# IMF Working Paper

Country Experiences with the Introduction and Implementation of Inflation Targeting

*Charles Freedman and İnci Ötker-Robe*

INTERNATIONAL MONETARY FUND

# IMF Working Paper

Monetary and Capital Markets Department

**Country Experiences with the Introduction and Implementation of Inflation Targeting**

**Prepared by Charles Freedman and İnci Ötker-Robe[1]**

Authorized for distribution by İnci Ötker-Robe

July 2009

**Abstract**

This is the tenth chapter of a forthcoming monograph entitled, "On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say." It describes the experiences of a number of countries with the introduction and implementation of inflation targeting regimes. It discusses their motivation for introducing IT; how they fared in meeting the various conditions that some have argued are needed in advance of introducing IT; how they transitioned to a full-fledged IT framework and coordinated their preparations with other economic policies and reforms; the benefits they gained by adopting IT; the challenges they faced in implementation; and the lessons from their experiences.

---

[1] Charles Freedman is Scholar in Residence in the Economics Department, Carleton University, Ottawa, Canada. Inci Ötker-Robe is a Division Chief in the Monetary and Capital Markets Department. This paper represents the tenth chapter of a manuscript that is being prepared by Charles Freedman, Douglas Laxton and İnci Ötker-Robe *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*. The Appendix provides a summary of the book. The authors wish to thank a number of colleagues at the Fund and other policymaking institutions for encouraging us to do this work. We also acknowledge the valuable inputs received from the authorities of the countries included in this chapter, as well as Fund colleagues for comments on the discussions of the challenges faced during 2007-08—the latter draw on Habermeier and others (2009). The views expressed here are those of the authors and do not necessarily reflect the position of the International Monetary Fund.

## Contents

## I. INTRODUCTION

Over the last two decades, many industrial countries and an increasing number of emerging market economies have adopted inflation targeting as their framework for monetary policy (Freedman and Laxton, 2009a). This chapter presents a summary of the experiences of a selected number of countries (Canada, Chile, Czech Republic, Hungary, Israel, Poland, Romania, and Turkey) in introducing and implementing inflation targeting (IT).[2] In particular, it discusses: (i) the motivation for adopting IT; (ii) how the countries fared in meeting the various elements discussed in the literature as conditions for adopting IT; (iii) how they transitioned to a full-fledged IT framework and coordinated their preparations with other economic policies and reforms; (iv) the benefits they gained by adopting IT; (v) the challenges they faced in implementation; and (vi) the lessons from country experiences.

## II. MOTIVATION FOR ADOPTING INFLATION TARGETING

A fairly common set of factors played a role in the introduction of IT by the countries in our sample (see Table 1, and Appendix II, Tables 6-8 for more details). As discussed in Freedman and Laxton (2009a), unfavorable experiences with other nominal anchors (such as exchange rate and monetary targeting) as well as the desire to lower the rate of inflation and to anchor inflation expectations through a simple observable target were the most common reasons underlying the countries' switch to IT.[3] In the Czech Republic and Turkey, the unsustainable macroeconomic situation that helped precipitate an economic crisis in 1997 and 2001, respectively, left few, if any, options for policymakers who needed to find a credible, simple framework to anchor inflationary expectations and stabilize macro-economic conditions. The fact that the prevailing ITers that had adopted the framework during the 1990s had had positive experiences with the framework also provided support for adopting this new anchor (in Czech Republic, Romania, and Turkey).

---

[2] This synthesis of country experiences until 2007 is based on the detailed country studies prepared and presented by the current or past representatives of a number of central banks, including, Charles Freedman (Canada); David Vávra (Czech Republic); Klaus Schmidt-Hebbel (Chile); Ágnes Csermely and Gábor Orbán (Hungary); Meir Sokoler (Israel); Jacub Borowski and Marek Rozkrut (Poland); Dan Bucsa and Adrian Codirlasu (Romania); and A. Hakan Kara (Turkey). The discussion of the experiences from 2007 to 2008 is based on Habermeier and others (2009).

[3] Problems with monetary and exchange rate targeting were especially acute in small open economies with few or no constraints on capital flows. In such an environment, foreign exchange intervention to counter the effect of the capital inflows on the value of the domestic currency either led to an increase in the money supply or required sterilization of the intervention, or some combination. A number of countries (e.g., Czech Republic, Israel, Poland, and Romania) had difficulty in controlling the impact of heavy capital inflows on the money supply, and the resultant limited track record in meeting the intermediate money targets undermined the credibility of the central bank's disinflation efforts, eventually leading to a search for an alternative nominal anchor that directly targets inflation given the "impossible trinity problem."

## Table 1. Motivation for Adopting Inflation Targeting 1/

| | Difficulty with other nominal anchors in controlling inflation and anchoring expectations | Initial conditions | | Success of other IT countries | Other factors/Comments |
|---|---|---|---|---|---|
| | | High inflation | Economic crisis | | |
| Canada (1991) | √ | √ | | | Introduction of a VAT type tax |
| Chile (1990) | √ | √ | | | |
| Czech R. (1998) | √ | √ | √ | √ (partly) | Seen as the only option left at the time of economic crisis in 1997 |
| Hungary (2001) | √ | √ | | | Need for faster progress in reducing inflation |
| Israel (1992) | √ | √ | | | Serves as input into the choice of a specific upward slope for the crawling peg regime |
| Poland (1998) | √ | √ | | | Heavy capital inflows; enhancing credibility for disinflation |
| Romania (2005) | √ | | | √ | To help meet criteria for ERM II and euro adoption; heavy capital inflows; enhancing credibility |
| Turkey (2006) | √ | √ | √ | √ | Seen as the only option left at the time of economic crisis in 2001; during 2002-05, implicit IT was implemented. |

Source: National central bank authorities.

1/The dates for the adoption of IT by Chile and Israel in this table differ from those in table 1in Freedman and Laxton (2009a). The former are based on the responses of the national central bank authorities, while the latter are based on Roger and Stone (2005). The differences probably reflect a difference in views as to the minimum conditions required to categorize a monetary framework as IT.

Some country specific elements also played a role. In Romania, reducing inflation was important to meet the EU integration criteria and to enhance policy credibility. In Israel, explicit inflation targets were adopted in 1992, not because of the virtues of IT, but as an important input into the choice of a specific upward slope for a newly introduced crawling peg exchange rate regime. The latter had been introduced after the failure of several variants of fixed exchange rate regimes.[4] At the time of IT introduction, there was no official decision about the inflation target, nor was there a clear statement about the role that the central bank was expected to play in ensuring the achievement of the target. It was only over the years that IT begun to have a life of

---

[4] See Ötker-Robe and Vávra (2007).

its own. In Canada, the introduction of the goods and services tax in early 1991 was expected to trigger higher inflation and a resurgence of inflation expectations. The latter provided an incentive to adopt "inflation reduction" targets in early 1991, making concrete the way the Bank of Canada intended to lower inflation and move to price stability.

### III. CONDITIONS AT THE TIME OF INTRODUCING INFLATION TARGETING

The country experiences support the earlier arguments of Freedman and Ötker-Robe (2009) that countries do not have to satisfy a long list of preconditions at the outset to implement the IT framework successfully. Among the sample countries, only one (Canada) was well-positioned to move to a full-fledged IT regime at the time that it adopted the policy framework. In others, while some of the so-called preconditions were met, a number of them were missing and were established gradually over time after the adoption of IT (Table 2 and Table 3).

### Table 2. Main Elements of Successful Inflation Targeting Implementation

| Conditions | Countries satisfying |
|---|---|
| Price stability as the primary goal of monetary policy | Romania and Turkey |
| Price stability main objective with other goals | Canada, Chile, Czech Republic; Hungary, Israel and Poland (with exchange rate bands) |
| Goal independence or agreement with the government on inflation target path | Israel (government set the target); Canada, Czech Republic, Hungary, and Turkey (joint between government and CB); Chile, and Poland (CB) |
| Absence of fiscal dominance (gov. access to CB credit limited/ prohibited)* | Canada, Chile, Czech Republic, Hungary, Israel, Poland, Romania, and Turkey |
| Central bank instrument independence* | Canada (de facto) Chile, Czech Republic, Hungary, Israel, Poland, Romania, and Turkey |
| Well-understood transmission mechanism | Relatively good in Canada (though with gaps); Basic at outset, with continuing efforts in: Chile, Czech Republic, Hungary, Israel, Poland, Romania, and Turkey |
| Reasonable degree of control over short-term interest rates* | Canada, Chile, Czech Republic, and Turkey. Hungary, Israel, and Poland (though reasonable, it was complicated somewhat by simultaneous pursuit of the ER target) |
| Reasonably well-developed financial markets* | Canada and Chile (well-developed) Czech Republic, Hungary, Israel (relatively well-developed), Turkey, Poland, and Romania (less well-developed) |
| Reasonably stable financial system* | Canada, Chile, Hungary, Israel, Poland, Romania, and Turkey |
| Modeling/forecasting capacity | Canada (well-developed). In the remaining countries-- little at the start, developed and improved over time. |
| Mechanisms of accountability | Canada (no formal accountability mechanism at the outset, but need to explain monetary policy to public; formal mechanisms established over time); Turkey (through requirement to inform the public about CB operations and monetary policy and when targets were not met at the designated time). |

* Indicates the condition satisfied by most countries.

## Table 3. Summary Status of Inflation Targeting "Preconditions" at the Time of Inflation Targeting Adoption

| Country | Preconditions in place when IT was introduced | Preconditions missing when IT was introduced |
|---|---|---|
| General | • Price stability as primary goal and CB instrument independence at the time of IT introduction<br>• Lack of fiscal dominance<br>• Reasonable control over short-term interest rates<br>• Reasonable financial system stability<br>• Reasonably well-developed financial markets | • Modeling/forecasting capacity<br>• Good understanding, and well functioning, of transmission mechanism<br>• Lack of dual anchors (Poland, Israel, and Hungary)<br>• Goal/legal independence<br>• Fully developed economic databases |
| Canada | • Low inflation as one of the monetary policy goals<br>• De facto instrument independence<br>• No fiscal dominance<br>• Effective control over short-term interest rates<br>• Reasonable understanding of transmission mechanism Well-developed financial markets<br>• Healthy and stable financial system | • Informal goal independence (general agreement that the framework would be enhanced if the goal was the joint responsibility of the CB and the government.<br>• No formal mechanism for accountability, though the CB was expected to explain to public how it carried out its responsibility under IT |
| Chile | • Full independence (goal and instrument)<br>• No fiscal dominance<br>• Financial system stability<br>• Reasonable control over short-term interest rates<br>• Reasonably well-developed financial markets | • Presence of a dual anchor (crawling band until 1999)<br>• Modeling/forecasting capacity<br>• Basic understanding of transmission mechanism |
| Czech Republic | • No fiscal dominance<br>• Instrument independence<br>• Effective monetary policy implementation with key interest rate<br>• Reasonably developed financial markets | • Price stability mandate<br>• Fragile banking system<br>• No experience in forecasting inflation<br>• Some understanding of transmission mechanism<br>• Little credibility, accountability, accountability<br>• No adequate organizational structure<br>• Little political support |
| Hungary | • Price stability as primary goal and CB independence at the time of IT introduction<br>• Reasonable financial system stability<br>• Reasonable control over short-term interest rates<br>• Reasonably well-developed financial markets | • Dual anchor (ER band, widened at IT adoption)<br>• Modeling/forecasting capacity gradually building up<br>• Some intuition about the transmission mechanism, not much econometric evidence<br>• No fiscal rule in place |
| Israel | • No fiscal dominance<br>• Reasonable control over short-term interest rates<br>• Increasing actual CB independence<br>• Well-developed financial markets<br>• Reasonable financial system stability | • Weak legal independence<br>• Basic understanding of transmission mechanism<br>• Modeling/forecasting capacity gradually building up<br>• Presence of a dual anchor (crawling band, widened in steps) |
| Poland | • Institutional commitment to price stability<br>• No fiscal dominance<br>• Reasonable control over short-term interest rates<br>• Instrument independence<br>• Well-developed financial markets<br>• Safe/sound financial system | • Presence of a dual anchor (crawling band, widened in steps after IT adoption and eventually floated)<br>• Not very well-developed financial markets<br>• Not very well developed forecasting capacity<br>• Imperfect functioning of the transmission mechanism; limited data to assess inflation developments |
| Romania | • Institutional commitment to price stability<br>• No threat of fiscal dominance<br>• Reasonable control over short-term interest rates<br>• Full operational and institutional independence<br>• Well-developed financial markets<br>• Sounder and deeper financial sector | • Not very well-developed financial markets<br>• Forecasting/modeling capacity development ongoing<br>• Imperfect functioning of the transmission mechanism with limited information/data to assess inflation developments |
| Turkey | • No fiscal dominance<br>• Institutional commitment to price stability<br>• Price stability primary objective, set jointly with gov.<br>• Instrument independence<br>• Reasonable control over short-term interest rates<br>• Well-developed financial markets<br>• Sounder and stronger financial system | • Forecasting/modeling capacity development ongoing<br>• Understanding of the transmission mechanism improving |

