INFLATION TARGETING IN DEVELOPING COUNTRIES

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ABSTRACT

Macroeconomic policies have many goals like low inflation, high economic growth, balance of payment equilibrium etc. Since the monetary policy has more flexible framework and exerts its effect with long and variable lags, it has certain advantages over fiscal policy. The issue with the monetary policy is that as it is widely accepted today, the central banks can only control inflation rates in the long run. In 1990's, after the failure of monetary and nominal exchange rate targeting to reduce inflation rates, Inflation Targeting (IT) is implemented successfully in some developed countries, which encouraged developing and transition countries fighting against the high inflation rates. In this paper, the applicability and prerequisites of IT in developing countries will be discussed.

I. INTRODUCTION

One of the consensus views among economists is importance of low and stable inflation. Economic theory assures us low and stable inflation is important for market-driven growth, and that monetary policy is the most direct tool for controlling inflation. Further, among all of the government's tools for influencing and directing the economy, monetary policy has proven to be the most flexible instrument for achieving medium-term stabilization objectives.

In 1970's, policy-makers and most economists supported "activist" monetary policies, which were defined as policies whose purpose was to keep output and unemployment close to their "full employment" levels at all times. Supporters of activism believed that there was long-run tradeoff between inflation and unemployment, known as Phillips curve (Phillips, 1958; Samuelson and Solow, 1960). According to this view, the monetary authorities could maintain a *permanently* lower rate of unemployment by accepting some degree of inflation. Actively managed monetary (and fiscal) policies could be used to maintain maximum employment pretty much all the time. However, the activist monetary policies of the 1970s and 1980s not only failed to deliver their promised benefits, but also they helped to

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generate inflationary pressures that could be subdued only at high economic cost.

Today, many economists and practitioners accept the primary goal of monetary policy is attaining and preserving the price stability. The reasons for this agreement can be explained thorough four reasons:

1) An increase in the money supply does not have any impact on the real side of the economy in the long run, although it has some temporary effects in the short run. However, the mechanism through which the effects manifest themselves and the time when they will be seen is not clearly known beforehand.

2) Inflation has very undesirable impacts on the economic growth and resource allocations.

3) The effect of monetary policy on the rate of inflation can be observed with long and variable lags due to the aggregate demand and supply shocks, instability of the intermediate targets etc. and these lags makes difficult to control inflation on a period-by-period basis by the central banks.

4) It is accepted that due to the dynamic inconsistency problem, there must be some restrictions on the central bank activity. Pressures of politicians or the private sector on central banks to stimulate the economic activity may result in the price instability. In the inflation targeting regime, the commitment of central banks to achieve low and stable inflation environment, impedes these pressures and help central banks to focus on the inflation objectives,

not growth etc. The regime gives also chances to take pre-emptive actions as soon as some signals are shown.[1]

To implement a successful monetary policy, restrictions on the policy-making processes are sometimes needed especially in developing countries to discipline the policymaking process and to make policy more transparent because of the time-inconsistency problem.[2]

For these reasons, conducting the policy by using a nominal anchor may be helpful. Although some of the nominal anchors result in the loss of independent monetary policy, when the developing markets are considered, it can be argued that the loss of the developing countries because of not conducting independent monetary polices are less than their gains of discretionary monetary policy.

In this paper, other nominal anchors will be examined then the general aspects of IT regime will be discussed. After analyzing the common features of IT regime in the developed countries and the scope for IT in the developing countries with country experiences willl be studied.

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[1] This argument is not as commonly accepted as the first three arguments.
[2] In the short- run, policymakers have some incentives to implement overly expansionary monetary policy and to increase the rate of inflation to a rate, which is higher than the expected rate by public. When most of the input costs are fixed in the short-run, higher inflation rate reduces real production costs and increases real activity temporarily until the economic agents reflect this increase to the input prices.

II. ALTERNATIVE MONETARY POLICY REGIMES

II.1 Exchange Rate Targeting

Targeting the exchange rate is a monetary policy regime with a long history. For a given country, particularly small country[3], fixing the exchange rate of its currency to that of large, low inflation country is one of the methods to reduce inflation and keep it low. Due to its simple and easily understood framework, exchange rate targeting has gained popularity between the developed and developing countries in the past. It has several advantages, some of which can be summarized as follows: It fixes the inflation rate for internationally traded goods, and thus directly contributes to keep inflation under control, it anchors inflation expectations and by providing an automatic rule for the conduct of monetary policy[4], it avoids the time-inconsistency problem.

Although exchange rate targeting have helped even some developed countries to control their inflation rates like France and the United Kingdom, international experiences display that it has also some problems. In the developing countries, it may have much more dangerous results than that in the industrialized countries. Because in the developing countries the depreciation of the domestic currencies results in the deterioration of the balance sheets and increase in the inflation expectations due to their long inflation history.

The problem with the exchange rate targeting regimes can be listed as follows: First of all, exchange rate targeting prevents central

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[3] Because, for some countries or block of countries like the United States, Japan and European Monetary Union, there is no obvious country whose currency can serve as the nominal anchor.
[4] When the possibility of depreciation of domestic currency occurs, tight monetary policy and when that of appreciation occurs, loose monetary policy will be implemented.

banks from conducting independent monetary policy. The central banks are no more able to respond shocks which hit the economy and which could be reversed or eased by some monetary policy actions. Furthermore, shocks to the anchor country are directly transmitted to the targeting country. However, because of lack of independence of the central banks and possible political pressures on the central banks, it is very difficult to conduct discretionary monetary policy in many developing countries successfully.

Secondly, exchange rate targeting is likely to promote financial fragility in emerging market countries. Because of uncertainty about the value of the domestic currency, it is easier to issue debt for nonfinancial firms, banks, governments in terms of foreign currency in these countries and exchange rate targeting may further increase this tendency. When there is an unanticipated depreciation or devaluation of domestic currency, the balance sheets of firms and banks are damaged very seriously because, in most of the developing countries, the weight of foreign currency denominated debt is higher than the weight of foreign currency denominated assets on their balance sheets and this increases their debt burdens. The deterioration of these balance sheets cause moral hazard and adverse selection problems and finally results in the decline in the economic growth.

Third disadvantage of the exchange rate targeting in emerging market countries is that although it is initially successful in bringing inflation down, a successful speculative attack can lead to a resurgence of inflation. Due to the lack of credibility of the central banks in many emerging market countries, a sharp depreciation of the currency after the speculative attack can lead to rise in actual and expected inflation. A rise in the expected inflation results in a sharp rise in interest rates, which weakens the cash flows of the firms and

cause to a deterioration of the balance sheets and deepen the financial crisis.

Fourth disadvantage is that exchange rate targeting cause a decline in the risk for foreign investors by providing more stable value of currency and this might cause excessive lending. When the bank supervisory is weak and there is full deposits insurance coverage given by the government, this excess capital inflow might result in the deterioration of the banks' balance sheets as a result of moral hazard, which has very unfavorable impacts on the economy.

Another disadvantage of exchange rate targeting is that it can weaken the accountability of the policymakers. Because in many emerging market countries, the daily fluctuations of the exchange rates can provide an early warning signal that monetary policy is overly expansionary and the fear of depreciation can make *overly* expansionary policy less likely. Targeting the exchange rate removes this early warning signal and thus gives incentives to central banks to pursue overly expansionary policies.

In many developing countries, it is sometimes argued that currency board implementation may be more successful because strong commitment to fix the exchange rate contributes to increase the credibility of the central banks, which is exactly what they need. However, currency board application has also some problems.

II.2 Monetary Targeting

Another nominal anchor, which can be used in the conduct of monetary policy to tie down the public's expectations, is monetary aggregates. Monetary targeting has some advantages when it is compared with the exchange rate targeting: In the case of monetary targeting, authorities are able to respond to shocks to the domestic

economy, which is not possible in the exchange-rate targeting case, as explained above. However, it is more likely that in the case of exchange rate targeting, the transparency and clarity of the policy is much more than that of the monetary targeting. In any case, monetary target sends immediate signals about the stance of the monetary policy and consistency of the stance with the monetary target and the intentions of the policymakers. In monetary targeting strategy, the monetary authority's choice of inflation targets may differ from that of any other country. Monetary target also prevents policy makers from falling into time inconsistency trap. Due to these advantages, in the 1970's, after the collapse of the Bretton Woods regime, many countries started to conduct their monetary policies by using monetary nominal anchors.

