

INFLATION TARGETING – COUNTRY EXPERIENCES

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Abstract

This paper examines the performance of the ‘pioneer’ inflation targeting countries, namely, New Zealand, Australia, Canada, United Kingdom and Israel. The inflation targeting framework in these countries are generally similar, except that of Israel, which has a dual target (inflation and exchange rate). Results suggest that these countries have successfully managed to bring inflation down to a low and stable level. The framework has also enabled to reduce the second and third round effects of one-off shocks to inflation. Moreover, the framework did not seem to have caused output volatility, as initially expected by some policymakers. In fact, in these countries inflation targeting framework has supplemented economic growth.

1.0 Introduction

During the past decade, a number of countries have adopted the inflation targeting framework for conducting monetary policy. Initially, this framework was mainly confined to developed countries, however, in recent times it has gained popularity among developing and emerging market countries as well. Countries like Brazil, Chile, the Czech Republic, Israel, Poland, South Africa, Mexico, Thailand and more recently Philippines and Hungary have already adopted inflation targeting, while Indonesia is moving towards acquiring this framework. The increasing number of economies that have adopted inflation targeting suggests that this framework offers advantages over monetary and exchange rate anchors.¹

Generally, it is not an easy task to find many areas in economics where almost full agreement has emerged in the last few years. However, today there is a widespread growing consensus that the single most important goal of monetary policy should be the pursuit of price stability and many central banks view inflation targeting as an effective way to achieve that goal.

Countries usually adopt inflation targeting for one or more of the following reasons (Mishkin 2000):

- To have a credible anchor for monetary policy. This is often the case after a period of high inflation and/or the loss of a previous anchor.

¹ Bernanke et al. (1999), Leiderman and Svensson (1995), and Svensson (1997).

- To provide the central bank instrument independence and greater accountability. That is, specification of what the central bank should seek to achieve with that instrument independence.
- To reduce the social and economic costs of high inflation.

Country analysis highlighted in this paper specifically looks at inflation and economic growth performances of some of the ‘pioneer’ inflation targeting nations, namely New Zealand, Australia, Canada, United Kingdom and Israel. Generally, results suggest that these inflation targeting countries have experienced low inflation, both in absolute and relative terms after switching to an inflation targeting framework. Moreover, the countries have performed well in terms of economic growth.

The rest of the paper is structured as follows: Section 2 briefly describes inflation targeting, its origin and countries that operate monetary policy under this framework. Section 3 provides intricacies of the inflation targeting framework and performance, as well as the impact on economic growth for ‘pioneer’ inflation targeting countries. Section 4 encapsulates the overall performance of the inflation targeting regime, while section 5 focuses on the future direction of inflation targeting framework. Section 6 concludes the paper.

2.0 What is Inflation Targeting?

Many countries announce a forecast for inflation over the following year. In fact, a recent survey conducted by the Bank of England suggests that 55 of the 93 central banks characterised themselves as having an inflation target (Fry et al 2000). However, only a subset of countries could

be characterised as having a formal inflation target (the same survey identified only 16 central bank as inflation targeters).²

A predominant feature of an inflation targeting framework is that it acts as the primary objective for monetary policy. This feature differentiates an inflation targeting framework from one in which the central bank simply announces a forecast for inflation that it would like to achieve. In the latter situation, there is no obligation on the central bank to set policy to ensure that the inflation forecast is realised, particularly if to do so would compromise other macroeconomic objectives. On the other hand, inflation target does not imply that other objectives, most notably employment and output objectives are ignored (i.e. inflation targeting is not ‘inflation only’ targeting (Debelle 1999)). Indeed, under inflation targeting regime, output and employment growth play an important role in monetary policy decisions. This aspect is even extended to ‘strict’ inflation targeting regimes, as output and employment levels play a crucial role in determining future inflation.

A more formal definition for inflation targeting as described by Bernanke et al, is as follows:

“a framework for monetary policy characterised by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy’s primary long-run goal. Among other important features of inflation targeting are vigorous efforts to communicate with the public about the plans and

² To date there are about 20 known countries that practice inflation targeting. Details are highlighted in section 2.2.

*objectives of the monetary authorities, and, in many cases, mechanisms that strengthen the central bank's accountability for attaining those objectives*³

F.S. Mishkin (2000, p1) defined inflation targeting as: *“a monetary policy strategy that encompasses five main elements: (1) the public announcement of medium-term numerical targets for inflation; (2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated; (3) an information inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments; (4) increased transparency of the monetary policy strategy through communication with public and the monetary authorities; and (5) increased accountability of the central bank for attaining its inflation objectives.*

Many central bankers and academics are comfortable with both definitions, although, Mishkin's description is believed to be more widely cited.

³ Bernanke et al., Inflation Targeting: Lessons from the International Experience, Princeton University Press, 1999, p4.