In most IT countries, a number of key elements of IT were present at the outset (Table 3). Price stability was the overriding goal of monetary policy, even when there were other objectives in the central banks' charters; the central bank had instrument independence; government access to central bank financing was prohibited or limited; there was reasonable capacity to affect short-term interest rates; and the financial systems and markets were sufficiently stable and well-developed, facilitating the transmission of official monetary actions to market interest rates. In contrast, most countries lacked the capacity to effectively model and forecast inflation and did not have fully-developed economic databases; the understanding and functioning of transmission mechanism were not ideal; and the central bank did not have legal independence. Several countries continued to pursue dual nominal anchors (exchange rate and inflation targets in particular), abandoning them only gradually over time; in Poland, the crawling band was eliminated relatively quickly, but Israel and Hungary eliminated their bands 5 years and 7 years, respectively, after adopting IT.

## IV. TRANSITION TO FULL-FLEDGED INFLATION TARGETING

The process of transition to IT typically started with policymakers announcing their intention to adopt inflation targeting. The transition ended when most of the elements of full-fledged IT (FFIT) were in place. In some cases, the authorities simply announced an (unofficial) inflation target while maintaining some other nominal anchor (such as exchange rate or monetary targets) to supplement the unofficial inflation targets. Most emerging market countries have undergone a period of transition prior to adopting FFIT (Table 4), pursuing some intermediate versions of the framework (implicit or partial IT) in the interim.

In general, there is no firm conclusion on the benefits of gradualism versus a rapid approach. In some countries the adoption of a full-fledged IT framework followed a lengthy transition period (Chile, Hungary, Israel, Romania, and Turkey), while in others, the transition was fairly quick (Canada, Czech Republic and Poland).[5] The length of the transition periods generally depended on the starting conditions (the extent to which the necessary conditions for FFIT were in place at the outset or the urgency of the need for an alternative anchor) and the speed of progress in putting in place the remaining elements (in particular the adoption of a flexible exchange rate regime and the institutional/operational environment conducive to a smooth implementation of the framework).

The gradualist approach has been motivated by a number of factors. In Turkey, the authorities took a very cautious approach, trying to avoid a premature adoption of the framework that could result in a loss of credibility when some essential elements for a successful implementation of the framework were missing. Considering the need for an alternative nominal anchor after a crisis exit from the prevailing crawling peg regime, the authorities adopted a "lite" version of IT until most essential elements of the framework were put in place. As well, in other countries (Chile, Hungary, and Israel), the length of the

---

[5] It took 10 years in Chile and 8 years in Israel from the point when the first annual inflation targets were declared. In Poland, a partial form of IT was introduced relatively quickly, but it took close to 2 years before a full-fledged IT was introduced with the floating of the currency.

transition reflected in part the difficulty of putting together the extensive institutional requirements for a successful implementation of IT (Ötker-Robe and Vávra, 2007). This of course meant that the countries abandoned the anchor role of the exchange rate only gradually, adopting implicit/partial IT regimes that involved pursuing inflation and exchange rate targets simultaneously. FFIT was attained when the exchange rate bands were eventually abandoned.

Some countries took a bolder approach. In the Czech Republic, for example, the authorities introduced a formal IT regime shortly after the koruna was forced out of its horizontal band in a currency crisis in mid-1997, having decided that a rapid movement to an alternative framework was crucial to restore credibility and to stabilize market conditions. IT was introduced after an intensive preparation period of six months, with some of the most essential elements for its implementation in place, although others were missing. With some of the conditions not fully in place, the rapid adoption of IT required intensive efforts for capacity building and a process of learning by doing. A clear mandate to pursue price stability, which was missing at the outset, was formally adopted several years later, and the central bank attained sufficient understanding of the monetary transmission mechanism and modeling and forecasting capacity several years after the IT adoption.

The adoption of IT without all the supporting elements nevertheless caused difficulties in establishing credibility. In the Czech Republic, for example, the limited knowledge of the policy transmission mechanism complicated decisions about the appropriate degree of policy tightening needed to achieve the inflation target, contributing to an initial undershooting of the targets combined with a protracted recession (see below). The latter raised questions about the central bank's independence in the absence of sufficient public familiarity with, and support for, the new regime, and in the absence of a clear mandate for price stability. Despite these difficulties, the relatively rapid introduction of IT helped overcome the crisis quickly, and the credibility of the IT regime has remained strong ever since. Even where the IT framework was not adopted under crisis conditions, coping with the absence of some of the IT preconditions was a challenge. For instance, in Poland the absence of a good understanding of the monetary transmission mechanism and forecasting capacity also complicated monetary management in the early years of IT implementation.

In general, efforts to build capacity to implement a flexible exchange rate regime have facilitated the ability of countries to operate IT as the new monetary policy framework. In both Poland and Czech Republic, which moved to IT after a short period of transition, the authorities had established the basic ingredients of a flexible exchange rate regime by the time the domestic currencies were allowed to float (Figure 1). These ingredients included: developing sufficiently deep foreign exchange markets, setting up adequate systems to manage exchange rate risks, formulating coherent intervention policies, and establishing an adequate capacity to implement monetary policy, including the ability to influence short-term interest rates. In these countries, as well as in those with longer transition periods (Chile, Hungary, Israel and Turkey), these ingredients had been put in place gradually over time, facilitating the operation of FFIT, which entails a floating exchange rate. Establishing the capacity to implement IT and moving to a flexible exchange rate regime have therefore proved to be mutually reinforcing.

## Table 4. Transition to Full-Fledged Inflation Targeting

| Country | Gradual vs. Big bang approach | Beginning of transition to full-fledged IT | Adoption of full-fledged IT (FFIT) | Period of transition |
|---|---|---|---|---|
| Canada | Big-bang approach | Summer 1990 (when preparations started) | February 1991 | Very short transition period, with all the work done internally at the central bank, with some exploration of the NZ announcement in 1989. Communication efforts for formal accountability enhanced gradually. |
| Chile | Gradual approach | September 1990 | September 1999 (with full peso float) | Long transition period to FFIT, with the crawling band abandoned in 1999 |
| Czech Republic | Big-bang approach | December 1997 | Early 1998 | Very short: adopted after a few months of technical preparations, with further refinements continuing until 2001-02. However, many elements that would facilitate operation of a flexible ER and IT had been put in place over time. Medium term targets adopted from 2002. |
| Hungary | Gradual approach | June 2001 (official announcement of a partial IT regime) | February 2008 (with forint's full float) | Gradual transition period to FFIT, with the horizontal exchange rate band in place until Feb 2008, although most other elements of FFIT were in place since 2001. The band was kept in place, with the band width widened to 30% for greater room for maneuver since keeping the band within ERM II was considered important to provide a smooth exit in the process of transition to euro adoption. |
| Israel | Gradual approach | December 1991 | June 1997 | Long transition period to FFIT, with sufficient widening of the crawling band and ceasing of FX intervention in June 1997 making policy conflicts less likely. The shekel then floated de facto (with full de jure floating only since mid-2005). Medium term targets adopted since 2000. |
| Poland | Relatively rapid and smooth | June 1998 (announcement of intention to introduce IT) | April 2000 | Short transition period with further refinements continuing. In March 1999, IT was officially adopted with zloty's de facto float (full float beginning in April 2000). Medium term targets since October 1999. |
| Romania | Gradual approach | July 2004 (internal IT with shadow forecasts and informal Inflation Reports) | August 2005 (partial IT, with ER managed and financial system not fully developed | Relatively long transition process to FFIT (process not yet complete). Introduction of partial IT was relatively fast, with intensive bilateral/Fund TA assisting preparations. |
| Turkey | Gradual approach | 2002 (implicit IT) | January 2006 | Long period of implicit IT until a reasonable set of conditions was put in place, so as to avoid credibility loss from a premature adoption of IT. Bilateral/IMF TA supported the process that focused on enhancing technical infrastructure, a more predictable, systematic decision-making process, and communications. Monetary aggregates were used as complementary (though subordinate) anchors. |

Source: National central banks.

# Figure 1. Coordination of Other Supporting Economic Reforms/Policies with Capacity Building for IT



**Chile**



**The Czech Republic**

# Figure 1. Coordination of Other Supporting Economic Reforms/Policies with Capacity Building for IT (concluded)

**Israel**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Basket Peg | Horizontal Band | | Crawling Band | Crawling Fan (de facto float) | | | **Exchange Rate Regime** — Free Float |

**Monetary Policy Operational Capacity**
- CB bills introduced
- Interest rate targeting
- Full corridor system introduced

**IT capacity**
- Annual inflation targets
- Full-fledged IT
- Multi-year inflation targets

**FX risk management and regulation**
- Basel I requirements introduced
- Limits on FX open positions
- Stricter reporting and assessment of indirect FX risk
- Reporting on FX risk policies, capital charges for FX risk
- Higher reserve provisions against FX risk exposure

**FX market**
- CB market maker
- CB sells FX options
- Fixing ends, Multi-lateral auctions
- OTC market for FX options
- Continuous interbank market; exchange traded FX options
- First interbank broker
- Options to Euro introduced

**Intervention policies**
- CB fixing
- Smoothing operations inside the band
- Inner band
- Reduction of interventions, soon resumed
- Interventions stopped (formal policy of no intervention)

**Capital inflow liberalization**
- Long-term inflows liberalized
- Short-term inflows liberalized
- All restrictions on non-residents lifted
- Full liberalization

**Capital outflow liberalization**
- Futures transactions of residents permitted
- Financial investment liberalized
- FDI liberalized
- Most other outflows liberalized
- Full liberalization

1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006

**Poland**

| | | |
|---|---|---|
| Peg USD/Basket | Crawling Peg | Crawling Band | Free Float | **Exchange Rate Regime** |

**Monetary Policy Operational Capacity**
- Repo operations
- Unified Policy Rate on OMOs
- O/N deposit standing facility; interest rate corridor in place

**IT capacity**
- Official IT
- Full-fledged IT

**FX risk management and regulation**
- Tight qualification criteria and provisions
- Limits on net open FX positions (NOP) set
- Tighter supervision of indirect FX risk, NOP limits replaced with capital requirements

**FX market**
- Spot market develops
- CB stops being a single market maker, boosting FX market
- Swap and NDF markets develop

**Intervention policies**
- Abolition of direct FX interventions
- Abolition of indirect (fixing) interventions

**Capital inflow liberalization**
- FDI and equity portfolio inflows largely liberalized
- T-bill inflows liberalized
- Other securities inflows liberalized
- FX swaps permitted

**Capital outflow liberalization**
- Liberalization of some outflows
- Full liberalization (EU, OECD)

1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002

Source: Ötker-Robe and Vávra (2007).