Despite all of these advantages, the success of the monetary targeting is dependent on two preconditions. First, the targeted monetary aggregate must be under the control of the central bank. That is, this aggregate has to be influenced by the central bank operations. Second, there must be strong relationship between the goal and the target variable. If there is no stable relationship between income level, price level and the velocity of money, monetary targets will not be able to send clear signals about the stance of the monetary policy and achieving the monetary targets will not be very meaningful in terms of reaching the ultimate goal of central banks.[5]

By the early 1980s, when it was understood that the relationship between monetary aggregates and inflation and nominal

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[5] For these reasons, no monetary targeting central bank has ever been so strict in their implementations; instead, most of the time they have been flexible due to the some short-run considerations like output growth and exchange rate (like Germany and Swiss).

income had broken down and most of the countries like the United States, and the United Kingdom formally abandoned monetary targeting.

II.3 Inflation Targeting

In the 1990s increasing number of industrialized countries started to implement inflation targeting framework (IT) as a result of the poor performance of other nominal anchors like exchange rate targeting or monetary targeting in meeting the objectives of the central banks. After successful results of IT in developed countries some developing countries like Brazil, Chile, Chezch Republic, Poland started to implement IT regime.

What is IT?

Some common features of IT implementation as specified in Mishkin (2000):

1)   To announce the public a medium term numerical targets for inflation.

2)   To commit to the public that the price stability is the primary goal of monetary policy.

3)   To use all available information not just monetary aggregates or exchange rates in policy setting.

4)   To increase transparency, as a result of the continuous communication with the public and markets about the plans, objectives, and decisions of the monetary policy.

5)   To increase the accountability of the central bank for attaining its inflation objectives.

The important point here is that the IT is not only the announcement of the numerical target for inflation. This point is crucial for especially developing countries because the policymakers of these countries sometimes report numerical targets for inflation. This does not imply that these countries implement IT regimes. The IT regime requires also the other four features as explained above.

The Advantages of IT:

The IT regime has several advantages as a monetary policy strategy when compared with the other policy regimes.

1)   IT provides a nominal anchor for monetary policy and inflation expectations.

2)   In contrast to the exchange rate targeting, IT gives opportunity to respond shocks hitting to the economy and to focus domestic considerations

3)   IT does not require a stable relationship between monetary aggregates and inflation as in monetary targeting. It uses all available information in the formation of the policy setting.

4)   As it is explained above, monetary policy shows its impact on the economic activity with long and variable lags. IT regime gives an explicit role to the lags of monetary policy in the choice of policy instruments.

5)   It is possible in the IT regime to decrease the possibility of falling into time inconsistency trap by decreasing the pressure coming from the politicians in order to stimulate the economic activity.[6]

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[6] A strong institutional commitment to make the price stability the primary goal of the monetary policy is necessary for IT to reach these results and it is necessarily important for developing countries, which have often had policy misalignment in the past.

6)   The other advantage of the IT regime is its great emphasis on the regular communication with the public and transparency. This property have important role in the success of the IT in the industrialized countries. The policymakers in the developed countries use every opportunity to communicate with the public like public speeches and a step further by means of inflation reports.

7)   Transparency of the policy has inclination to make the policy more accountable to the public and continuous success of the policy in reaching to numerical targets increases the public support for the central bank.

8)   One of the advantages of IT regime is its clarity for public understanding compared with the nominal income targeting. In the nominal income-targeting regime, there is no decomposition for the income component and price component. So, it might be difficult for the public to built price expectations. In addition, the inflation-targeting regime serves as an anchor for wage and the price setters and the existence of such an anchor increases the credibility of the policy.

The Disadvantages of IT:

1)   The inflation-targeting regime has been criticized due to its overemphasis on inflation, its rigid structure, its negative impacts on the economic growth and its exclusion other goals like output stabilization.[7] However, the countries' announcement of the targets above the zero inflation rates reflects the fact that the central banks does not ignore the output growths totally and it takes into account a possible deflation and the undesirable impacts of deflation on the economic activity.

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[7] The detail of this discussion is explained in the Annex1

2)   It is claimed that there is only weak central bank accountability in IT because in contrast to exchange rate and monetary aggregates, inflation is difficult to control and the policy instruments show their impact on inflation with long and variable lags. This problem is especially severe in the developing countries when the rates of inflation are being brought down from high levels. In this situation, there will be large forecast errors and frequent target misses. Therefore, it will be difficult for the central bank to explain the reason for the deviations from the target and to gain credibility, which is central to the IT regime. According to Masson etc. (1997) IT will be more effective if it is started to implement this regime after successful disinflation. Another factor that has influence on the ability of the central banks to control inflation is the large existence of the government-controlled prices and this factor is of significant importance for the developing countries. Successful IT implementation requires high coordination between the people who determine these prices and the monetary policymakers or the exclusion of these prices from the targeted rate in this circumstance. Moreover, inflation forecasting procedure in these countries should take into account the timing and magnitude of the changes in those prices.

3)   IT may not prevent fiscal dominance. In the long run, large fiscal deficits will cause either monetization of the deficits or devaluation and they will result in high inflation.

4)   Exchange rate flexibility required by IT might cause financial instability.

5)   There are some economists (e.g. Calvo 1999b, Calvo and Mendoza 2000) who argue that the IT regime is too discretionary and it may cause policy makers to follow overly expansionary

policies. However, as it is explained in this paper, IT regime increases the accountability and transparency of the policy. Accountability increases the costs of policy mistakes for policy makers and transparency makes difficult to conduct overly expansionary policy without it being noticed. So, it does not seem plausible to assert that the monetary policy in the IT regime is too discretionary.

6)   Some economists argue that IT is too rigid and it impedes the monetary authorities from responding to the shocks hitting the economy. However, it can be argued that IT is far from being a rigid rule; it can be evaluated as 'constraint discretion'.[8] It does not impose simple rules about the conduct of the monetary policy. Contrary to simple rules, IT regime obligates policy makers to use all available information in order to achieve the target.

II.3.1 Conceptual Framework

1)   Assignment of the target

The authorities that announce the target differ across the countries and also it depends on the central bank's instrumental independence. The target is announced in some countries by the central bank (Australia, Sweden), in the others, by the Ministry of Finance and the Governor of the central bank (Canada and New Zealand). To improve the credibility, it would be better that the central bank and the Ministry of Finance work together; here the government makes decision about the goal of the monetary policy and gives the responsibility and tools to the central bank for attaining it. (See Israeli experience in the paper)

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[8] See Bernanke and Mishkin (1997)

2) The interaction with the other policy goals

In an IT regime the overriding objective of the monetary policy is to achieve the specified inflation target and then maintain the price stability. The goals other than inflation will not be pursued in the inflation-targeting regime when they are inconsistent with the inflation objective. The fixed exchange rate regimes are not consistent with IT regime, since IT regime necessarily requires exchange rate flexibility. Because, especially for the developing countries, fixed exchange rate is susceptible under limited foreign exchange reserves and a persistent domestic-foreign inflation differential in a world of capital mobility.[9]

However, it is possible for IT implementing central banks to have any other goals, which are consistent with the inflation target. A full employment goal is not inconsistent with the inflation target. Although there is a short-run trade-off between these two objectives, in the long run the contribution of low and stable inflation to growth is certain.

Central banks can pursue the goal of financial stability as well in IT regime. This condition is not always inconsistent with the IT framework. However, the fragility in the banking sector may decrease interest rate flexibility. In the short run, the tight monetary policies followed by the central banks in order to reach the inflation target may threaten the financial institutions. In the long run, the crisis in the banking sector may result in the deflation and these causes undershoot of the target.

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[9] According to Arrau etc. (1995), the flexible exchange rate regimes in the developing countries did not result in lower weights to the exchange rates given in the policy decision process.

3)   Definition of the target

The general characteristic of an IT regime is determined by the horizon of the target, the level of the target and the specification in terms of a point or a band and the choice of price index.

3a) Horizon of the target

The horizon of the target is affected by the initial inflation rate. When there is a difference between the targeted rate and actual rate, the central banks implement a disinflation program[10] process in order to diminish gradually the inflation rate to the desired level. Horizon of the target is also affected by the ability of the central bank to offset the effects of the supply shocks and the type of the IT regime implemented by central bank, strict or flexible (see annex1).

3b) Level of the target

Due to the upward bias[11] included in the measurement of the CPI, it is common between inflation targeting countries to determine the target above zero percentages. These biases arise from the adjustment of the consumers to relative price changes by substituting similar goods with lower prices. Another reason is the quality bias; the price rises due to the improved quality should not be counted as inflation.