2.1 Is Inflation Targeting New?

Even though inflation targeting framework have been a recent approach, the idea that monetary policy should explicitly target the price level has a long and respectable history. Irving Fisher and Maynard Keynes advocated targeting a price index, and in the 1930s, following the earlier writings of Knut Wicksell, which suggested that price level stabilisation should be the proper guide for central bank policy. In September 1931 Sweden became the first country to adopt a price target thus avoiding the worst of the depression when the Gold Standard collapsed.⁴

This confirms that the benefits of price stability - the avoidance of both inflation and deflation - have long been well understood. More recently, inflation targeting framework has enabled a number of central banks to achieve the primary objective of monetary policy, namely price stability. Generally, an inflation target is a way of restating the fact that monetary policy faces two tasks. The first and overriding objective is to achieve the desired level of inflation in the medium to long run. The second is to avoid damaging fluctuations to output and employment by adjusting interest rates in the face of unexpected shocks to the economy.

During the past decade, inflation targeting has been an alternative framework for monetary policy. Conferences and the number of academic papers on inflation targeting have been on the rise. Also, it has become a popular recommendation by the IMF to countries in need of advice (M. King 1998).

⁴ So far Sweden is the only country that has adopted such an explicit price level target.

2.2 Who Does Inflation Targeting and How?

Inflation targeting started slightly more than a decade ago, with public announcements of inflation targets in New Zealand and Chile. According to Mishkin and Schmidt-Hebbel (2000), 19 inflation targeting country cases have been recorded as of November 2000.⁵ They include a variety of experiences that comprise industrial and emerging economies, transition and steady-state inflation targeters, semi and full-fledged targeters, old and recent starters, and current and former targeters (Appendix 1 tabulates the implementation and design of inflation targeting in the 20 countries).

Full-fledged inflation targeting is based on five pillars: (i) absence of other nominal anchors, (ii) an institutional commitment to price stability, (iii) absence of fiscal dominance, (iv) policy instrument independence (v) policy transparency and accountability. While pillars (ii) and (v) are requirements for effective conduct of monetary policy under any regime, they are particularly important prerequisites for effective policy under inflation targeting. The reason being that the success of inflation targeting depends so strongly on high market credibility in the central bank's resolve and ability to put into place policies geared at meeting the target. All the five institutional pillars must be applied in order to foster credibility.

It is important to note that initially many countries adopted inflation targeting without satisfying one or more of the above mentioned conditions.

⁵ As of end June 2003, Philippines was an addition to this list. The country adopted Inflation Targeting Regime in 2002.

For instance, Chile and Israel targeted the exchange rate during the most of the 1990s (Israel still does it today). The Bank of England started inflation targeting prior to attaining instrument independence. Most countries adopted inflation targeting before achieving high levels of policy transparency (including publication of inflation reports, inflation projections, and monetary policy minutes) and full accountability. Some countries - including Colombia, South Korea, Mexico, Peru, and South Africa - do not publish inflation forecasts yet. On the other extreme, Brazil adopted full-fledged inflation targeting right from the start.

Country experience suggests that adoption of inflation targeting during the 1990s has generally been regarded as a learning process for monetary policy. However, today there is broad consensus about the conditions that should be in place for effective full-fledged inflation targeting. These preconditions were less obvious in the first half of the 1990s, when early inflation targeters perfected their framework by learning from their own and other inflation targeters' experience.

3.0 Country Experiences

This section briefly looks at the arrangements and performance for the following ‘pioneer’ inflation targeting countries: New Zealand, Australia, Canada, United Kingdom and Israel.

3.1 New Zealand

New Zealand was the first country to adopt inflation targeting regime and it had the most ‘ambitious’ arrangements, which featured a target range of 0-2 percent and the degree of formal institutionalisation that went well beyond the extent found elsewhere (McCallum 1996). There were two notable features of the inflation targeting framework. The first was the Reserve Bank of New Zealand (RBNZ) Act 1989, which specifies that “stability of the general level of prices” shall be the overriding objective of monetary policy. The Act requires the Bank’s Governor and the Minister of Finance to make periodic Policy Target Agreements (PTAs) regarding the price index to be targeted and its allowable range. A second notable feature was the provision whereby the Governor, who must report on inflation performance twice each year, may be dismissed prior to the end of his five-year term if the inflation rate falls outside its specified target band.⁶

As of September 2002, four PTAs had so far been in force. The first, dating from March 1990, mentioned the 0-2 percent inflation band as the eventual target. However, it specified a less ambitious range for the

⁶ Note that dismissal was not automatic. The Act’s provision is that “The Governor-General may on the advice of the [Finance] Minister, remove the Governor from office, if the Minister is satisfied. That is, the performance of the Governor in ensuring that the Bank achieves the policy targets fixed under this Act has been inadequate....”