## V. BENEFITS OF INFLATION TARGETING

The new monetary framework has brought a number of benefits to the countries in our sample. In particular, IT has contributed to the authorities' efforts to disinflate; inflation expectations were better anchored and showed some signs of becoming more forward looking; the floating exchange rate regimes accompanying IT resulted in a self-correcting mechanism that became an efficient shock-absorber (e.g., Chile, and Poland); there has been some reduction in exchange rate passthrough; communication and transparency have improved; and IT enabled clear institutional assignment of responsibilities for inflation control (e.g., Poland). IT also had a disciplining effect on the countries, helping to accelerate the process of building the key elements that enhance successful implementation of IT (e.g., Czech Republic, Turkey, and Romania). The quality of policy debate has also improved (Czech Republic).

A number of factors have contributed to the success of IT in these countries. These included: a clear mandate and central bank independence; commitment to and consensus within the central bank on the importance of IT; clear communication, political and public support; forecasting and setting interest rates according to the relationship between forecast inflation and the target; supportive fiscal and financial policies; a clear analytical basis for monetary decision-making; a good understanding of the transmission mechanism, and effective capacity to implement floating exchange rate regimes. Making use of other country experiences and lessons has also proved a valuable resource to IT central banks.

## VI. CHALLENGES IN IMPLEMENTING THE INFLATION TARGETING FRAMEWORK

IT countries have faced a range of important challenges in introducing and implementing the IT regime, one of the most difficult of which was experienced relatively recently. These challenges are discussed below.

### A. Challenges Faced to mid-2007

While not all the so-called preconditions turned out to be needed at the time of IT introduction, the absence of some of the elements made implementation more challenging.

- One key challenge came from the conflict between the simultaneous pursuit of inflation and exchange rate targets (Chile, Hungary, and Israel, which maintained exchange rate band regimes along with IT). Especially in periods of heavy capital inflows, the conflict between IT and the exchange rate regime complicated monetary policy implementation, since the interest rate consistent with achieving the inflation target was at times inconsistent with the rate that would keep the currency within the prescribed target band. Sterilization to keep the exchange rate within the targets was costly, with implications for central bank profit/loss position. Even where the bands were sufficiently wide, they became a binding constraint at times, affecting the ability of the central bank to align monetary conditions with the level of inflation relative to its target along the disinflation path. Formal or informal elimination of the exchange rate targets (the latter through lack of FX intervention) (1999 in Chile, 1997 in Israel,

and 2008 in Hungary) removed the constraint on, and hence enhanced the credibility of, monetary policy.[6]

- Difficulties in modeling and forecasting inflation also undermined the credibility of monetary policy. This was particularly the case with inadequate data series, when the economies were subject to rapid structural shifts, when there was imperfect understanding of the transmission mechanism (e.g., Chile, Czech Republic, Hungary, Israel, Poland, Romania, and Turkey), and food and regulatory prices had a pronounced share in CPI (Poland and Romania). As noted earlier, difficulties in forecasting inflation occasionally led to excessive tightening of policy, causing significant fluctuations in economic activity and attacks on central bank independence (Czech Republic). Strong capital inflows under IT also brought about difficulties in assessing how and by how much monetary and intervention policy should react in the absence of a perfect understanding of the transmission mechanism. This increased the need to better analyze the economy (Hungary, Israel, Romania, and Turkey).

- Lack of full political support for IT was also a challenge. Maintaining political and public support was difficult when tight policies were required (Chile and Czech Republic). The central banks faced challenges that strained the central banks' efforts for independence in the face of potential disagreement with the government during disinflation processes (Czech Republic, Israel, Poland, and Turkey). Maintaining internal consensus and getting broad support were difficult at times (e.g., Czech Republic and Israel).

- A weak fiscal situation at times resulted in high risk premiums and interest rates. For example, in Hungary, the economy was hit by a series of large-scale shocks, mostly of fiscal origin, with the magnitude of the shocks requiring large scale monetary tightening several times, consuming most of the room for maneuver for monetary policy, and resulting in high interest rate volatility. In Canada, the fiscal situation was also a significant problem faced in conducting policy under IT, along with some of the political/ constitutional difficulties, which had the effect of slowing the fall in inflation expectations and keeping real interest rates relatively high. It was only when fiscal situation was put on a sustainable path with the federal budgets of 1995 and 1996 that real interest rates fell appreciably and inflation expectations converged to the target. In contrast, in Turkey, the central bank did not raise interest rates during the implicit inflation targeting period of 2002-05, instead pushing for fiscal reforms

---

[6] In Hungary, deviations of inflation forecasts from targets were related to the attempt to influence the exchange rate path, given the lack of an effective interest rate channel and the fact that the most important channel of transmission was through the exchange rate. The challenge was how much of this should have been revealed to the public. Exchange rate preferences proved to be hard to communicate to the public and caused confusion regarding the objectives and course of monetary policy, even when the MPC stopped direct communications with respect to the exchange rate. Attempts to defend the exchange rate band against the occasional speculative attacks also resulted in doubts with respect to the predominance of the inflation target over the exchange rate band.

and directing all its communication efforts to convincing the public that economic fundamentals were getting sounder under the new stabilization program.

- Underdevelopment of financial markets also limited the ability to assess the risk premium as perceived by market participants (Romania). In particular, infrequent issues of government debt instruments, poorly developed derivatives markets, and an illiquid stock exchange made it difficult to derive a reliable overall assessment of the behavior and expectations of financial markets.

Countries also faced challenges in implementing IT for a number of other reasons:

- An environment with widespread backward-looking inflation indexation of goods and services prices, wages, and indexed financial assets reduced the speed of disinflation and the reduction in inflation expectations (Chile and Israel).

- Some central banks faced organizational challenges in making use of the appropriate expertise and research capacities and coordinating staff structure (Czech Republic and Poland).

- Others had difficulties in choosing the parameters of the inflation target, including the appropriate measure of inflation to target (e.g., headline vs. core inflation where administrative or food prices had a significant share in CPI), the target level/range and policy horizon, and the speed of disinflation (Poland).

- For the countries that were among the first to adopt the IT framework (Canada, Chile, and Israel), lack of other country experiences to draw on was a significant challenge in implementing the new framework since it had not been tested elsewhere. Lack of adequate time for preparation was a challenge in the Czech Republic and Turkey where the authorities had to establish credibility rapidly to stabilize market conditions and inflation expectations following the collapse of their exchange rate based monetary policy frameworks (see also Ötker-Robe and Vávra, 2007, on the Czech Republic).

## B. Challenges from mid-2007 to mid-2008

One of the most difficult challenges since the introduction of the IT regimes has been associated with the recent experience of the emerging market countries following the surge in food and energy prices from mid-2007 to mid-2008. The subsequent sharp increase in inflation pressures was viewed as the first significant test of the credibility of the IT regimes in emerging market countries.[7] Most emerging market IT countries overshot their official inflation targets (Figures 2 and 3), while grappling with the task of finding the most appropriate policy action given the uncertainty about the nature of the shock. With the

---

[7] For more detailed coverage, see Habermeier and others (2009), who analyze the causes, consequences, and policy responses to rising inflation following the oil/food price shocks for a sample of 50 emerging/developing IT and non-IT countries.

growing downside risks to economic growth and a deepening crisis in global financial markets, the sharp pick up in inflation raised questions about the very raison d'être of the IT regime, with some commentators even suggesting its abandonment. Even then, IT countries with floating exchange rates experienced a smaller rise in inflation on average compared to non-IT countries (see Figure 4).

Figure 2. Inflation Targeting Countries: Actual versus Targeted Inflation, June 2008
(In percent) 1/
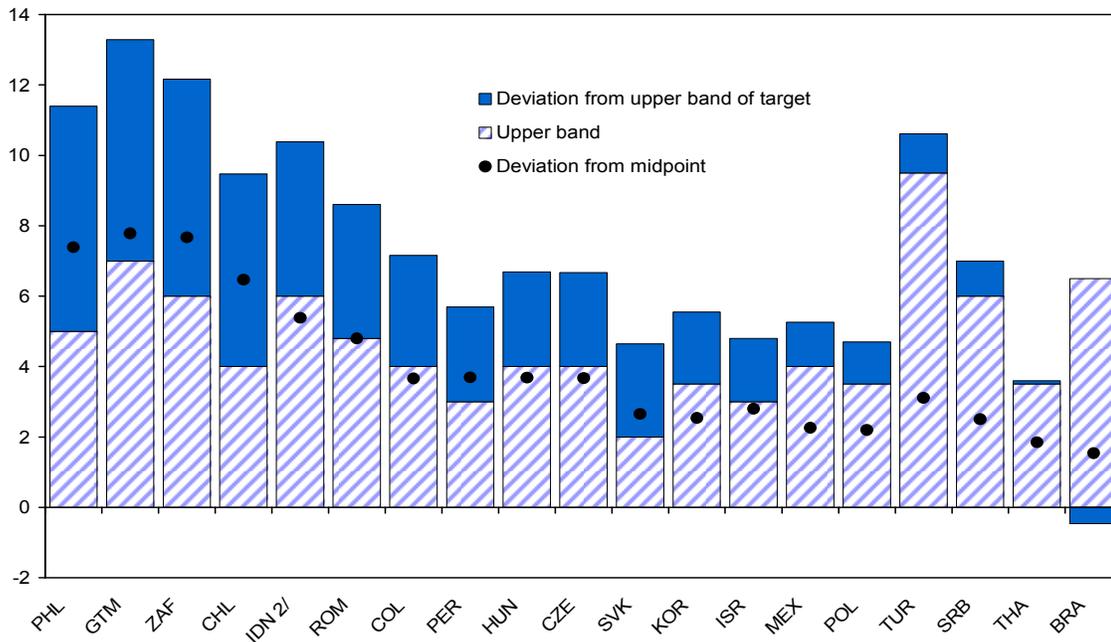


Source: Habermeier and others (2009).
1/ The height of the combined bars indicates current inflation.
2/ As at end-May 2008.

None of the IT countries revised their officially-announced inflation targets in response to rising inflation, except Turkey. Despite a repeated overshooting of the targets, the authorities kept the official targets and the parameters of the IT framework unchanged, to avoid damage to the credibility of their commitment to price stability and to reduce the risk of unanchoring inflation expectations. Turkey revised upward the target for 2009-2011 in June 2008, after extending the target horizon and revising the inflation forecast. By better aligning the targets with the rising inflation forecasts, the Turkish authorities felt that less ambitious targets would reduce the risk of future overshooting, create less need to explain why the targets were being missed, and limit the risk that persistent deviations from the target beyond the control of monetary policy would undermine the credibility of the targets. The belief that supply shocks would exert persistent upward inflation pressures was seen to justify the revision for an extended period.