Some economic risks also support the non-zero inflation target. Firstly, when the nominal wages are rigid downward, real wages will not fall in response to decreasing labor demand. So, this will cause an increase of the unemployment rate. Secondly, too low inflation

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[10] In Canada and New Zealand, the inflation targets were used to assist the disinflationary process.
[11] Although there is a bias in the measurement of the CPI, the use of IT or variants of CPI as a targeted variable comprises some practical advantages like familiarity, ready availibity, and convenience in the communications with the public.

rates bringing about too low nominal interest rates[11] will prevent the central bank to decrease interest rates in case of a recession.

In most of the developing countries, there is no consensus about the optimal inflation rate for their economy. The lack of consensus on a numerical value makes the choice of targeted variable's nature arbitrary. However, there seems to be a general presumption that developing countries should probably aim at attaining a medium term rate of inflation that is somewhat higher than that of industrial countries (say between 4 and 8 percent per year), and is allowed to fluctuate within a somewhat wider band to help accommodate larger supply shocks. (Masson etc. 1997)

3c) Choice of the price index

For the transparency of an IT regime, the public should be familiar with the price level to be targeted. Besides, the definition of a price index also results in the credibility and flexibility trade-off. The reason why central bankers may be interested in choosing a core index is that to exclude the first-round effects of non-monetary determinants of inflation. In New Zealand, some certain events, like a change in indirect taxes, a natural disasters etc., are beforehand declared to be excluded from the targeted index. However, this includes the risk of an increase in the output variability. When there is a focus on a core index, the policymaker might not care about the first-round effects on prices by causing a contraction in the economic activity and might only consider whether it causes a rise in inflation expectations or not. Targeting the core index may cause another problem. When all the price and wages in the economy are indexed on the headline index, their responses to the movements in this index

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[11] Nominal interest rates are bounded below by zero.

will be captured by the underlying rate. If the core index is used, it is very important that the public is well informed about the specification of the index.

3d) Width of the target band

One of the subjects, which should be determined under the inflation-targeting framework, is to decide whether point or band target will be made. Since monetary policy shows its impact on inflation with long and variable lags and it is not possible to predict the future inflation rate exactly, inflation rate will display variability. In these conditions, the adoption of the wider bandwidth will also gives some scope for output stabilization. However, it should be known that as the time passes and the positive results of the regime is realized by the public, the inflation-targeting regime might decrease these irreducible variability in inflation and the adoption of the band regime, which is both believable and attainable regime, decreases the variability of the output. The adoption of point target brings credibility to the implementation. However, the existence of the unpredicted events and the nature of the inflation makes difficult to reach to the point target. The implementation of the band decreases the credibility of the policy, which is especially difficult to build in the developing countries.

4) Accountability

IT increases the accountability of the policy by increasing the transparency. The strongest case of accountability of a central bank in the IT regime is the New Zealand where the government has the right to dismiss the governor of the central bank when there is a divergence from the target, even for one quarter.

5) Inflation forecasts

In the IT regime, the inflation forecasts has special role. Monetary authorities use inflation forecasts in policymaking process. When a difference between expected and targeted rates realizes, monetary authorities takes pre-emptive actions in order to eliminate this difference. Therefore, it is very important in the IT regime to develop powerful models that explains the dynamics of the economy well.

Actually, the different characteristic of the IT regime from the other policy regimes stems from this point. In the IT regime, the important point is not the accuracy of these forecasts, but the emphasis given to the forecasts in the policymaking process in the IT regime, rather than past or current inflation developments.

II.3.2 Prerequisites and defining features of IT

Firstly, the central banks should have independence in the conduct of monetary policy. The independence here does not imply the full independence, but at least instrumental independence. The importance of this precondition increases when the developing countries considered. Actually, fiscal dominance and poor financial market structure constrain the scope for an independent monetary policy in these countries. A comprehensive reform program, which decreases the pressures of the public sector on the financial sector, and inflation to low levels, including banking sector regulations, is required in order to create the central bank independence in those countries. To meet this requirement, the fiscal policy should not have excess pressures on the monetary policy stance. That is, the central banks do not have to conduct accommodative policies. The weights of public sector borrowing requirements on the financial system must

not be so high and there should not be direct borrowing of public sector from the central bank and heavy reliance on the seignorage revenues by the public sector. If these conditions are not satisfied, then the inflation will have fiscal roots and fiscally driven inflation process undermines effectiveness of monetary policy. Although there is no any consensus about the threshold at which monetary policy loses its effectiveness, it is generally accepted that the 15-25 percent inflation for three or five consecutive years will decrease the ability of the central bank to be successful in targeting some variables and lasting reduction in the inflation on its own.

Secondly, there should not be another targeted nominal variable like wages or nominal exchange rate for successful implementation of IT regime. When the central bank commits to fix the nominal exchange rate to the currency of the main trading partner, the policymaker accepts that the rate of inflation of the major trading partner is the targeted inflation rate. In this case, it is not possible to conduct monetary policy by targeting any other variables especially in the existence of the capital mobility. In the softer version of the exchange rate targeting regime, like crawling peg, it may be possible to pursue other nominal objectives. However, it may be problematic. When there is a conflict between the objectives, the priority will be given to which target? For successful implementation of IT, the priority must be given to inflation objective. But, it is not possible to explain the priorities of the policymaker to the public in a credible manner before that conflict arises. In that case, the public will make their own comments about the policy actions and there is no guarantee that the policy stance will give the exact signals about the actions and will cause true comments. In order to circumvent those

problems, it would be better not to object other variables in the IT regimes.

Thirdly, the presence of the lags in affecting the inflation by the monetary policy means that the optimal policy corresponds to inflation forecast targeting. Therefore, monetary authorities must be able to model inflation dynamics in the country and to forecast the inflation in IT regime and they should be certain about how monetary policy affects the macroeconomic variables, and about how the relative effectiveness of the policy instruments is.

In order to implement an IT regime, a country that satisfies these above conditions should conduct a monetary policy, which has four basic elements. First of all, an explicit quantitative target must be announced for some periods. Secondly, the central bank has to show its intention that its most important objective is to enable an environment with stable prices to the public. Thirdly, the central bank should have powerful models, which reflects the economic dynamics well and makes the central bank be able to take pre-emptive actions, when it is necessary. Finally, since the influence of the monetary policy on the macroeconomic variables can be seen with long and variable lags, the central bank must have forward-looking behaviors by using the inflation forecasts as intermediate target.

II.3.3 IT in developed countries

At the beginning of the 1990's, some countries like New Zealand, Canada, The United Kingdom, Finland, Sweden, Australia and Spain, started to implement the inflation-targeting regime. The IT implementation in these countries has some common features, which must be stressed here.

1) In these countries, there was high degree of the exchange rate flexibility. Actually, some of the countries like the UK, Sweden, and Finland, had started to implement the IT regime after the failure of exchange rate targeting as a main anchor of the monetary policy.

2) The countries adopted IT, had the central bank independence at least in terms of the instrument independence and absence of fiscal dominance.

3) The central banks of these countries used the short-term interest rates as an instrument in their operations and they have well developed financial markets, which transmits effects of the policy actions to aggregate demand and inflation.

4) The targets are set in the forward-looking manner in order to offset the effects of foreseeable shocks on the inflation.

5) In the developed countries IT was used in order to built the credibility of the macroeconomic policy. In some countries, ministry of finance and the governor of the central bank announced the targets jointly and it eliminates the idea that there may be conflicts between the objectives of the economic policy objectives. The continuous communication with the public through the speeches and some publication like to inflation reports explain to the public what are the aims of the monetary policy implementation. When the IT framework is credible, it is possible to affect the expectations of the public.

6) The regime did not implemented in the high inflation environments, but low inflation environments, less than 10 percent and it helped to build the initial credibility in the first phases of the implementation.

II.3.4 IT in the developing countries

The important question, which can be asked at this stage, is whether IT regime can be implemented in the developing countries, whether the necessary conditions for its success are satisfied or not.

II.3.4.1 Scope for independent monetary policy in developing countries

The major determinants of the independent monetary policy[12] are that the degree of the fiscal dominance, and the absence of any firm commitment to target other nominal variables like exchange rates or monetary aggregates that might create some conflicts with the inflation objectives.