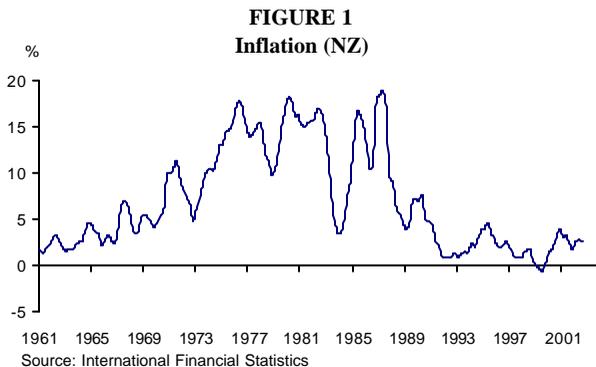
transition period, as the inflation rate at the time was above 6 percent. This transition range was also specified in the second PTA, which was put in place in December 1990. Then in December 1992, after inflation had reached within the 0-2 percent range, the PTA was revised to reflect that fact, with the objective becoming that of maintaining inflation within the target band. The third PTA, as of July 1995, specified that the RBNZ would monitor a number of price indices but that “the formal price stability target will be defined in terms of the All Groups Consumer Price Index (CPI), being the measure that is monitored most closely by the public.” While the basic requirement was to keep year-on-year increases in the CPI in the 0-3 percent range, there are some important exceptions or “caveats.” Specifically, the PTA recognised that “there was a range of possible price shocks arising from external sources and certain government policy.” Consequently, “the CPI inflation rate could [occasionally] be expected to move outside the 0-3 percent range in response to particular shocks” without it being concluded that the RBNZ was failing to meet the requirement of the PTA. Specific types of listed shocks included changes in the terms of trade or indirect tax rates, natural disasters or livestock disease outbreaks, and changes in the interest-cost component of the CPI.

The current PTA, which was signed on 17 September 2002, sets out specific targets for achieving and maintaining price stability. The most significant change is that the RBNZ is required to take a forward looking, medium-term approach to achieving price stability. This gives the Bank more flexibility to decide how it responds to shocks in the economy and inflation variations around the target (RBNZ Press Release 17/09/02). The new PTA raises the bottom of the inflation target to 1 percent, while

retaining the 3 percent upper limit and includes a statement of the Government’s broader economic goals.

Price stability still remains the primary function, but it also seeks to avoid unnecessary instability in output, interest rates and the exchange rates. *“The shift to an inflation target “on average over the medium term” allows us to better achieve this. This helps economic growth, which, we all agree, New Zealand needs, by enhancing predictability and confidence and, by that, savings and productive investment. The raising of the bottom of the band brings the overall target more in line with New Zealand’s inflation outcomes in recent years and those in other countries”* (Bollard 2002).

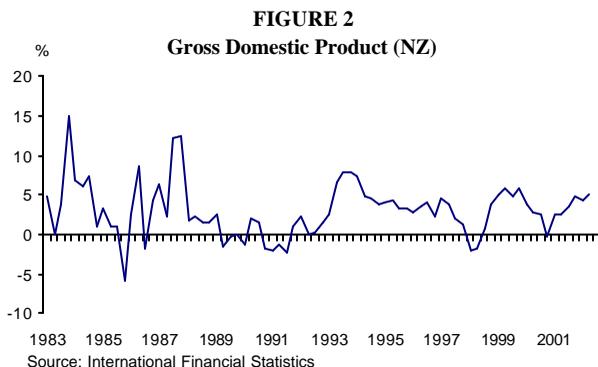
Figure 1 shows New Zealand’s inflation performance over the past four decades. During the seventies and eighties inflation was not only high in absolute terms, it was also high relative to that in most other developed countries (Brash 2002).



However, it is acknowledged that since the introduction of inflation targeting in early 1988, the country's inflation performance has moved from being among the worst in the developed world to being around the middle of the pack (Brash 2002).

Apart from the fall in actual inflation, inflationary expectations also fell markedly. The ten-year bond rates have fallen from 17-18 percent between the mid-eighties, to around 5.33 percent in June 2003. That is, 195 basis points above the US government bonds, compared with above 1000 basis points experienced two decades ago. For much of the last decade the yield on 10-year New Zealand has been lower than that for Australian bonds of similar maturity. This can be attributed to the role inflation targeting played in achieving the attention of the central bank and the government, and through assisting the public to understand what was being aimed at.

In terms of the country's growth performance, shortly after inflation was first reduced to the 0 to 2 percent target in 1991, the economy faced less fluctuations (see Figure 2)



Furthermore, in the ten years to 2001, real GDP growth averaged 3.5 percent. Throughout that ten years, growth in real GDP was clearly superior to New Zealand's trend growth in the seventies and eighties. However, it is also important to note that growth over the ten year to 2001, while falling not far short of that in Australia (it's major trading partner), was significantly more uneven than in Australia (Brash 2002).