Figure 3. Sample Emerging Market Countries—Evolution of Actual Inflation Relative to Official Targets, January 2002-June 2008
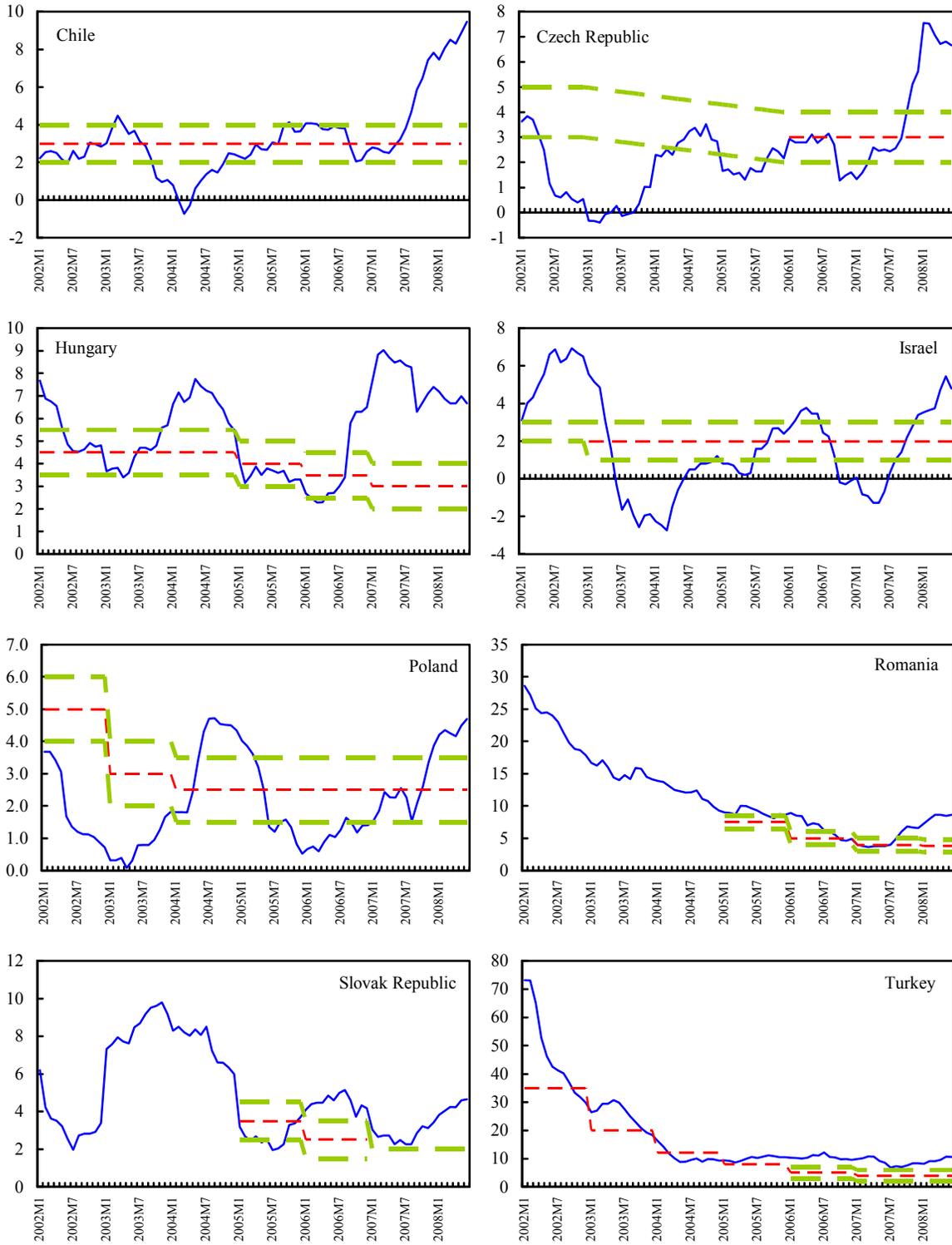


Source: IFS and national authorities.

Figure 4. Inflation Performance and Monetary policy Frameworks

**Change in Inflation since July 2007 by Exchange Rate Regime/Monetary Policy Framework 1/**
**(Group average, In percent)**
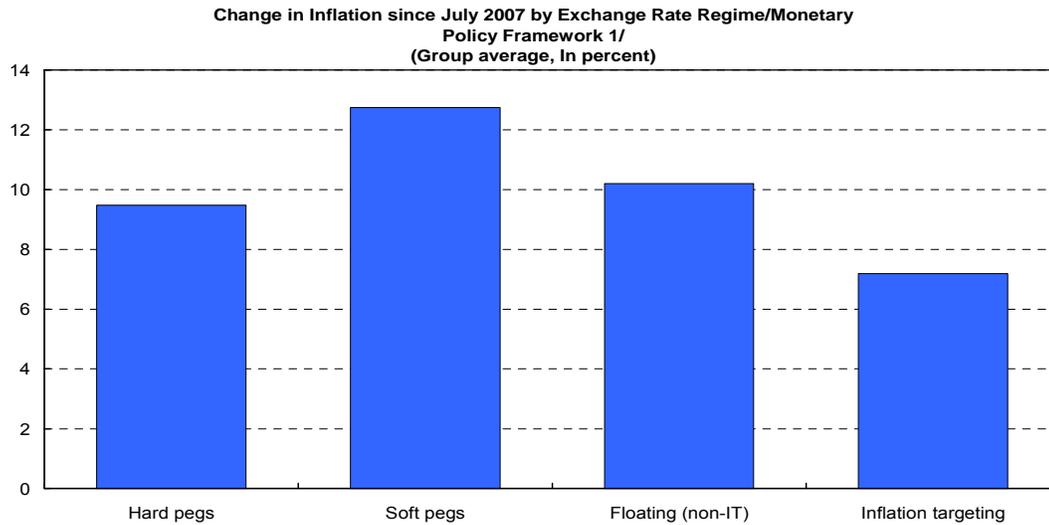
Sources: IMF, *IFS, and 2008 Annual Report on Exchange Arrangements and Exchange Restrictions.*
1/ Includes the selected 50 countries only. Latest data.

Most IT countries coped with rising inflation in a number of other ways (Table 5). The majority tightened policy rates to anchor inflation expectations, limit second round effects, reiterate a commitment to price stability, and maintain the credibility of the IT regime (Chile, Czech Republic, Hungary, Israel, Poland, and Romania) (Figure 5). Some central banks emphasized that when there is a deviation from the target, the time taken to return to it could differ depending on the circumstances and the state of the economy. In some, nominal or real exchange rate appreciation helped limit the passthrough of imported inflation pressures (Czech Republic, Hungary, Israel, and Poland). Some countries combined higher interest rates with prudential measures (Romania). A tight fiscal stance provided support in some cases (Hungary and Poland).

Figure 5. Inflation Targeting Countries: Policy Rate Changes, July 2007–June 2008

(In percent)
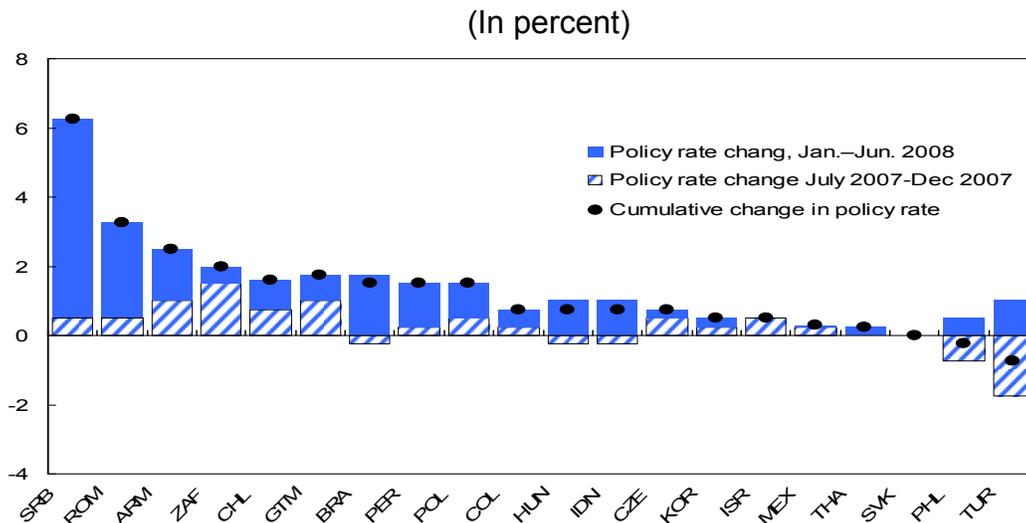
Source: Habermeier and others (2009).

Headline inflation pressures began to ease in many emerging market countries around mid-2008, partly reflecting a decline in commodity prices and partly the growing indications of a global economic slowdown. A quick reduction in inflation has been hindered by second-round effects, however, as well as lags in policy transmission; in many cases markets viewed monetary policy measures taken as too little and too late, with the benefit of hindsight. Countries with IT regimes continued to exceed the mid-points, or even upper bands, of their official targets. As a result, inflation expectations remained elevated in most countries for 2008 (Figure 6). However, the size of the increase in inflation expectations varied, with the rise in inflation expectations greater in countries where real policy rates have declined the most. Inflation expectations seem to be relatively well contained in a few emerging market IT countries (e.g., Czech Republic, Hungary, Israel, and Poland), and have come down for 2009 from their 2008 levels for many, notwithstanding the rise in inflation beyond the targets.

## Table 5. Emerging Europe Inflation Targeting Countries: Policy Responses Following the Commodity Price Shocks

### (as of August 2008)

| Country | Target overshot | Overshooting since | Target adjusted | Monetary/Exchange rate policy action |
|---|---|---|---|---|
| Chile* | Yes | Aug 2007 | No | • Raised key policy rate (275 bp since Jul 2007) |
| Czech Republic* | Yes | Fall 2007 | No | • Raised key policy rate (125 bp from Jan 2007)<br>• Let exchange rate appreciate<br>• Lowered the key rate 25 bp on August 7, 2008 given strong koruna appreciation and downside inflation risks |
| Hungary | Yes | Fall 2006 | No | • Raised key policy rate (100 bp since Mar 2008)<br>• Abandoned the band (Feb 2008) and let the forint float<br>• Tight fiscal policy |
| Israel | Yes | End 2007 | No | • Raised key policy rate (75 bp since May 2008)<br>• Let exchange rate appreciate |
| Poland* | Yes | End 2007 | No | • Raised key policy rate (200 bp since Apr 2007)<br>• Let exchange rate appreciate<br>• Tight fiscal policy |
| Romania* | Yes | Fall 2007 | No | • Raised key policy rate (325 bp since Oct 2007)<br>• Prudential measures for credit |
| Turkey | Yes | Fall 2007 | Yes | • Raised key policy rate (150 bp since Apr 2008)<br>• Revised the target from 4% to 7.5%, 6.5%, 5.5% in 2009, 2010, 2011. |

Source: Habermeier and others (2009) based on central bank websites; IMF Country Reports; news articles.

* Indicates that the country had a relatively early monetary policy response to persistent inflation pressures.

## VII.  LESSONS FROM COUNTRY EXPERIENCES

The following conclusions can be drawn from these experiences:

- A number of conditions are necessary for a successful implementation of FFIT, but the absence of some of these conditions should not discourage countries from beginning transition toward a full-fledged IT framework. Nevertheless, since the absence of some of these elements makes the implementation of an IT framework more challenging, premature announcement of IT before a minimum set of conditions are put in place should be avoided.

