



# The price stability under inflation targeting regime: An analysis with a new intermediate approach



Zied Ftiti<sup>a,b,\*</sup>, Walid Hichri<sup>c,d,e</sup>

<sup>a</sup> IPAG Business School, IPAG Lab Paris, France

<sup>b</sup> University of Tunis, High Business Institute of Management, GEF-2A Laboratory, Tunis, Tunisia

<sup>c</sup> University of Lyon, F-69007, France

<sup>d</sup> GATE, CNRS, 93, Chemin de Mouilles, F-69130 Ecully, France

<sup>e</sup> LAREQUAD, Tunisia

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## ABSTRACT

This paper analyzes the relevance of the inflation targeting (IT) policy in achieving its primary goal of medium-term price stability. Contrary to previous studies, we propose, in this work, a new approach; *an intermediate approach* that consists in conducting a time-series analysis (employed in the literature under unilateral cases-absolute approach) with a comparison of inflation performance of IT countries and those of non-IT countries (comparison made in literature under the relative approach). Empirically, we employ a frequency analysis based on evolutionary spectral theory of Priestley (1965–1996) in order to distinguish between different inflation horizons; short-run and the medium-run inflation rates. To check the stability of spectral density functions for inflation series for each country under studied frequencies, we apply a Bai and Perron (2003a,b) test. Our results show that after IT framework implementation, there is no break point in inflation series in short and medium terms. This result is not verified for non-IT countries. Therefore, IT is more relevant in achieving price stability and consequently more effective on inflation expectation anchoring than other monetary policies.

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## 1. Introduction

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.

This aspect leads to different ways of implementing IT policy. Indeed, countries like Germany, and the USA... have had inflation focused monetary policies. They have not made any explicit acknowledgement and are not regarded as IT countries ([Bernanke and Mishkin, 1997](#); [Dueker and Fisher, 1996, 2006](#); [Lee, 1999](#)).

In these two kinds of countries<sup>1</sup> we observe great inflation stability since the nineties. Researchers in favor of IT policy suggest that the increased monetary policy stability under IT regime is achieved through the medium-term target announced to the public and through the great communication, transparency, and central bank accountability imposed by this new framework. However, others suggest that this stability is achieved where the central bank exerts a greater control over the expectations of the forward-looking private sector. For this reason, a large debate in the literature has emerged about the relevance of IT. Indeed, since two decades, there exists, in the academic literature, a rough debate between the proponents and the opponents to IT; such as the discussion opposing [Mishkin \(2004\)](#) and [Friedman \(2004\)](#). [Mishkin \(2004\)](#) recommends strongly for the Federal Reserve Bank (FRB) the adoption of IT

\* Corresponding author at: IPAG Business School, IPAG Lab, Paris, France.  
E-mail addresses: [Zied.Ftiti@isg.rnu.tn](mailto:Zied.Ftiti@isg.rnu.tn) (Z. Ftiti), [hichri@gate.cnrs.fr](mailto:hichri@gate.cnrs.fr) (W. Hichri).

<sup>1</sup> Countries which adopt a strict IT strategy, as defined by [Bernanke et al. \(1999\)](#), i.e. respecting all pre-conditions of IT adoption, named in this paper IT-countries and countries which had inflation focused monetary policies named non-IT countries.

strategy allowing monetary policy to be forward-looking and pre-emptive. This recommendation is justified by the ability of IT policy to ensure transparency, accountability and by proposing the disadvantages of the “just do it” strategy followed by the FRB such as the lack of explicit nominal anchor.<sup>2</sup> In response to Mishkin (2004), Friedman (2004) invites FRB policymaker's to reject all calls to adopt IT. On a conceptual level, he argues that this policy did not provide transparency and accountability. Secondly, he rejects the arbitrary choice of inflation as the only target policy. In addition, Friedman (2004) considers that rational IT is a consequence of Phelps–Friedman's natural rate model allowing trade-off between real outcomes (output) and nominal outcomes (inflation). However, this trade-off is only for finite horizon and he vanishes in the long-run.<sup>3</sup>

This debate has been accentuated by the fact that the majority of empirical studies devoted to industrialized countries did not reach a consensus on a significant impact of IT adoption on inflation performance, contrary to studies on emerging economies. In other words, this large literature about IT policy has some struggles in detecting the net effect of IT policy. Two kinds of methodologies are commonly employed for evaluating the effect of an economic reform. The first one is an approach in absolute terms (time-series econometrics) which consists in comparing the evolution of economic aggregates before and after the implementation of this policy, i.e. only in countries which have adopted this policy such as in Huh (1996), Almeida and Goodhart (1998), Bernanke and Mihov (1998), Lane and Van Den Heuvel (1998), Honda (2000), Choi et al. (2003), Ftiti and Essaadi (2008a,b), Mollick et al. (2011), Ftiti (2010), Tas (2012). The second kind of literature is based on an approach in relative terms (panel data econometrics) which consists in comparing performance of IT with performance of non-IT countries, such-as in Ball and Sheridan (2003), Wu (2004), Pétursson (2004), Lin and Ye (2007), Angeriz and Arestis (2008), Ball (2010), Willard (2012).

The above literature reaches mixed results about the relevance of IT strategy. We believe that the followed methodologies are the main reason of these conflicting results. In one hand, the absolute approach (unilateral evidence) is problematic and biased when external factors can also influence economic performance. As Dueker and Fisher (1996) think, we argue that the conclusion based on unilateral evidence can be misguided because many countries have shared a parallel disinflationary environment without employing any formal targeting framework. On the other hand, a relative approach makes implicitly the hypothesis that the IT strategy is the same in all IT countries, requiring consequently a control group reasonably comparable to the treatment group.