In some of the developing countries it is readily apparent that these prerequisites are not satisfied. In countries experiencing high inflation, above 30- 40 percent per year for a number of years, the nominal variables will tend to show high degree of inertia and the monetary policy will be accommodative. In these conditions, the effects of monetary policy on inflation will be unpredictable and short-lived. The most important step to be taken by the policymaker here is to decrease the inflation rates continuously, which requires to implement a stabilization program by decreasing the role of the central banks in the finance of the government deficits, to use some nominal anchors in order to shape the inflation expectations, consistent with the inflation objectives.

However, for some developing countries, it is difficult to assess whether they satisfy these prerequisites or not. Fiscal dominance does not always result in high inflation, the extent to which monetary policy accommodates the other variables and the nature of the

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[12] One of the preconditions for the conduct of successful IT regimes.

shocks in the economy depends on a lot of country specific factors and the implementation of middle road exchange rate regimes like managed float and crawling peg systems gives discretion to the monetary authorities in ranking their external and domestic objectives in less-than-fully transparent manner.

It is difficult for developing countries to claim that these countries have the same environment with the developing countries in terms of central bank independence. Central banks scope for the conduct of independent monetary policy is hindered by the presence of the three related factors in those countries: heavy reliance of the seignorage, shallow capital markets, fragile banking systems.

The reliance on seignorage, which is the most common indicator of the fiscal dominance, is much heavier in developing countries than in the developed countries[13] due to a number of structural factors such as unstable tax revenues, poor tax collection procedures, skewed income distributions, political instability. In addition to these factors, it is claimed that in these countries there is a tendency to abuse this source of revenue in the crisis times. (Easterly etc. (1994))

The other indicator of fiscal dominance in these countries is the existence of shallow capital markets. A two-way relationship can be seen here. Sometimes, the undeveloped capital markets are the reasons for the fiscal dominance and sometimes the fiscal dominance is the reason for the undeveloped capital markets. The financial repressions to extract revenues from the financial system through the high reserve requirements, implementation of the sectoral credit policies and the compulsory requirements of the public debt and the

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[13] The annual recourse to seignorage in developing countries is ranges from 1.4 to 3 percent of GDP, in advanced economies; it is below the one percent of GDP.

interest rates ceiling can be seen as an example of the fiscal dominance as being the reason for the undeveloped capital markets. On the other hand, in some instances, the access of the developing countries to the international capital markets is very low, the general wealth level is low compared with the developed countries and the degree of fiscal flexibility is low and these cause the government to rely on the seignorage revenues and other forms of repression in order to close the transitory gap between its revenue and the expenditure flows.

A fragile banking system is another consequence of the long financial repression periods. After the financial sector reforms, banking sector introduce an independent influence on the conduct of monetary policy. The conflict between the objectives of price stability and attaining and preserving banking sector profitability is important in this context. Therefore, it is important for central banks to rank policy objectives. (See Masson etc. 1997)

III. Country Cases

In this part, some of the developing country cases will be examined.

TABLE I:
A FRAMEWORK FOR IT IN SELECTED COUNTRIES

	CHILE	ISRAEL	POLAND
First Announcement	1990	1991	1998
First Inflation Target	15-20%	14-15%	9,5%
Target for 2000	**3,5%**	**3-4%**	**below 4%**
Long-term Target	2-4% for 11 years	3-4% for 9 years	4% for 4 years
Price Index	CPI	CPI	CPI
Target Horizon	2001-…	2000-2001	1999-2003

Source: Morandé ,Schmidt-Hebbel, 1999; Bufman, Leiderman, 1999 ; Bank of Israel; National Bank of Poland

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III.1 Israeli Experience

In 1985, Israel, suffering from the hyperinflation with a fiscal deficit of 14 percent of GDP caused mainly by the costs of the war adopted an exchange rate based stabilization program which had strong adjustment of fiscal fundamentals, restrictions on wages and selected prices. First year, exchange rate was fixed against US dollar and after against a basket of G5 countries' currencies.

GRAPH I:
**NOMINAL EXCHANGE RATE IN ISRAEL.**
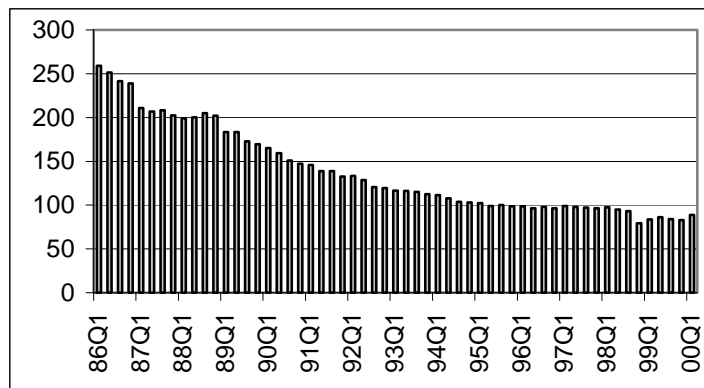
Source: IFS

After that stabilization program, until 1991 the rate of inflation stayed in the range of 16-20 percent per year. However in this period, the appreciation of the real exchange rate influenced negatively Israel's foreign trade. So, in 1987 a devaluation of shekel occurred which was followed by the devaluations in June 1989, March 1990, September 1990 and April 1991. At the beginning of 1989 an exchange rate band of 3 percent was announced. The band's width was enlarged to 5 percent in March 1990 to deal with international capital flows. Although the band's width was getting larger, the speculative attacks against shekel didn't stop. There are two major problems with this exchange rate policy; first the fixed exchange rate

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is susceptible under limited foreign exchange reserves and a persistent domestic-foreign inflation differential in a world of capital mobility. Second, the adjustment of real exchange rate to financial and real shocks is delayed by the fixed range of the nominal exchange rate. So, in December 1991 *it was decided that the slope of the pre-announced rate of crawl of the central parity for a given year would be approximately equal to the difference between the authorities' inflation target for that year and a forecast of the average inflation rate for Israel's main trading partners. This is how the inflation target became a goal of policy.* (Bufman et al., 1995) The Finance Ministry and the Bank of Israel gaining credibility with the stabilization program and independence by stopping financing the government deficit in 1985, made this decision jointly. In the period of crawling exchange rate band from 1992 to 1996, inflation rate declined to 10 percent per year on average.

GRAPH II:
**INFLATION DEVELOPMENTS IN ISRAEL**
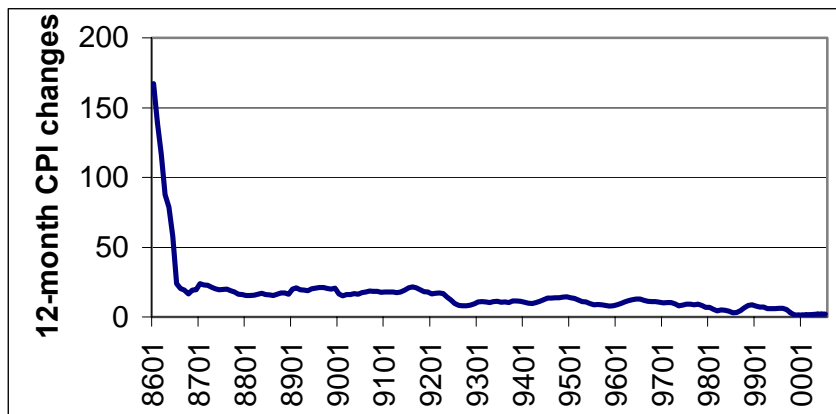
Source: IFS

Israel's inflation targeting experience is different from other countries' experience because there were still high rates of inflation in 1991 when it was adopted and official targets for inflation and the

exchange rate were set simultaneously. Also, there were only the New Zealand IT experience of two years and Canada's experience of ten months for an IT example for Israel.

Inflation target is based on all-item CPI in Israel. Because the volatile prices of fruits and vegetables, mortgage interest costs constitute about 40 percent of the CPI and especially financial and wage contracts are indexed to all-item CPI in Israel. This is why Israeli people learn to live with high rates of inflation.

For the year 1992, the inflation target and the rate of crawl of the exchange rate were set equal to 14-15 percent and 9 percent respectively. Narrow bands or point target should be preferable because financial markets and the public will focus on the upper limit of the band. On the other hand, setting a point target would be incredible in case of shocks that are more harmful for developing countries and also this makes the control over inflation more fragile.