Figure 6. Inflation Expectations vs. Actual and Targeted Inflation, June 2008
(In percent)
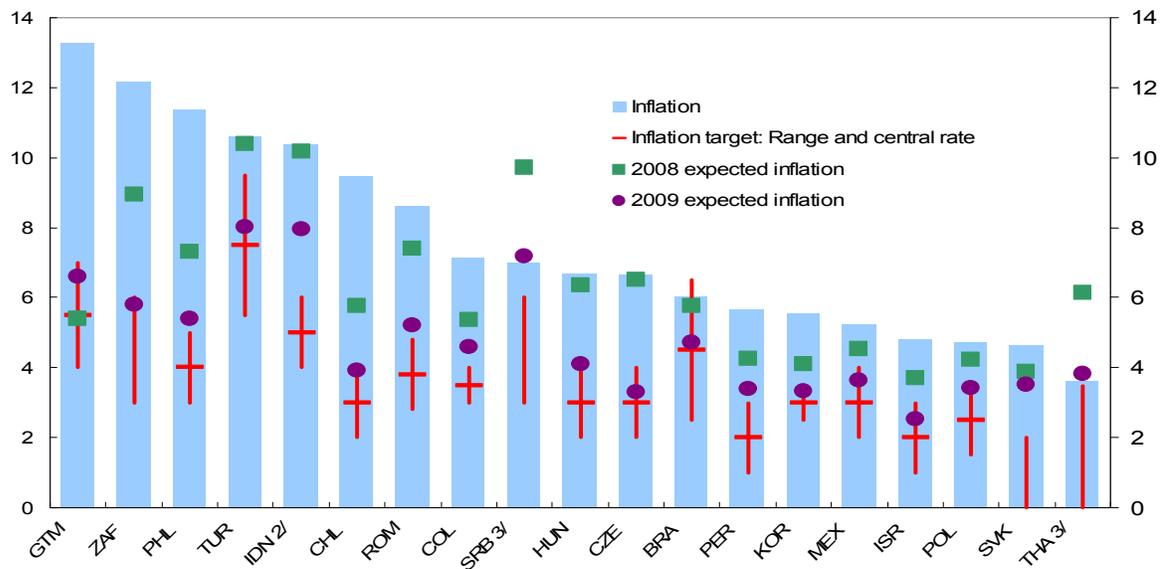


Source: Habermeier and others (2009), based on IMF IFS, Consensus Forecast reports, and national central bank websites.

- Country experiences suggest that the following elements were important in making the IT framework more feasible and less challenging: (i) price stability as the overriding monetary policy goal; (ii) absence of fiscal dominance; (iii) central bank instrument independence; (iv) broad domestic consensus on the prominence of the inflation target; (v) some basic understanding of the transmission mechanism, and a reasonable capacity to affect short-term interest rates; and (vi) reasonably well-functioning financial system and markets. These elements could perhaps be viewed as the conditions conducive to the introduction of a successful IT framework.

- There is no single most effective path toward adoption of IT. It would certainly be a mistake to think that all the conditions for a successful implementation of IT need to be in place before the framework could be launched. As country experiences show, in

many countries that now have successful IT, some of the conditions were not in place at the outset, but the authorities worked over time to establish them, and also learned by doing. It would similarly be a mistake, however, to think that all the conventional conditions would arrive spontaneously. The central banks have to initiate the process and make their best effort to establish the true conditions and work with the government toward that objective.

- Evidence also suggests that adoption of IT promotes the development of the elements that enhance successful implementation of IT. Establishing the individual supporting elements of a successful IT can hence be mutually reinforcing. Establishing some of the key elements could facilitate adopting some form of IT, which in turn could accelerate the process of putting in place the foundations of successful FFIT.

- It is essential during the transition period to FFIT to: maintain sound macroeconomic and structural policies to create an environment conducive to IT; focus work on establishing the conditions; and accelerate the effort to establish the requirements of a more flexible exchange rate regime. The latter would help the country avoid abrupt shocks to the foreign exchange regime that could catch the authorities unprepared to operate a floating regime, and with no feasible alternative monetary anchor.

- Country experiences also suggest that well-established policy credibility is essential to coping with unfavorable supply shocks. When expectations are well anchored, the increase in inflation from unfavorable supply shocks has relatively little effect on inflation expectations and hence minor second round effects, and policy does not have to be as restrictive as otherwise. Lack of fully established credibility requires stronger policy actions to counter inflation pressures, and the central bank needs to be prepared to be more proactive in raising interest rates to bring about more visible reductions in inflation.[8][9]

- The experiences also suggest that IT central banks need to be very careful to avoid losing credibility and undermining the future effectiveness of monetary policy. In this connection: the central banks should avoid revising upward official inflation targets or widening the target band around an unchanged mid-point target when policy credibility is still low, although consideration can be given to lengthening the target

---

[8] See also Alichi and others (2009); Argov and others (2007); Habermeier and others (2009) and WEO (2008).

[9] Habermeier and others (2009) illustrate quantitatively, using a simple dynamic general equilibrium model calibrated to an emerging market economy faced with oil and food shocks that "low credibility associated with a delayed reaction to higher inflation can lead to inflation expectations becoming more entrenched at higher levels. The result would be an inevitable increase in interest rates that generates a larger output loss compared with an earlier reaction to rising headline inflation. Uncertainty about the duration and nature of the shocks also means that there is a risk of tightening monetary policy excessively. A quick interest rate response may exacerbate stagflation by unduly depressing output if the oil shock turned out to be temporary, while a delayed reaction could be costly in terms of higher inflation and inflation expectations, should the shock turn out to be permanent. The ultimate policy choice will generally be a function of the weight assigned to inflation vs. growth objective, given the policymakers' judgement about the nature of the shock."

and policy horizons. Any revision to the target or target parameters should be clearly communicated to the public and should indicate that monetary policy remains firmly focused on controlling inflation in the medium term. To counter perceptions of a lack of commitment to low inflation, the central bank should adopt an ambitious plan for bringing inflation back to the revised target. The risks associated with a delayed policy response could be reduced by frequent monitoring and analyses of second round effects of supply shocks and the pressures underlying these shocks.[10]

- The events between mid-2007 and mid-2008 also underscore the complexity of the challenges facing IT policymakers in an increasingly globalized environment. Charged with the task of targeting inflation, IT central banks were hit by multiple shocks, stemming from a difficult combination of volatility in commodity markets, global financial turmoil, economic slowdown, reversal of capital inflows, and exchange rate depreciation. Central banks needed to balance these risks against the risks of renewal of inflation pressures after the reversal of commodity prices, since many policymakers in advanced and emerging market economies eased monetary policy to counter worsening economic prospects. The current environment is therefore significantly more difficult and uncertain, and requires a renewed effort to credibly communicate central bank actions. It is also important that central banks be forward looking in their policy responses, while being mindful of the relative probabilities and costs of severe but plausible outcomes.

---

[10] See Habermeier and others (2009) for a more detailed discussion of these policy options.

**Appendix I. Background and Brief Summary of the Book** *On Implementing Full-Fledged Inflation Targeting Regimes: Saying What You Do and Doing What you Say*

**Background information**

The book grew out of a series of inflation-targeting (IT) and macro-modeling workshops that were designed to introduce central bankers and IMF staff members to the subject. The workshops covered many of the practical aspects of IT and were taught by several lecturers who had considerable central-banking experience either working under an IT regime or helping other central banks set up an IT regime. They also provided an opportunity for central banks at different stages of implementing IT regimes to share their experiences. The external workshops were organized on a regional basis and included Mexico (2001), Finland (2001), Turkey (2002), Finland (2003), Ukraine (2004), Turkey (2005), Thailand (2006) and Morocco (2007). The internal workshops were organized by the IMF Institute each year since 2006. The external workshops were all sponsored in part by the host central bank and organized by staff in the Fund's Research Department and Monetary and Capital Markets Department.

The editors and authors would like to thank a large number of people for contributing to the workshops and the material that is presented in the book. In particular, we owe a great debt to a few IT central banks that willingly gave us access to some of their most talented people. This list includes Tore Anders Husebø (formerly Norges Bank), Jaromir Benes (formerly Czech National Bank and Reserve Bank of New Zealand and currently IMF), Aaron Drew (Reserve Bank of New Zealand), David Hargreaves (Reserve Bank of New Zealand), Jaromir Hurnik (Czech National Bank), Ondra Kamenik (Czech National Bank and IMF), Tiff Macklem (formerly Bank of Canada), Øistein Røisland (Norges Bank), David Rose (formerly Bank of Canada), Alasdair Scott (formerly Reserve Bank of New Zealand and Bank of England, currently IMF), Kristen Solberg-Johansen (Norges Bank), David Vávra (formerly Czech National Bank, currently IMF) and Jan Vlcek (Czech National Bank). As well, we would like to thank Andy Berg, Philippe Karam, Michael Kumhof and Papa N'Diaye of the IMF for their contribution to the workshops.

**Brief summary of the chapters**

Chapter 2. Why Inflation Targeting? Freedman and Laxton (2009a) contains background considerations on why central banks have chosen low inflation as their policy goal and why so many countries have chosen inflation targeting as a framework for achieving that goal.

Chapter 3. Inflation Targeting Parameters: Freedman and Laxton (2009b) discusses design parameters.(i) the definition of target variable; (ii) the potential role of core inflation measures; (iii) the advantages and disadvantages of point targets, point targets with a band, and range targets; (iv) the choice of the long-run target inflation rate; (v) the target horizon; and (vi) the loss function and policy horizon.

Chapter 4. Transparency and Accountability: Freedman (2009) discusses issues related to transparency, communications, and accountability.

Chapter 5. Important Elements for Emerging Economies: Freedman and Ötker-Robe (2009a) discusses important elements in implementing an IT framework in emerging economies.

Chapter 6. Role of the Exchange Rate: Freedman, Laxton and Ötker-Robe (2009) discuss the role of the exchange rate in an IT regime.

Chapter 7. Forecasting and Policy Analysis System: Laxton, Rose and Scott (2009) sets out the process for developing a structured forecasting and policy analysis system.

Chapter 8. Research and Advanced Macro Modeling: Laxton, Rose and Schmidt-Hebbel (2009) examine the role of research and DSGE modeling under IT.

Chapter 9. Modeling at the Central Bank of Chile: Schmidt-Hebbel (2009) discusses the experiences with modeling at the central bank of Chile.

Chapter 10. Country Experiences with the Introduction and Implementation of Inflation Targeting: Freedman and Ötker-Robe (2009b) presents selected country experiences with IT, including a summary of lessons learned from country experiences based on detailed case studies prepared by the national central bank representatives.