As a result of this recent debate, the objective of this paper is to provide further insights into the above unresolved issue. In other words, the aim of this paper is to assess whether IT-countries achieve their primary monetary policy goal of medium-term price stability better than non-IT countries or not.

Unlike previous studies, we propose in this work a new approach, called an intermediate approach that consists in combining between the above two approaches presented in literature. It consists in conducting a time-series analysis (employed in the literature under unilateral cases-absolute approach) with an inflation performance comparison between IT-countries and non-IT countries (comparison made in literature under relative approach). As a perspective of the country-pairing strategy employed earlier by Dueker and Fisher (1996) and Lee (1999), this study employs a bilateral framework by pairing Canada with the United States of America (USA), the United-Kingdom (UK) with France and Sweden with Norway. Our choice of only three IT-countries (Canada, the UK and Sweden) is justified by their longer IT experiences and the fact that they are the most IT-countries used in

previous works. Our choice of the paired countries is motivated by the studies of Dueker and Fisher (1996, 2006) and Lee (1999).<sup>4</sup>

In this paper, we propose a new empirical methodology based on a frequency approach: The evolutionary spectral analysis (ESA) as defined by Priestley (1965–1996). This technique is suitable for our intermediate approach for several reasons. Firstly, our objective consists in checking the achieving of the IT primary goal—price stability in the medium-term. We need to distinguish between short-term inflation rate, medium-term and the long-run one. The approach we present can achieve this exercise. Secondly, the ESA does not depend on any previous modeling. In other words, it allows us to model non stationary time series without appealing a differentiation or detrending techniques. Thirdly, it has not an “end-point problem”: no future information is used, implied or required as in band-pass or trend projection methods. At the end, to check the stability of inflation series for different horizons and especially in the medium-term, we apply the Bai-Perron test (1998, 2003a,b) which is able to detect endogenously multiple break points.

This paper is organized as follows. Section 2 presents stylized facts about IT-countries and non-IT countries in our sample and the related literature. Section 3 explains the methodology developed in this paper. Section 4 analyzes our main finding results and Section 4.2 concludes.

## 2. Stylized fact about inflation targeting countries and related literature

Since the 70s, many central banks believed that the main objective of monetary policy is to ensure price stability. This consensus is the result of widespread recognition of the negative repercussions on economies with high inflation and boom-bust cycles.<sup>5</sup> In addition, the seventies decade has been marked by the collapse of the international monetary system Bretton–Woods (1944–1971) and the occurrence of multiple crises (1973, 1979...) as consequences of deteriorations of many macroeconomic indicators and especially a high inflation rate. Until the seventies, central banks have generally saw assign broad mandates or inaccuracy involving difficult trade-offs between different objectives. In this period, large literature has emerged showing the role of nominal anchoring in monetary policy framework in order to achieve price stability (Friedman, 1968; Lucas, 1972, 1976; Phelps, 1968;...).<sup>6</sup> During the period 1970–1990, the nominal anchor was achieved through intermediate target such as monetary aggregate and exchange rate. For example, for our sample countries (Appendix A), inflation rates remain high (double digit values) during this period (1970–1990). In most of the countries of the world, these monetary policies failed in achieving price stability. In addition to other causes,<sup>7</sup> their failures have been attributed to their degree

<sup>4</sup> They used three pairs: Canada vs. USA; UK vs. Germany; Sweden vs. Norway. However, according to recent classifications in the academic literature, Australia is considered as an inflation targeting country. Therefore, we replace the first pair by Sweden vs. Norway. This last choice is justified by their common economic specificities, their different official policy rules and their high degree of business cycle correlation (Bergman and Jonung (2010)). Norway focuses on targeting money growth. Dueker and Fisher (1996) and Lee (1999) compared UK to Germany. However, in our IFS database the consumer price index data is available only since 1995Q1. Consequently and based on business cycle correlation we replace Germany by France.

<sup>5</sup> There are many costs that flow from an environment of high inflation resulting on longer-term decisions of savers and investors, investment decisions, distortions of relatives' prices, increase of taxation, bad effects on long-term bond markets... Other potential implications of high and volatile inflation relate on unemployment and output volatility. For more details, see Freedman and Laxton (2009) pages 3 to 6.

<sup>6</sup> This literature started with Friedman (1968) and Phelps (1968) who showed the importance of expectations on the monetary policy mechanisms. They proved that the output gap is a result of bad expectations on prices and wages and not of a change in the aggregate demand. Then, Lucas (1972, 1976) showed that, in the case of rational expectations and flexible prices and wages, there is no trade-off between inflation and output in short-run, leading to price stability. He concludes that monetary policy must not have as objective the stabilization of production because such a policy is not able to do so.

<sup>7</sup> In one hand, the most important failure reason of monetary targeting policy is the instability in the demand for money function resulting from bank system deregulation and bank's financial innovations. On the other hand, countries adopting exchange rate targeting, are exposed to speculative attacks against their currencies and they lose their monetary policy independence in the context of capital mobility. For more details, see Freedman and Laxton (2009) pages 8 and 9.

<sup>2</sup> For more details, please see Mishkin (2004), pages 2 and 3.

<sup>3</sup> For more details, please see Friedman (2004), page 131.

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