GRAPH III:
THE RATIO OF BUDGET DEFICIT TO GDP IN ISRAEL
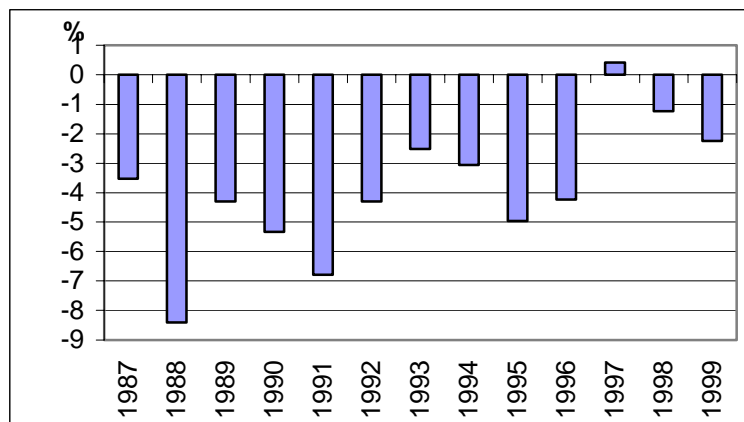
Source: IFS

There is no official inflation forecast of Bank of Israel, instead they use market based inflation expectations, which are determined as the interest rate differential between nominal and indexed bonds. These expectations fell down significantly one month after the first announcement of the target for 1992. At the end of the year, the annual rate of inflation reduced to 9.4 percent, which was lower than the target. That enhanced the central bank credibility. The reasons for such a relatively low rate of inflation would be the tightening of fiscal policy (the budget deficit decreased from 7 percent to 3.5 percent of GDP); the reduction in labor costs per unit of output with the increased labor supply because of the immigration (increase in output); increase in imports by the decreasing import prices parallel to world prices and lastly tightening monetary policy in late 1991 affecting aggregate demand and inflation.

In November 1992, the 10 percent inflation target was announced with 8 percent crawl rate for 1993. Even these rates were suitable after the good performance of the previous year, the inflation rate for 1993 realized as 11.2 percent slightly above the target. Actually, in May-June period of 1993, it has declined to 3 percent from 17 percent. The main reasons for this rapid decline would be the effect of the nominal exchange rate depreciation due to the sudden increase in capital outflows toward the end of 1992. Another reason is the seasonal effect of summer months to prices.

The low rates of inflation in the first half of 1993 encouraged the authorities to announce inflation target of 8 percent and crawl rate of 6 percent for 1994 in July 1993. But, inflation reached to double-digit rates as of mid 1993 and the 1994 target was overshot by 6.5 percent. The authorities, aiming to reduce the high rate of unemployment, decreased the monetary auction interest rate 3

percentage points from 12 percent in June to 9 percent in July with the 23 percent growth in M1 during the second half of 1993. The motivation of this behavior came from that they taught the low inflation rates would be permanent and there were no speculative attacks in the foreign exchange market. So, the augmented demand for liquid assets by the increased activity in real and financial sector at a lower level of interest rate brought asset price inflation. Also, the rise in real wages of public sector employees caused the inflation rate to increase.

Bank of Israel decided to raise by a half point its monetary auction rates in November and December 1993 against the increasing inflation rates. With these reactions inflation expectations fell. But from May 1994, increasing interest rates didn't help to decrease the inflation expectations because the authorities reacted in a backward looking manner that is, after the inflation rates rose. So, at the end of the year expectations and the effective central bank overnight interest rate were about 15.5 percent and 18.5 percent respectively.

The central bank and the Finance Ministry set the targets for 1992 and 1993 but after the overshot of 1994, the government's behavior became more important and the government took some decisions:

1)   Setting nominal budget ceilings.

2)   A committee of Cabinet ministers to facilitate residential construction so diminishing asset price inflation.

3)   Free imports of fresh agricultural products in case shortage in domestic market

4)   Adopting foreign product standards to increase imports.

For the year 1995, the inflation target set as a range from 8 percent to 11 percent and the crawl rate widened to 14 percent by the government and the Bank of Israel. The fiscal deficit target for that year was 2.75 percent of GDP, exclusive of interest payments on the government debt. Even the inflation target was achieved, fiscal deficit overshot and realized as 3.2 percent of GDP.

The target of range from 8 percent to 10 percent for 1996 was overshot only by 0.6 percent. But the fiscal deficit missed its target of 2.5 percent by 2.1 percentage points. Accordingly unemployment fell to 6.7 percent and current account deficit increased as the shekel depreciated more slowly than expected so that the inflation expectations rose to 15 percent in July 1996. The increase in interest rates slowed the economic growth and the target overshot stayed at 0.6 percent.

The authorities thinking that the fiscal policy would be a threat for lower rates of inflation in 1997, decided to announce a target range from 7 percent to 10 percent for that year. Also, with the inflation-targeting regime, higher inflation rate than the previous year couldn't be announced. In 1997 exchange rate band widened to 18 percent showing that it was loosing its significance. This year was successful; the target achieved and fiscal deficit was under its target of 2.8 percent.

Because of the recession brought by the disinflation, unemployment raised in 1997 so the target has unchanged for 1998 and it was announced in August 1997. Until September 1998, inflation rate stayed around 4.7 percent but with the world financial

developments and its implications for the shekel depreciation during September-November, it has increased and reached to 8.6 percent in annual terms. The Inflation Report was first published in March 1998, before that, every three months the Bank of Israel published 'Recent Economic Developments' of ten pages.

In the whole of 1999, prices rose at a cumulative rate of 1.3 per cent. Although this is
significantly below the 1999 inflation target of 4 percent, it does not in dicate that the
inflation environment has fallen to the level,
which is the norm in industrialized
countries.

The economy's return in the second half of 1999 to an inflation path similar to that
prevailing prior to the world financial crisis, and the inflation target of 3 to 4 percent
per year for the next two years set by the government, provide an opp ortunity to
consolidate inflation at a level approaching the norm in industrialized countries.
Nevertheless, there are factors present that may still endanger price s tability, so
that a cautious monetary policy will be necessary in 2000, too. (The Israel's Inflation Report July-December 1999)

In the first half of 2000 the CPI raised by 0.4 percent, an annual rate of 0.8 percent -below the 3-4 percent inflation target for 2000 and 2001; after declining in each month of 2000:I and rising in each month of 2000:II. This low rate, however, was influenced by the 3.2 percent appreciation of the NIS against the currency basket as a result of

large capital inflows from nonresidents as well as by seasonal factors. On the basis of inflation expectations derived from the capital market and various assessments of future inflation, the annual inflation rate is expected to raise to 3-4 percent in the second half of 2000 and in 2001.

In light of the current inflation rate, it is important for the government to decide that long-term inflation should be within 1-3 percent range-to be defined as price stability in Israel, too-for 2002 and subsequent years. (The Israel's Inflation Report January-June 2000)

Israeli inflation targeting is a successful experience except the overshot years: 1994, first half of 1996 and last third of 1998. Even the exchange rate band is effective in the disinflation period; it has some disadvantages with the inflation-targeting regime. If targets for the exchange rate band and for the inflation rate are set jointly, the interest rate, the instrument of the central bank to achieve the inflation target, will be higher than the interest rate to achieve the exchange rate band target. So, there will be relatively high domestic real interest rate. This will cause capital inflows and appreciation of the nominal exchange rate. And then, the quasi-fiscal cost of the sterilization of foreign exchange market intervention will arise. In such a situation the exchange rate channel of the monetary policy will not be effective against the inflation.

Giving priority to the inflation target, Israeli authorities widened the exchange rate band gradually but this didn't cause loss of credibility. This shows that the credibility is related to the measures taken by the authorities in case deviation from the target is foreseen. And during the overshot periods, even the exchange rate target was

on the way; central bank tightened its monetary policy and increased the interest rates consistent with the inflation target.

One of the factors threatening the target achievement is the fiscal expansion by increasing real wages and public expenditures when the absence of fiscal dominance is ensured. This is the case that Israel experienced in 1994 and 1996.