# Appendix II. Detailed Information on Country Experiences

## Table 6. Degree of Preparedness in Introducing Inflation Targeting

| | Canada (Feb 1991) | Czech R (Early 1998) | Hungary (Jun 2001) | Israel (1992) | Poland (Jun 1998) | Romania (Aug 2005) | Turkey (Jan 2006) |
|---|---|---|---|---|---|---|---|
| **2. Initial conditions at the start of IT** | | | | | | | |
| | | | | | | | |
| **2.1 Institutional independence (yes/no)** | | | | | | | |
| | | | | | | | |
| Fiscal obligation | No | No | No | No | No | No | No |
| Central bank legal independence | Yes, but gov. directive possible | Yes | Yes | Partial | Yes | Yes | Yes |
| Central bank goal independence (monetary policy objective determined by the CB) | With gov. | Yes | Yes | No | Yes | Yes | Partial (targets decided jointly with the gov.) |
| Central bank operational/instrument independence | Yes | Yes | Yes | Limited | Yes | Yes | Yes |
| Central bank legal mandate price stability | Part of mandate | No, but through stable koruna | Yes | No | Yes | Yes | Yes |
| Central bank accountability (e.g., has to write a letter of explanation?) | No | No; but inflation report presented to parliament | Yes | No | Yes | No | Yes |
| | | | | | | | |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | | | | | | | |
| Capacity to affect short-term interest rates | High | High | High | High | High (interbank mkt), medium (retail mkt)—weak transmission | Medium | High |
| Capacity to conduct open-market operations | High | High | High | Medium | High | High | High |
| Data availability | High | Low | Medium | High | Low | Medium | Medium |
| Understanding of monetary transmission mech's | Medium/high | Low | Medium | Medium | Low | Medium | Low |
| Extent of modeling/forecasting capacity | High | Low | Medium | Low | Medium | Medium | Low |
| Formal process of monetary policy decision-making | High | Medium | Medium | Low | High | Low | Low |
| | | | | | | | |
| **2.3 Financial system health and development (High/Medium/Low)** | | | | | | | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | High (some loan losses) | Medium | High | Medium | High | Medium | Low |

# Table 6. Degree of Preparedness in Introducing Inflation Targeting (concluded).

| | Canada (Feb 1991) | Czech R (Early 1998) | Hungary (Jun 2001) | Israel (1992) | Poland (Jun 1998) | Romania (Aug 2005) | Turkey (Jan 2006) |
|---|---|---|---|---|---|---|---|
| Money and foreign exchange market development and depth | High | Medium | Medium | Low | Medium | Low/ Medium | Medium |
| Banks' foreign currency mismatch | Low | Medium | Low | Medium | Low | High | Medium |
| Extent of dollarization (currency substitution, financial dollarization) | Low | Low | Low | Low (high CPI indexation) | Medium: FX loans Low: deposits | High | High |
| Development of government securities market | High | Medium | High | Low | Medium | Low | Medium |
| International financial integration (openness of the capital account) | High | High | High | Low | Medium | High | High |
| | | | | | | | |
| **2.4 Economic structure** | | | | | | | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard peg) | 1; 2 | 2 | 4; then 5 | 5, then 3 | 3; 1 since April 2000 | 2 | 4 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 2 (1975-82); no anchor (1982-91) | 1,2 | 1 | 1 | 1+2 | 1 (de facto)/ 2 (de jure) | 1 |
| Exchange-rate passthrough (High/Medium/Low) | Medium | High | High | High | Medium | Medium | High |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | No fiscal rule; High public deficit and debt | No fiscal rule; Medium deficits; Low public debt | Low | Medium | Medium (fiscal rules and public debt); High (structural deficit) | Low/Low/ Low | High |
| Initial inflation | High (Canadian standards) | 13.1% | 10% | High | 12.2% (Jul 98—start of trans. per.; 6.9% in Jan 99–official adoption) | Medium | 80% |
| Functioning of transmission mechanisms (worse than standard (industrial countries)? | At least as good | Worse | Worse | Worse | Worse | Worse | Worse |
| | | | | | | | |
| **2.5  Political conditions** | | | | | | | |
| Political support of IT (or lack thereof) within CB and government | High within CB and gov.; Low by opposition parties | Medium. Internally rising, but fell externally after the initial period of recession. | High within CB; Medium within gov. | Medium | Yes | Medium | Both high within the CB and gov. |

## Table 7. Transition to Full-Fledged Inflation Targeting and Challenges Experienced in Implementation

| | Canada | Czech R | Hungary | Israel | Poland | Romania | Turkey |
|---|---|---|---|---|---|---|---|
| Data availability | No | Yes | Yes | No | Yes | Yes | Yes |
| Modeling, forecasting, forecast process issues | No | Yes | Yes | No | Yes | Yes | Yes |
| Understanding and modeling the transmission | No | Yes | Yes | No | Yes | Yes | Yes |
| Role of the exchange rate mechanism | No | Yes | Yes | Yes | No | Yes | Yes |
| Lack of coordination with other economic policies | Fiscal | Yes | Yes | Yes | Yes | No | No |
| Level of development of financial markets | No | No | No | Yes | Yes | Yes | Yes |
| Banking sector financial condition | No | No | No | No | No | No | No |
| Establishing capacity to affect interest rates | No | No | No | No | No--ST rates, Yes--LT rates | Yes | No |
| Maintaining/gaining central bank independence | No | Yes | Yes | Yes | No | No | No |
| Which FFIT elements were missing during the partial IT period? | None | Full understanding and use of monetary transmission for decision making; full forecasting capacity; lack of coordination with gov. in setting targets; effective communication strategy. | Full exchange rate flexibility | Political support; broad consensus among officials; flexible exchange rate | Fully flexible exchange rate; limited knowledge of the transmission mech.; modeling/ forecasting capacity; insufficiently strong fiscal position | Freely floating currency | Debt sustainability and financial depth; fully functioning monetary transmission; internal CB organization and forecasting capacity; communication strategy. |
| Buildup of FFIT elements over time (quick or gradual establishment?) | Communication strategy developed over time | Gradual, in general lagging behind the regime itself. | Full forecasting capacity, systematic internal processes | Gradual | Adopted relatively fast; but building all preconditions was gradual. | Gradual | Gradual |

**Table 7. Transition to Full-Fledged Inflation Targeting and Challenges Experienced in Implementation (concluded).**

| | Canada | Czech R | Hungary | Israel | Poland | Romania | Turkey |
|---|---|---|---|---|---|---|---|
| Duration of IT regime stages 1/ | 0 = 6 to 8 months; 3 thereafter. | 6 months to reach 2, when IT was introduced formally. 2 years to reach 3, when medium term inflation target was introduced | 2 – exchange rate band, though wide (±15%), was a constraint on IT | Preparation for 2 (n.a.) Preparation for 3 (1992-1997) | 0/1 (all elements of implicit IT w/o medium-term target Jun 1998 to Jan 1999 when IT was officially adopted **2** – from Jan 1999 (official adoption until Apr 2000; **3** – since April 2000, after zloty's float | 1 | 1 adopted right after the crisis without much preparation. |
| Support from outsiders (IMF, consultants, other CBs) | No | Yes | No | No | No (but during preparations/ implementation; further exchange of views, including w/IMF were conducive to refinements of the framework) | Yes | Benefited from IMF TA (as early as 1999 but more heavily around 2005-06) |
| Partial or full-fledged IT? | FFIT, but MPR introduced in 1995 (4 years after IT) | 2 years, if we require a medium term inflation target a prerequisite for FFIT, otherwise FFIT from the start | Partial – ER band in place (until 2008) | Partial for 5½ years until mid-1997 | Partial from Jun 1998-Apr 2000 | Partial (Not specified duration of managed float) | 4 years |

1/ Refer to: 0= Internal IT, 1= Implicit IT, 2= Official IT - Partial; 3= Official IT-Full-fledged.

## Table 8. Country Experiences with Introduction and Implementation of IT

| Canada (February 1991) | |
|---|---|
| **1. Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | High inflation |
| Success of other IT countries | No |
| Others (please specify) | Introduction of GST (VAT type tax) |
| | |
| **2. Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No |
| Central bank legal independence | Yes, but with government directive possible |
| Central bank goal independence (monetary policy obj. determined by the CB) | Together with government |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Only one part of mandate |
| Central bank accountability (e.g., has to write a letter of explanation?) | No |
| | |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | High |
| Capacity to conduct open-market operations | High |
| Data availability | High |
| Understanding of monetary policy transmission mechanisms | Medium/high |
| Extent of modeling/forecasting capacity | High |
| Formal process of monetary policy decision making | High |
| | |
| **2.3 Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | High (although some bank loan losses) |
| Money and foreign exchange market development and depth | High |
| Banks' foreign currency mismatch | Low |
| Extent of dollarization (currency substitution, financial dollarization) | Low |
| Development of government securities market | High |
| International financial integration (openness of the capital account) | High |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 1 / 2 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1975 to 1982: 2; 1982 to 1991: no anchor |
| Exchange-rate passthrough (High/Medium/Low) | Medium |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Public deficit and debt high; no fiscal rules although strong commitment to avoiding deficits since latter part of 1990s |
| Initial inflation | High by Canadian standards |
| Functioning of transmission mechanisms (worse than standard for industrial countries) | As good as or better than most countries |
| | |
| **2.5 Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | High in central bank and government; opposed by opposition parties |

| Canada (February 1991) | |
|---|---|
| **3. Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | No |
| Modeling, forecasting, forecast process issues | No |
| Understanding and modeling the transmission | No |
| Role of the exchange rate mechanism | No |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | Fiscal |
| Level of development of financial markets | No |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No |
| Maintaining/gaining central bank independence | No |
| | |
| **4. Implementation of IT** | |
| Duration of IT regime stages (0= Internal IT, 1= Implicit IT, 2= Official IT - Partial; 3= Official IT-Full-fledged) 1/ | 0 = 6 to 8 months; 1= an; 2 = an. |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | No |
| Partial or full-fledged IT? | FFIT, but Monetary Policy Report introduced only in 1995 (4 years after IT) |
| Which FFIT elements were missing and why during partial IT period? (list) | Na |
| Buildup of FFIT elements over time (quick or gradual establishment?) | Communications developed over time |
| | |
| **5. Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | All, but appreciable lag until real interest rates came down |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | All |
| Political support/consensus for IT and monetary pol. (gov., markets, academics) (Yes/No) | Yes, gradually over time |
| Which particular initial conditions contributed to the latter benefits? | Success in achieving the target, and improvement in communications |

| Czech Republic (early 1998) | |
|---|---|
| **1. Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | Yes |
| Success of other IT countries | Partially Yes, but IT was chosen as the only available option at the time, not as a best available regime. |
| Others (please specify) | No |
| | |
| **2. Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No |
| Central bank legal independence | Yes |
| Central bank goal independence (monetary policy obi. determined by the CB) | Yes |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Not formally, but implicitly through currency stability. |
| Central bank accountability (e.g., has to write a letter of explanation?) | No, but the CNB Inflation and Annual Reports are presented to the Parliament once a year. |

| Czech Republic (early 1998) | |
| --- | --- |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| | |
| Capacity to affect short-term interest rates | High |
| Capacity to conduct open-market operations | High |
| Data availability | Low |
| Understanding of monetary policy transmission mechanisms | Low |
| Extent of modeling/forecasting capacity | Low |
| Formal process of monetary policy decision making | Medium |
| | |
| **2.3 Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | Medium |
| Money and foreign exchange market development and depth | Medium |
| Banks' foreign currency mismatch | Medium |
| Extent of dollarization (currency substitution, financial dollarization) | Low |
| Development of government securities market | Medium |
| International financial integration (openness of the capital account) | High |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 2 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1,2 |
| Exchange-rate passthrough (High/Medium/Low) | High |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Fiscal Rules: Low, Deficits: Medium, Public Debt: Low |
| Initial inflation | 13.1% (January 1998) |
| Functioning of transmission mechanisms (worse than standard (industrial countries)? | Relatively worse |
| | |
| **2.5 Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Medium; while internally it had been rising, externally it fell after the initial period of undershooting targets and economic recession. |
| | |
| **3. Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | Yes |
| Modeling, forecasting, forecast process issues | Yes |
| Understanding and modeling the transmission | Yes |
| Role of the exchange rate mechanism | Yes |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | Yes |
| Level of development of financial markets | No |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No |
| Maintaining/gaining central bank independence | Yes |

