanuwidjaja, E., & Choy, K. (2006). Central bank credibility and monetary policy in Indonesia. *Journal of Policy Modeling*, 28, 1011–1022.
- [28]. Us, V. (2004). Inflation dynamics and monetary policy strategy: Some prospects for the Turkish economy. *Journal of Policy Modeling*, 26, 1003–1013.
- [29]. Us, V. (2007). Alternative monetary policy rules in the Turkish economy under an inflation-targeting framework. *Emerging Markets Finance and Trade*, 43(2), 82–101.