III.2 Poland's Experience

In nowadays; one of the countries that execute inflation targeting monetary framework is Poland. Direct inflation targeting (DIT) monetary policy has been in progressed since 1998. In 1998 the monetary policy was carried out in new institutional conditions. According to the Constitution that became into force on 17 October 1997 and the Act on the National Bank of Poland (NBP) the Monetary Policy Council (MPC) was established. The Council consists of the President of NBP and 9 other members appointed in equal numbers by the President of the Republic of Poland, the Sejm (lower chamber) and the Senate (upper chamber) of the Parliament. The MPC accepted to implement the assumptions of monetary policy for 1998 and determined a new direct target of the monetary policy. The MPC decided to implement inflation targeting monetary policy. In that framework, inflation was defined as the consumer price index. The making transparent monetary policy and convincing the public opinion about the central bank determination in achieving the declared inflation target is a crucial issue within this strategy. Therefore, MPC prepared the "medium term strategy of the monetary policy for the 1999-2003 years" to eliminate uncertainties and increase the transparency of monetary policy. Medium term of objective of NBP is lowering inflation below 4 percentages till the 2003. MPC also announced that specific monetary policy targets for any given year

shall be presented in monetary policy guidelines each preceding September for the coming year and the council determines the monetary policy guidelines for each year and on their basis it formulates decisions concerning the central bank key policy instruments which are interest rates, open market operations, NBP loan and credit facilities and the exchange rate policy. As declared in the inflation reports of NBP, reliability of the monetary policy depends in a large extent on the level of public awareness of the monetary policy objectives, of their structure, of methods of achieving these goals by the central bank, of interpretation of the economic conditions, of its reaction to unexpected shocks and this reliability allows then to reduce uncertainties of economy.

Inflation target for 1998 passed by the MPC, assuming that the level of consumer prices at the end of 1998 compared with the end of 1997 will not be higher than 9.5 percentage, was carried out by the central bank. Inflation measured from December to December was on the level of 8.6 percentages. Disciplined budget policy and monetary policy were the reasons of that desirable outcome.

When we analyze history of economic developments in Poland's economy, we can observe many positive and desirable changes. As we know Poland started an ambitious program of economic transformation approximately 10 years ago and so Poland is now one of the most successful economies in his region. This success is now being supported by new monetary regime to get lower inflation rates. The success of Poland's economic transformation depends on a well-designed combination of sound financial policy perseverance with structural reforms. In the last years Poland's economy reached 6 and 7 percent growth rates, inflation declined and so living standards of residents increased. (Graph IV) That

performance of the economy owed to dynamism of the private sector not bloated state owned enterprises. Deregulation and privatization enabled to create a dynamic private sector. Foreign investments in the country are another reason of that remarkable performance of the Poland's economy. They initially produced for domestic market by utilizing labor-intensive sectors and then they started to produce for export markets of Poland.

The constitution of the Republic of Poland brought in some provisions essential for operation of the NBP and for execution of the monetary policy. First of all it increased the scope of decisional and instrumental independence of the central bank, hence it raised the degree of autonomy. Article 277 of the Constitution, devoted entirely to the central bank, defines generally the goal of the NBP activity, declaring that NBP is responsible for the value of Polish currency. The Constitution also banned monetization of budget deficits. The Act on the NBP also specified that the primary target of NBP activities is to maintain a stable price level at simultaneous support for the economic policy of the Government provided, however, that it doesn't constrain the execution of the primary target of NBP. The Act also determined selection process of the governor board of NBP.

After the completion of these constitutional tasks, NBP allowed to commence the work of strategic nature. As a result the MPC updated on 22 April the existing assumptions of monetary policy for 1998 prepared by the NBP Management Board in September 1997 and adopted by the NBP Management Board and the President of NBP in accordance with the provision of the Constitution in October 1997. The updated assumptions maintained the hitherto level of NBP inflation target for 1998, declaring that "average annual rate of increase of consumer prices should not exceed 11 percent in 1998

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and the level of prices at the end of that year compared with the end of 1997 should not be higher than 9.5 percent." At the meeting in the beginning of June 1998 the MPC defined the target of monetary policy for 1999. It constituted the basis for the work on assumptions of monetary policy for 1999. At the same time the Council determined that in September 1998 the medium term strategy of the monetary policy for 1999-2003 should be published. It was decided that the main medium term target of the monetary policy would consist in reduction of annual inflation pace to the level below 4 percent by the end of 2003. Short-term inflation targets, announced in annual assumptions of the monetary policy, shall be subordinated to this medium term target. The Council recognized that the formation of instruments of monetary policy subordinate to carrying out the direct inflationary target would be the basic principle of the monetary policy in the period covered by the strategy.

The strategy of direct inflationary target (DIT) assumes, as its name suggests, the lack of indirect targets (money supply, exchange rate). Without focusing on a particular indicator, the central bank takes into account all available information about factors increasing or decreasing inflationary pressure and causing a rise or fall of probability of achieving the inflation target assumed in the given period. The basic principle of such a system is that the central bank reacts when the forecast inflation value deviates from the level assumed as the target. To carry out this strategy in an effective way the central bank must have a sufficient recognition of factors affecting the inflation, the strength of their relationships and occurring delays.

The conditions that currently exist in Poland are not perfect for carrying out the monetary policy based upon the principle of the direct inflation target because of shortages of statistical base in Poland and

changes in structure of the economy. Therefore, within the new strategy the short-term targets are adopted in sufficiently wide bands to increase the probability of execution of these targets even in the case of certain mistakes in appraisal of the strength and direction of development of factors affecting the price index adopted as the target. So, problems connected with the process of transmission of impulses from the monetary policy to the economy constitute another factor hindering the use of the direct inflation target strategy in Poland.

Another condition may hinder the execution of the DIT strategy consists in the insufficiently restrictive fiscal policy. Excess demand created by the public sector may lead to worsening the external balance and then also inflation in specified conditions the monetary policy counteracting these pressures may be ineffective.

Despite these difficulties the MPC believes that the DIT strategy is the most appropriate system of the monetary policy execution in the current conditions. But the most important cost of this strategy may be rigid inflationary expectations. Therefore, higher transparency level should be ensured. In that framework, aiming at increasing the transparency of the principles of the monetary policy and thus increasing its trustworthiness, in the second half of September 1998 the MPC prepared the document "The medium-term strategy of the monetary policy (1999-2003)" which defines the system and the basic directions of the monetary policy in Poland in the period preceding the access of our country to the European Union. The strategy mentioned also the issue of the monetary policy instruments and drew the exchange rate policy scenario, which aims at gradual floating of the zloty rate.

GRAPH IV:
GDP GROWTH AND INFLATION IN POLAND
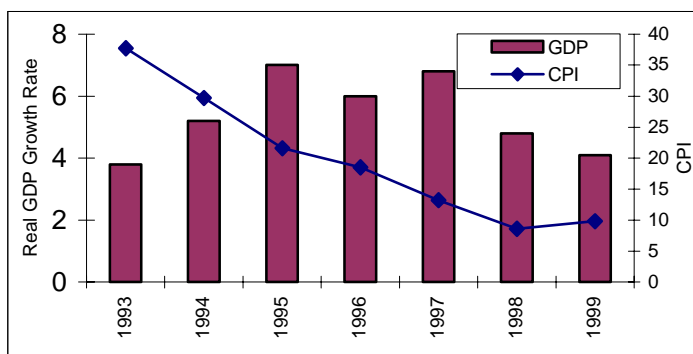
Source: IFS

The Council has decided that the medium-term target of monetary policy will be to reduce inflation to below 4 percent by the year 2003. Inflation targets for the period covered by the Strategy and the assessment of their implementation will focus on the Consumer Price Index, despite the fact that many countries apply the so-called "core inflation" index. As it is known, core inflation is a more accurate measure of structural changes in the economy's price level since it excludes effects of seasonal variations, administrative regulations and temporary supply shocks. Therefore, NBP has started the preparatory work for calculating the core inflation index and it has applied it to the Central Statistical Office for the database required for that purpose. Despite the choice of CPI, NBP declared the impact of external factors not affecting core inflation will be commented in detail and the comments will be presented when specific policy decisions will seem to be inconsistent, at first sight, with the direction of the discrepancy between the inflationary target and the observed and/or the forecasted CPI level.

The main analytical document for the Council will be the Inflation Report. The Report will initially be published semi-annually

and, in the future, on a quarterly basis. Under the terms of the National Bank of Poland Act, the Court & Economic Monitor will publish information about the voting by each Council member.