| Czech Republic (early 1998) | |
|---|---|
| **4. Implementation of IT** | |
| Preparation period—duration of the transition period to introduce a form of IT (1= Implicit IT; 2= Partial IT; 3= Full-fledged IT) 1/ | 6 months to reach 2, when IT was introduced formally. 2 years to reach 1, when medium term inflation target was introduced |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | Yes |
| Partial or full-fledged IT? If so, duration of partial IT period | 2 years, if we require a medium term inflation target a prerequisite for FFIT, otherwise FFIT from the start |
| Which elements were missing and why during partial IT period? (list) | Internal organization of the Bank did not adapt to the new regime quickly: Organizing staff and analytical work for the new needs took time. Understanding and using the monetary transmission mechanism for decision making improved only gradually; initial forecasting capacity was low (short time series, but also no expertise as the previous regime did not require these skills much). Lack of coordination with government on setting of the targets and the regime itself. Only gradual implementation of public communication strategy. |
| Buildup of conditions over time (quick or gradual establishment?) | Gradual, lagging behind the regime itself. |
| **5. Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | Inflation has permanently fallen to average EMU levels, but remains very volatile, and so does output. Despite the poor track record in meeting the targets, the Bank's credibility has increased substantially and survey expectations are very well anchored on the target even in the face of major shocks and deviations from the target |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | Much more transparent, more systematic, more informed monetary policy implementation |
| Political support/consensus for IT and monetary pol. (gov., markets, academics) (Yes/No) | Yes. But the support was low in the early phase, when too restrictive monetary policy contributed to a substantial recession and targets were repeatedly undershot. |
| Which particular initial conditions contributed to the latter benefits? | Central Bank independence |

| Hungary (June 2001) | |
|---|---|
| **1. Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | Yes |
| Success of other IT countries | No |
| Others (please specify) | |
| | |
| **2. Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No |
| Central bank legal independence | Yes |
| Central bank goal independence (monetary policy obi. determined by the CB) | Yes |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Yes |
| Central bank accountability (e.g., has to write a letter of explanation?) | Yes |

| Hungary (June 2001) | |
|---|---|
| **2.2  Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | High |
| Capacity to conduct open-market operations | High |
| Data availability | Medium |
| Understanding of monetary policy transmission mechanisms | Medium |
| Extent of modeling/forecasting capacity | Medium |
| Formal process of monetary policy decision making | Medium |
| | |
| **2.3  Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | High |
| Money and foreign exchange market development and depth | Medium |
| Banks' foreign currency mismatch | Low |
| Extent of dollarization (currency substitution, financial dollarization) | Low |
| Development of government securities market | High |
| International financial integration (openness of the capital account) | High |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 4, modified to 5 after three months in IT |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1 |
| Exchange-rate passthrough  (High/Medium/Low) | High |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Low |
| Initial inflation | 10% |
| Functioning of transmission mechanisms (worse than standard (industrial countries))? | Worse |
| | |
| **2.5  Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Within CB: high Gov: medium |
| | |
| **3.  Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | Yes |
| Modeling, forecasting, forecast process issues | Yes |
| Understanding and modeling the transmission | Yes |
| Role of the exchange rate mechanism | Yes |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | Yes |
| Level of development of financial markets | No |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No |
| Maintaining/gaining central bank independence | Yes |
| | |
| **4.  Implementation of IT** | |
| Preparation period—duration of the transition period to introduce a form of IT (1= Implicit IT; 2= Partial IT; 3= Full-fledged IT) 1/ | 2—the exchange rate band, although wide (+/-15%), constitutes a constraint on IT. |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | No |
| Partial or full-fledged IT? If so, duration of partial IT period | Partial—ER band in place |
| Which elements were missing and why during partial IT period? (list) | Full ER flexibility still missing |
| Buildup of conditions over time (quick or gradual establishment?) | Buildup of forecasting capacity, systematic internal processes |

| Hungary (June 2001) | |
|---|---|
| **5. Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | Inflation declined: stable low inflation environment reached; credibility gains |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | Much more transparent and systematic |
| Political support/consensus for IT and monetary pol. (gov., markets, academics) (Yes/No) | Markets and academics: YES Gov: supports IT, but sometimes disagrees on monetary policy stance |
| Which particular initial conditions contributed to the latter benefits? | Established institutional prestige during crawling peg regime |

| Israel (1992) | |
|---|---|
| **1. Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | Yes (high inflation (15-20% y-o-y); no economic crisis |
| Success of other IT countries | No |
| Others (please specify) | |
| | |
| **2. Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No |
| Central bank legal independence | Partial |
| Central bank goal independence (monetary policy obi. determined by the CB) | No |
| Central bank operational/instrument independence | Limited |
| Central bank legal mandate price stability | No |
| Central bank accountability (e.g., has to write a letter of explanation?) | No |
| | |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | High |
| Capacity to conduct open-market operations | Medium |
| Data availability | High |
| Understanding of monetary policy transmission mechanisms | Medium |
| Extent of modeling/forecasting capacity | Low |
| Formal process of monetary policy decision making | Low |
| | |
| **2.3 Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | Medium |
| Money and foreign exchange market development and depth | Low |
| Banks' foreign currency mismatch | Medium |
| Extent of dollarization (currency substitution, financial dollarization) | Low (high CPI indexation, substitute for dollarization) |
| Development of government securities market | Low |
| International financial integration (openness of the capital account) | Low |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 5 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1 |
| Exchange-rate passthrough (High/Medium/Low) | High |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Medium |
| Initial inflation | High |
| Functioning of transmission mechanisms (worse than standard (industrial countries))? | Yes |

| Israel (1992) | |
|---|---|
| **2.5  Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Medium |
| | |
| **3.  Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | No |
| Modeling, forecasting, forecast process issues | No |
| Understanding and modeling the transmission | No |
| Role of the exchange rate mechanism | Yes |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | Yes |
| Level of development of financial markets | Yes |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No |
| Maintaining/gaining central bank independence | Yes |
| | |
| **4.  Implementation of IT** | |
| Duration of IT regime stages (0= Internal IT, 1= Implicit IT, 2= Official IT - Partial; 3= Official IT-Full-fledged) 1/ | Preparation for 2 (no period of preparation) Preparation for 3 (1992-1997) |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | No |
| Partial or full-fledged IT? | Partial for 5½ years until mid-1997 |
| Which FFIT elements were missing and why during partial IT period? (list) | Political support, broad based consensus among professionals, flexible exchange rate |
| Buildup of FFIT elements over time (quick or gradual establishment?) | Gradual |
| | |
| **5.  Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | Greatly improved financial & overall macro stability, anchoring expectations, and confidence of foreign investors |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | All of the factors mentioned |
| Political support/consensus for IT and monetary pol. (gov., markets, academics) (Yes/No) | Yes so far |
| Which particular initial conditions contributed to the latter benefits? | |

| Poland (June 1998) | |
|---|---|
| **1.  Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | Yes—the need to influence inflation expectations to facilitate further disinflation |
| Success of other IT countries | No |
| Others (please specify) | No |
| | |
| **2.  Initial conditions at the start of IT** | |
| | |

| Poland (June 1998) | |
|---|---|
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No—the Constitution prohibits the NBP from financing government spending |
| Central bank legal independence | Yes |
| Central bank goal independence (monetary policy obi. determined by the CB) | Yes |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Yes |
| Central bank accountability (e.g., has to write a letter of explanation?) | Yes—announcing inflation target(s) and submitting, on an annual basis, Monetary Policy Guidelines and Report on Monetary Policy Implementation to the Parliament (though the approval of these documents by the Parliament is not required) |
| | |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | High for inter-bank market, Medium for retail market (due to some weakness in the functioning of the transmission mechanism) |
| Capacity to conduct open-market operations | High |
| Data availability | Low |
| Understanding of monetary policy transmission mechanisms | Low |
| Extent of modeling/forecasting capacity | Medium |
| Formal process of monetary policy decision making | High |
| | |
| **2.3 Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | High |
| Money and foreign exchange market development and depth | Medium |
| Banks' foreign currency mismatch | Low |
| Extent of dollarization (currency substitution, financial dollarization) | Medium; a significant share of bank loans is FX denominated; whereas share of FX deposits in the banking sectors lower – Poland has been an example of successful deposit de-dollarization, which took place in the early 1990s |
| Development of government securities market | Medium |
| International financial integration (openness of the capital account) | Medium |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system at the time of IT introduction (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 3 (Free float since April 2000) |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1+2 |
| Exchange-rate passthrough (High/Medium/Low) | Medium |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Fiscal Rules and Public Debt —Medium, (Structural) public deficit—high |
| Initial inflation | 12.2% in June 1998 (beginning of the transition period); 6.9% in January 1999—official implementation of IT |
| Functioning of transmission mechanisms (worse than standard (industrial countries))? | Worse |
| | |
| **2.5 Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Yes |
| | |

| Poland (June 1998) | |
|---|---|
| **3. Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | Yes |
| Modeling, forecasting, forecast process issues | Yes |
| Understanding and modeling the transmission | Yes |
| Role of the exchange rate mechanism | No |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | Yes |
| Level of development of financial markets | Yes |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No (for short-term interest rates), Yes (for longer-term interest rates) |
| Maintaining/gaining central bank independence | No |
| | |
| **4. Implementation of IT** | |
| Preparation period—duration of the transition period to introduce a form of IT (0 = Internal IT; 1= Implicit IT; 2= Partial IT; 3= Full-fledged IT) 1/ | 0/1 (all elements of implicit IT but lacking medium-term target) June 1998–September 1998 (or January 1999, when IT was officially implemented ); **2** – since September 1998 (when details of the IT framework were published in the *Medium-Term Strategy of Monetary Policy*) or January 1999 (official implementation of IT) until April 2000; **3** – since April 2000, i.e., after full floating of the zloty exchange rate |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | No (There was not any bilateral assistance from any of the CBs in the region in the process of preparation/implementation; further exchange of views, including IMF missions, were conducive to refinements of the already-formulated IT framework) |
| Partial or full-fledged IT? If so, duration of partial IT period | Partial IT from June 1998 (officially IT was implemented in January 1999) until April 2000 (full floating of the zloty) |
| Which elements were missing and why during partial IT period? (list) | Not fully floated currency (crawling band system); limited knowledge about the MTM, largely due to problems with data availability (short time series); Related to that and short modeling experience was not well developed ability to forecast inflation; not sufficiently strong fiscal position; |
| Buildup of conditions over time (quick or gradual establishment?) | Based on the Schaechter et al. (2000) definition of the adoption of full-fledged IT, Poland's transition to this system was fast, i.e., the necessary conditions were created quickly as compared with, e.g., Chile or Israel; On the other hand, it was a rather smooth and gradual process when set against the Czech experience (where IT adoption was the direct outcome of the 1997 currency crisis); However, when adopting a more strict definition of full-fledged IT, consistent with meeting (almost) all foundations for successful, full-fledged IT, the establishment of these conditions in Poland was gradual (e.g., the first inflation projection was published only in August 2004 Inflation Report). |

| Poland (June 1998) | |
|---|---|
| **5. Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | Completion of disinflation—shift from disinflation path to the continuous target; it reinforced the central bank credibility; despite poor record of meeting short-term inflation targets, successful fulfillment of the medium-term target; reduced inflation and output volatility; reduced inflation expectations, though mostly due to the decline in the current inflation level (inflation expectations are still largely adaptive) |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | More transparent, more systematic, more informed implementation |
| Political support/consensus for IT and monetary pol. (gov., markets, academics)<br>(Yes/No) | Yes, but still questioned |
| Which particular initial conditions contributed to the latter benefits? | **Central bank independence** (during the disinflation period, on some occasions the political pressure was exerted on the central bank—without the price stability legal mandate and independence guaranteed by the Constitution, the central bank might have not been able to withstand the political pressure). |

| Romania (August 2005) | |
|---|---|
| **1. Motivation for IT (yes/no)** | |
| | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | No |
| Success of other IT countries | Yes |
| Others (please specify) | Yes (Meeting EU accession commitments, increasing central bank credibility) |
| | |
| **2. Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| | |
| Fiscal obligation | No |
| Central bank legal independence | Yes |
| Central bank goal independence (monetary policy obi. determined by the CB) | Yes |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Yes |
| Central bank accountability (e.g., has to write a letter of explanation?) | No |
| | |
| **2.2 Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | Medium |
| Capacity to conduct open-market operations | High |
| Data availability | Medium |
| Understanding of monetary policy transmission mechanisms | Medium |
| Extent of modeling/forecasting capacity | Medium |
| Formal process of monetary policy decision making | Low |
| | |

| Romania (August 2005) | |
|---|---|
| **2.3  Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | Medium |
| Money and foreign exchange market development and depth | Low/ Medium |
| Banks' foreign currency mismatch | High |
| Extent of dollarization (currency substitution, financial dollarization) | High |
| Development of government securities market | Low |
| International financial integration (openness of the capital account) | High |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 2 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1(de facto)/2(de jure) |
| Exchange-rate passthrough  (High/Medium/Low) | Medium |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | Low/Low/Low |
| Initial inflation | Medium |
| Functioning of transmission mechanisms (worse than standard (industrial countries))? | Yes |
| | |
| **2.5  Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Medium |
| | |
| **3.  Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | Yes |
| Modeling, forecasting, forecast process issues | Yes |
| Understanding and modeling the transmission | Yes |
| Role of the exchange rate mechanism | Yes |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | No |
| Level of development of financial markets | Yes |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | Yes |
| Maintaining/gaining central bank independence | No |
| | |
| **4.  Implementation of IT** | |
| Preparation period—duration of the transition period to introduce a form of IT (1= Implicit IT; 2= Partial IT; 3= Full-fledged IT) 1/ | 1 |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | Yes |
| Partial or full-fledged IT? If so, duration of partial IT period | Partial (Not specified duration of managed float) |
| Which elements were missing and why during partial IT period? (list) | free float—high appreciation and rising dollarization |
| Buildup of conditions over time (quick or gradual establishment?) | Gradual |
| | |
| **5.  Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | Too early to tell |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | Increased monetary policy transparency |
| Political support/consensus for IT and monetary pol. (gov., markets, academics). (Yes/No) | Yes |
| Which particular initial conditions contributed to the latter benefits? | |

| Turkey (January 2006) | |
|---|---|
| **1.  Motivation for IT (yes/no)** | |
| Difficulties with other nominal anchors | Yes |
| Initial conditions (high inflation, economic crisis) | Yes |
| Success of other IT countries | Yes |
| Others (please specify) | IT was chosen as the only available option at the time, not as a best available regime |
| | |
| **2.  Initial conditions at the start of IT** | |
| | |
| **2.1 Institutional independence (yes/no)** | |
| Fiscal obligation | No |
| Central bank legal independence | Yes |
| Central bank goal independence (monetary policy obi. determined by the CB) | Partial (Targets decided jointly with the government) |
| Central bank operational/instrument independence | Yes |
| Central bank legal mandate price stability | Yes |
| Central bank accountability (e.g., has to write a letter of explanation?) | Yes |
| | |
| **2.2  Institutional capacity and technical infrastructure (High/Medium/Low)** | |
| Capacity to affect short-term interest rates | High |
| Capacity to conduct open-market operations | High |
| Data availability | Medium |
| Understanding of monetary policy transmission mechanisms | Low |
| Extent of modeling/forecasting capacity | Low |
| Formal process of monetary policy decision making | Low |
| | |
| **2.3  Financial system health and development (High/Medium/Low)** | |
| Banking system health and regulation (crisis or not; bank regulatory capital) | Low |
| Money and foreign exchange market development and depth | Medium |
| Banks' foreign currency mismatch | Medium |
| Extent of dollarization (currency substitution, financial dollarization) | High |
| Development of government securities market | Medium |
| International financial integration (openness of the capital account) | High |
| | |
| **2.4 Economic structure** | |
| Exchange-rate system (1=Free float; 2=Managed float; 3= Crawling band; 4=Crawling peg; 5= Horizontal band; 6= Fixed peg; 7= Other (hard pegs)) | 4 |
| Monetary policy framework before IT (1=Exchange rate anchor; 2=Monetary Targeting) | 1 |
| Exchange-rate passthrough  (High/Medium/Low) | High |
| Fiscal policy (fiscal rules, public deficit, public debt) (High/Medium/Low) | High |
| Initial inflation | 80% |
| Functioning of transmission mechanisms (worse than standard (industrial countries))? | Worse |
| | |
| **2.5  Political conditions** | |
| Political support of IT (or lack thereof) within CB and government | Both high within the CB and gov. |
| | |
| **3.  Challenges in introducing/ implementing inflation targeting (were any of the following factors among the serious difficulties faced and addressed while introducing/implementing IT (Yes/No)** | |
| Data availability | Yes |
| Modeling, forecasting, forecast process issues | Yes |
| Understanding and modeling the transmission | Yes |
| Role of the exchange rate mechanism | Yes |
| Legal challenges | No |
| Lack of coordination with economic policies/reforms | No |

| Turkey (January 2006) | |
|---|---|
| Level of development of financial markets | Yes |
| Banking sector financial condition | No |
| Establishing capacity to affect interest rates | No |
| Maintaining/gaining central bank independence | No |
| | |
| **4.  Implementation of IT** | |
| Preparation period—duration of the transition period to introduce a form of IT (1= Implicit IT; 2= Partial IT; 3= Full-fledged IT) 1/ | We have adopted (1) immediately after the crisis without much preparation |
| Support from outsiders (IMF, consultants, other CBs) (Yes/No) | We have benefited from IMF technical assistance. |
| Partial or full-fledged IT? If so, duration of partial IT period | 4 years |
| Which elements were missing and why during partial IT period? (list) | Debt sustainability and financial depth were not at acceptable levels. MTM was highly uncertain. Internal organization of the Bank did not adapt to the new regime quickly. Initial forecasting capacity was low. Only gradual implementation of public communication strategy. |
| Buildup of conditions over time (quick or gradual establishment?) | Gradual |
| | |
| **5.  Benefits from adopting inflation targeting (list)** | |
| Benefits in macroeconomic performance (inflation, target accuracy, inflation and output volatility, anchoring of inflation expectations, credibility, etc.) | During the implicit IT period, inflation and output volatility have been reduced substantially, CB credibility improved extensively due to falling inflation and the new CB law. Accordingly, expectations were largely aligned with the targets in the past 2 years. |
| Benefits in the conduct of monetary policy (e.g., more transparent/systematic/ informed implementation) | Decision making process became more transparent and systematic |
| Political support/consensus for IT and monetary pol. (gov., markets, academics). (Yes/No) | High on all sides |
| Which particular initial conditions contributed to the latter benefits? | Central bank independence and fiscal discipline |

1/ Various stages of inflation targeting could be defined as follows:

**0 = Internal IT** is a period, when the authorities have decided to move into IT some time in the future and started to prepare for implementing some IT compatible conditions, without declaring quantitative inflation targets to the public.

**1 = Implicit IT** is a period when the country has announced medium term inflation targets to the public, but not the regime and its details as such. It involves a country acting as if IT were in place without a formal adoption of the regime. Typically the central bank would also have other intermediate targets (e.g., exchange rate, or monetary).

**2 = Partial IT** is a period after the authorities have declared IT regime officially by (i) giving priority to achieving low and stable inflation over other monetary policy goals, (ii) announcing a trajectory of quantitative inflation targets, and (iii) disclosing details of the regime to public. Some of the other key elements of IT may be missing. A typical example of partial IT involves maintaining some form of exchange rate target (including within a wide band), while low and stable inflation is the final objective of monetary policy.

**3 = Full Fledged IT** (FFIT) is a period after the country has additionally satisfied the following (not entirely objective) criteria: (i) announced medium term inflation targets, (ii) a floating exchange rate, with inflation as the only intermediate target (i.e., no exchange rate targets with or without bands), (iii) absence of fiscal dominance, iv) central bank instrument independence, v) reasonably good forecasting capacity (covering the period of medium term inflation targets), and (vi) intensive communication efforts making policies accountable and transparent to build up credibility.

Note that although the FFIT is the ultimate stage of an IT regime in these definitions, a country does not have to go to FFIT in exactly this sequence. For instance, stages 0 and 1 often coincide, and sometimes the country starts from 2 straightaway. Note also that identification of stages 0 and 3 in particular are necessarily subjective, and may therefore differ across various sources in the literature.

## REFERENCES

Alichi, A., H. Chen, K. Clinton, C. Freedman, M. Johnson, O. Kamenik, T. Kişinbay, and D. Laxton, 2008, "Inflation Targeting under Imperfect Policy Credibility," IMF Working Paper, 09/94 (Washington: International Monetary Fund).

Argov, E., N. Epstein, P. Karam, D. Laxton, and D. Rose, 2007, "Endogenous Monetary Policy Credibility in a Small Macro Model of Israel," IMF Working Paper 07/207, (Washington: International Monetary Fund).

Freedman, C., 2009, "Transparency and Accountability," forthcoming IMF Working Paper (Washington: International Monetary Fund) and Chapter 4 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

_____, and D. Laxton, 2009a, "Why Inflation Targeting?" IMF Working Paper No. 09/86 (Washington: International Monetary Fund) and Chapter 2 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

_____, 2009b, "IT Framework Design Parameters," IMF Working Paper No. 09/87 (Washington: International Monetary Fund) and Chapter 3 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You* Say, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

Freedman, C., and I. Ötker-Robe, 2009, "Important Elements for Emerging Economies," forthcoming IMF Working Paper (Washington: International Monetary Fund) and Chapter 5 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

Freedman, C., D. Laxton, and I. Ötker-Robe, 2009, "Role of the Exchange Rate," forthcoming IMF Working Paper (Washington: International Monetary Fund) and Chapter 6 of On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

Habermeier, K., I. Ötker-Robe, L. Jacome, A. Giustiniani, K. Ishi, D. Vávra, T. Kişinbay, and F. Vazquez, 2009, "Inflation Pressures and Monetary Policy Options in Emerging and Developing Countries: A Cross Regional Perspective," IMF Working Paper 09/1 (Washington: International Monetary Fund).

Laxton, D., D. Rose, and K. Schmidt-Hebbel, 2009, "Research and Advanced Macro Modeling," forthcoming IMF Working Paper (Washington: International Monetary Fund) and Chapter 8 of On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and *Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

Laxton, D., D. Rose, and A. Scott, 2009, "Developing a Structured Forecasting and Policy Analysis System to Support Inflation-Forecast Targeting (IFT)," IMF Working Paper No. 09/65 (Washington: International Monetary Fund) with an abridged version as Chapter 7 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.

Ötker-Robe, I., and D. Vávra, 2007, "Moving to a Greater Exchange Rate Flexibility: Operational Aspects Based on Lessons from Detailed Country Experiences," IMF Occasional Paper No. 256.

Roger, S., and M. Stone, 2005, "On Target? The International Experience with Achieving Inflation Targets," IMF Working Paper No. 05/163 (Washington: International Monetary Fund).

Schmidt-Hebbel, K., 2009, "Modeling at the Central Bank of Chile," forthcoming IMF Working Paper (Washington: International Monetary Fund) and Chapter 9 of *On Implementing Full-Fledged Inflation-Targeting Regimes: Saying What You Do and Doing What You Say*, unpublished manuscript by C. Freedman, D. Laxton and I. Ötker-Robe.