The Council has decided to set the 1999 target in the range of 8 percent to 8.5 percent. In March 1999, the Central Bank was lowered the target range from 6.6 percent to 7.8 percent because of unexpected disinflation. In the first half of 1999 the rate of CPI growth declined to 6.5 percent in June, down from 8.6 percent in December 1998. In the third quarter of 1999, a surge in inflation rate was seen. It became 7.8 percent but it was set by the MPC at 6.6 percent. The marked acceleration in price growth seen in the third quarter was primarily attributable to strong, hard to predict supply shocks. Macroeconomics developments in the second and third quarters of 1999 indicate that fiscal and monetary policies created a favorable environment for the unfolding of inflationary processes triggered by supply shocks. A rapid growth in consumer demand and high public sector deficit were the main indicators of excess demand in the economy. The CPI was approximately 9.8 percent in the 1999 year and so the actual rate exceeded the upper limit of band rate.

The money supply increased in the first half of the year, in June being 7 percent higher than at December end of 1998. The second quarter of 1999 witnessed a markedly declining rate of growth in personal zloty deposits, both on the first quarter of 1999 year. The main factor in money creation during the first half of 1999 was claims on nonfinancial sector. Another factor in money creation was foreign assets. It contributed about 23 percent to total money creation. However in dollar terms it declined. The lowering of foreign assets was the result of growing disequilibrium on the current account, primarily due to a strong growth in the deficit on merchandise trade.

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In the first half of the 1999, growth in cash in circulation increased faster than previous periods' rates. One may hypotheses that this resulted from the declining opportunity cost of keeping money in cash rather than in bank deposit.

During these events, the Council believed that the mechanism of zloty devaluation was one of the main inflation drivers. Recognizing that the zloty devaluation is to some extent necessary to ensure a sufficient competitiveness of Polish exports and to restrain excessive imports, it was declared that its rate should be lower as soon as possible.

The MPC declared that maintaining the positive trends requires a continuation of the restrictive budget policy. The Council announced that in the case of worsening of the macroeconomic situation or of reducing the degree of the restrictiveness of the budget policy the MPC would be ready to aggravate the monetary policy again.

The conditions for implementing monetary policy differed from those of 1998 and capital inflow was low in the first half of 1999. So the level of gross official reserves stabilized. Moreover, the volatility of the zloty rate of exchange increased pushing up exchange rate risk and dampening the interest of short-term capital in securities investment. In order to increase exchange rate flexibility, the foreign exchange fixing changed its character as from June 7. From now on the fixing is no longer used to carry out transactions with the central bank, but only to establish the rate of exchange at given time.

There was one change of base interest rates in the first half year in order to realign them with the inflationary target. Actually it was deeper than those made so far, so market participants would not

be waiting a few more months for further interest rate changes, and the market relatively stabilized for some months to come.

In sum, we think although Poland's economic situation seems remarkable, it is too early to judge whether DIT is successful or not. As mentioned in the OECD's Economic Survey of Poland, there are two challenges to that remarkable economic performance. The first is keeping inflation under control. In the last years monetary policy was successfully implemented to eliminate inflation. Timely actions of monetary policy helped to establish the credibility of the Monetary Policy Council and National Bank of Poland. But, sudden acceleration of the CPI above the inflation objective established for December 1999 may harm gained credibility of relevant institutions. The Council has decided to set the 1999 target in the range of 8 percent to 8.5 percent. But it was approximately 9.8 percent in the relevant year. Inflation targeting monetary policy may eliminate backward looking wage indexation in Poland. This may help set wages on the basis of future rather than past inflation and so may decrease effects inflationary inertia in the Poland's economy. The second challenge is large current account deficits in the economy. Although there is no specific level of current account deficit that is unsustainable, a larger deficit means higher risk of occurrence of unexpected events in the economy. Thus policy makers in the economy should follow appropriate macroeconomic and structural policies.

At the public finance side of economy, there are positive developments for the 2000-year. The Budget Law for 2000 sets a general government budget deficit of 2.75 percent of GDP. Therefore, the budget deficit will be decreased in the year 2000. Despite that positive development, there are many current budgetary difficulties such as accumulation of arrears by state enterprises on social

security contributions and taxes that can be seen as disguised form of subsidy, tax reform needs to be implemented to assure a revenue base that is consistent with the budget assumptions and budgetary system need more transparency and more discipline over the extra-budgetary funds. (Graph V)

GRAPH V:
**PUBLIC SECTOR BORROWING REQUIREMENTS IN POLAND**
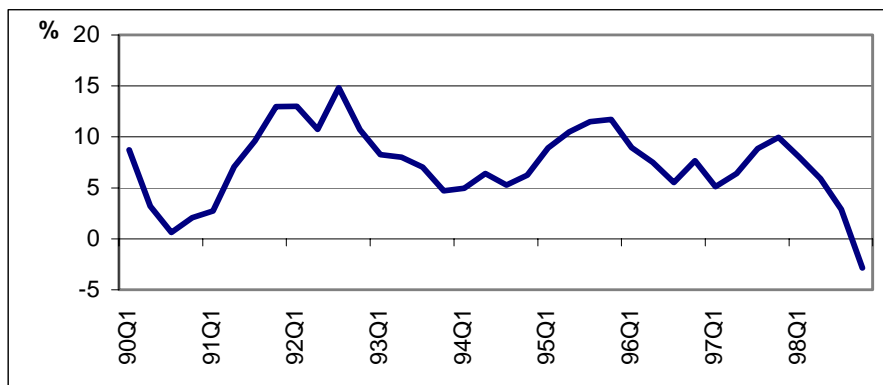
Source: IFS

III.3 Chilean Experience

In September 1990, the Central Bank of Chile decided to announce an inflation target for the year 1991 after the oil price shock due to the 1990 Gulf War and expansionary policies in 1989 causing high rates of inflation. Through the new central bank legislation in 1989, the Central Bank gained its independence and the price stability is indicated as its primary goal in the legislation. In addition, due largely to measures taken in the aftermath of its severe crisis in the early 1980s, Chile's standards and practices in the areas of banking regulation and supervision were of a quality comparable to those found in industrialized countries. (Mishkin (2000))

The main reason of the implementation of an IT regime in Chile is to provide the public and the economic agencies to make decisions

according to the targeted inflation rates instead of the backward indexation which is very common in this country. So, the cost of the disinflationary process would reduce.
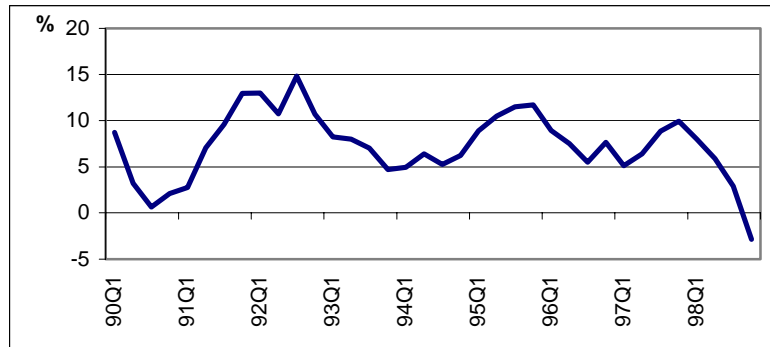
GRAPH VI:
INFLATION IN CHILE
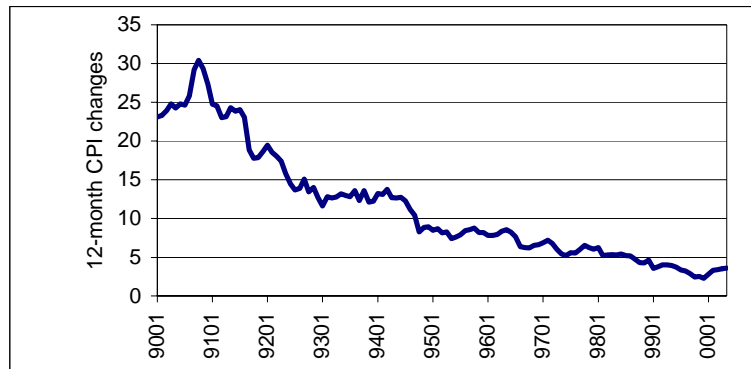
Between the years 1991 and 1999, annual inflation targets are set. In 1994 the central bank started to announce point targets rather than target bands and in 1999 a multi year target was first announced: 3.5 percent for 2000 and 2 to 4 percent for 2001 onwards. The monetary authorities did not indicate any escape clauses or exemptions, in order to provide credibility they announced that any deviations from the target would occur.

Starting from levels around 25 percent, inflation has fallen to levels below 5 percent (3 percent in 1999) (Graph VI). Except for Israel, the initial rate of inflation is higher than other IT implementing countries. Regarding the output growth, the Chilean inflation targeting is also successful. Chile has grown at high rates until 1998 (Graph VII). However, after the Asian and Russian crisis, with a wrong decision, the central bank raised interest rates and narrowed

the exchange rate band, as a result the economy entered a recession undershooting the inflation target.

**GRAPH VII:**
GROWTH RATES OF CHILE

From 1985 to August 1999, Chile had experienced an exchange rate band regime around a crawling peg (Graph VIII). The rate of the crawl determined equal to the one period lagged rate of inflation in Chile. The Chilean central bank put explicitly the main goal of the exchange rate band implementation. The bank desired to maintain the real exchange rate consistent external equilibrium by setting the rate of crawl on a backward-looking manner, so it was not a disinflationary instrument. However, the central bank showed clearly by its actions that the achievement of the inflation target was its overriding objective.[14]

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[14] Even in case of large capital inflows the bank widened the band without changing the inflation target (From 1992 to 1997).

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GRAPH VIII:
NOMINAL EXCHANGE RATE IN CHILE
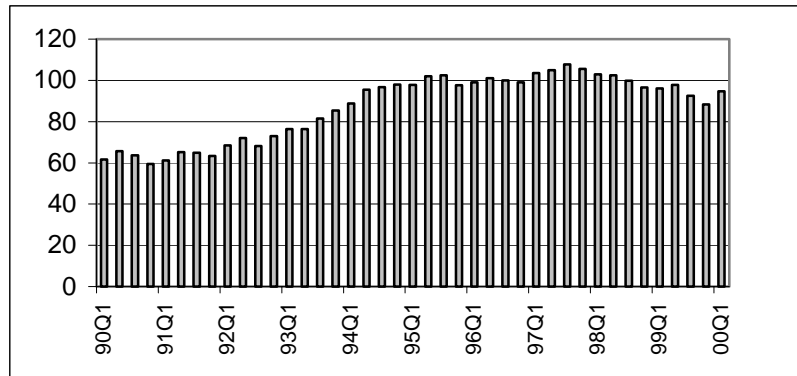
Source: IFS

Central bank independence, sound financial system and fiscal stability are the main conditions to implement an IT regime. When we look at the Chilean case, it can be seen that the budget surplus was around 2.8 percent of GDP on average between the years 1991 and 1997. Furthermore, the financial institutions became strong as a result of measures taken after the banking crisis in 1980s. This allowed the central bank to use its instruments efficiently to defend the currency and the banks; hence the speculative attacks against the peso are prevented.

The Chilean experience shows that an IT regime can be successful to attain permanent low rates of inflation even the initial inflation rate is more than 20 percent. In addition, it confirms that the foundation of a strong fiscal balance and a sound financial system are as important as the central bank independence whose primary goal is price stability.

CONCLUSION:

The unsuccessful results of the pegged exchange rate regimes in Latin America and East Asia countries has led developing countries to search for alternative nominal anchors. At this stage, IT regime, which has been used by some developing countries in the last ten years, become an attractive alternative for the developing countries.

In this paper, it is attempted to explain the properties of IT framework and the prerequisites for its implementation. We indicate these prerequisites as high degree of independence of the monetary policy, freedom of fiscal dominance, and absence of any firm commitment to particular levels of variables like exchange rate. As it is cited in the paper, many developing countries do not satisfy these two conditions. Moreover, most of them do not have powerful models, which explain the dynamics of the economy very well and which gives successful inflation forecasts.

It is claimed by some that the main obstacle to the adoption of IT framework lies not so much on the countries inability to conduct an independent monetary policy, as on their tendency to overburden monetary policy with multiple and potentially competing objectives (See Masson etc. 1997).

It might be claimed that it is too early for some developing countries to implement IT regime in order to improve monetary and inflation performance of these countries, although the country cases examined here showed us that IT regime could also have successful results in the developing countries. The main reason behind this success may be various. In the Chilean case, the reason behind this success can be the absence of fiscal deficits, the rigorous regulations and supervision of financial system and gradual hardening of the

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targets. In Israel experience, the success is directly related to the credibility gained by preemptive actions taken by the authorities in case a deviation from the target is foreseen. In Poland case, although IT seems on track with considerable change of economic situation, it is early to make a judgment about its success.

Finally, it can be said that although IT is not very suitable framework for some developing countries, it can be highly useful policy for a number of them.

ANNEX 1:

According to Debelle (1999), the role of output stabilization in inflation targeting can be examined by following simple model:

$\Pi = \Pi_{t-1} + \alpha(y_{t-1} - y^*_{t-1}) + \varepsilon_t$ $\rightarrow$Phillips curve

$y_t = y^*_t + \beta(y_{t-1} - y^*_{t-1}) - \gamma(r_{t-1} - r^*) + \eta$ $\rightarrow$Aggregate demand curve

$L = E_t \sum_{t=0}^{\infty} \delta^{s-t} [(1-\lambda)(\Pi_s - \Pi^*)^2 + \lambda(y_s - y^*_s)^2]$ $\rightarrow$The central bank's loss function

The central banker's objective is to minimize the loss function, which is the weighted average of deviation of inflation and output from their targets, by using their policy instruments (real interest rates). These formulas shows that interest rates affect output with one period lag, inflation with to period lags.

According to the weights chosen above, inflation targeting monetary policy takes different shapes. When the coefficient of λ is chosen as being equal to zero, it means that the only objective of the central bank is to create low and stable inflation. Central Bank does not consider the movements in the other macroeconomic variables like income growth etc. This regime is called as *strict inflation targeting regime.* When it is chosen as being greater than zero, it

means that, the central bankers will not allow big fluctuations in output and will try to achieve its target in a longer horizon. This regime is called as *flexible inflation targeting regime.*

When the central banks make the decision about the value of λ, it should be known that this choice would affect the speed with which the central banks gains credibility. In the first days of the policy application, it would be better to choose the value of the coefficient low to show the decisiveness of the bank in the fight with inflation. As a result of the increase in the credibility, the structure of the economy and inflation may change. As the credibility is gained in the later phase of the application, the policy might be made more flexible to responds shocks hitting the economy.

From above equations the reaction function of the central banks can be shown as

$$r_t = r^* + \sigma_1 (\Pi_t - \Pi^*) + \sigma_2 (y_t - y^*_t)$$

In case of the positive demand shock ($\eta > 0$) the type of policy response will depends on the coefficient of λ. When $\lambda = 0$, the optimal policy is to choice the policy instruments so that the inflation be equal to the target rate in two periods time. However, even when $\lambda = 0$, the output is still in the reaction function of the central bank due to its information content. When $\lambda > 0$, the monetary policy responds to shocks so that the gap between the actual and the targeted inflation rate is closed on a longer horizon. The degree to which the emphasis is given to the output, the value of λ, also determines length of the horizon to reach to the target. The more weight given to output, the longer time to reach the target is necessitated. However, this also causes a trade-off between credibility and flexibility. As the weight on

output increases, the variability on output decreases while that of inflation increases.

In case of the demand shock, the trade-off between output and inflation variability arises because there are different lags between the effects of interests on inflation and output. In the first period, the interest rate change display its influences on the output and then in the second period, the change in the output affects the inflation. However, in case of the supply shock ($\varepsilon>0$), the lag structure is not important. In order to decrease the inflation, an output gap is needed. The higher the output gap, the lower the inflation variability and the higher the output variability.

The above trade-off can be seen more clearly when a faster transmission mechanism is assumed. Assume that the change in the short-term interest rates have some immediate impacts on the exchange rate. So, the change in exchange rate affects CPI directly and indirectly by means of the exchange rate channels. When the bias from the targeted inflation rate is realized, a large the interest rate movement is needed to change the exchange rate to reach the target.

The central banks avoid generally inflation variability, because:

1)   The increase in the inflation variability results in a decrease in the credibility of the policy, which in turn increases the inflation expectations and this makes disinflation process more costly.

2)   There is a positive relationship between the inflation variability and inflation rates.

3)   An increase in the inflation variability increases the cost of signing the long-term contracts by decreasing the predictability

of the future prices (price level target would decrease these costs even further than inflation target).

4)   According to Debelle and Fischer (1994) there is positive relationship between output and inflation variability.

In order to decrease the variability, a policy rule that includes the variables, which have influence on inflation and output, like exchange rate or unit labor costs may be included in the objective function of central bank. Alternatively, it is also possible to include the forecast of inflation and output. In this situation, the policy takes into account the policy lags and the policy has forward-looking manner. Both of the policy choice decreases the variability of output and inflation.

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