3.2 Australia

Formally, the Reserve Bank of Australia (RBA) began inflation targeting in mid 1993, when Bernie Fraser, the then Governor of the RBA, gave a speech to a group of Sydney economists. Included in the text was the following:

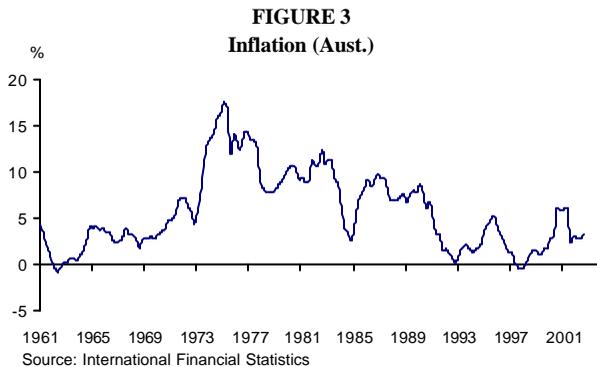
“The appropriate degree of price stability to aim for is matter of judgement. My own view is that if inflation could be held to an average of 2-3 percent over a period of years, which would be a good outcome.”⁷

The RBA is responsible for formulating and implementing monetary policy. The Board's obligation with respect to monetary policy are laid out in the Reserve Bank of Australia Act. Section 102 of the Act, which is often referred to as the Bank's 'charter', says: “It is the duty of the Reserve Bank Board, within the limits of its powers, to ensure that the monetary and banking policy of the Bank is directed to the greatest advantage of the people of Australia and that the Bank's powers are exercised in such a manner as, in the opinion of the Reserve Bank Board, will best contribute

⁷ Fraser (1993)

to: (a) the stability of the currency of Australia; (b) the maintenance of full employment in Australia; (c) the economic prosperity and welfare of the people of Australia” (Stevens 1999). Since 1993, these objectives have found practical expression in target for consumer price inflation, of 2.3 percent per annum. Monetary policy aims to achieve this over the medium term and, subject to that, encourage the strong and sustainable growth in the economy.

Inflation performance in Australia is shown in Figure 3 over a long period. The low average rate of inflation and its greater degree of stability, since mid 1993 is quite clear.



In a RBA paper (Debelle 1995) the inflation target was explained as follows: if, some years, we can look back and observe that the average rate of inflation has a ‘2’ in front of the decimal place, that will be regarded as a success.

Based on the above criteria it can be said that inflation targeting has been a success in Australia. After a decade, it is indeed the case that consumer price inflation, on any measure, has a 2 (see Table 1). For the target variable (which was the Treasury underlying CPI series until 1998 and the CPI thereafter⁸), and abstracting from the effect of the GST in 2000, the average inflation rate over the 38 quarters up to December 2002 is 2.4 percent.

Table 1: Inflation In Australia

	1970s	1980s	1990s	1993-2002
CPI	10.1	8.3	2.3	2.3
CPI ex interest	10.1	8.1	2.8	2.5
Treasury underlying	10.1	8.1	2.5	n.a
Weighted median		7.9	2.5	2.2
Trimmed Mean		7.9	2.5	2.2
Market sector excluding volatile items			2.6	2.3
Target Variable				2.4

Source: Reserve Bank of Australia

⁸ The target was initially specified 'in underlying terms'. For practical purposes, the underlying CPI series devised by the Commonwealth Treasury was used as the yardstick. A key factor behind this choice was the inclusion of interest charges in the CPI for some years, which made for a perverse short-term relationship between monetary policy and inflation. From September quarter 1998, the compilation of the CPI was changed to remove this component, replacing it with an alternative means of estimating housing costs. The RBA then indicated that the inflation target could be seen as applying to the published CPI (source: RBA Bulletin).

Of course, there have been a few cyclical swings in inflation over the period. However, these swings can be classed as moderate. The targeted measure of inflation varied between a high of 3.3 percent and a low of 1.4 percent. The underlying inflation, measured in terms of the median CPI, recorded the lowest inflation rate in the period was 1.3 percent in March 1998 and the highest was 3.2 percent recorded in late 2001. Overall, inflation outcome remained within +/- 1 percentage point of 2.5 percent mark.

The next criterion is whether the inflation psychology so prevalent in the 1970s and 1980s has been removed from the economy (Stevens 1999). The Melbourne Institute's measure of expected inflation⁹ revealed that during the 1990s inflation expectations did not move much. The expected inflation rate rose to some extent in 2000 prior to the introduction of GST, which pushed the level of CPI permanently higher, and the rate of change of the CPI temporarily higher. The median measure averaged about 4.5 percent over the decade. This according to RBA, reflects persistent error in the measure of expectation (of the kind which is not supposed to occur in economics). One reason for this is that there continues to be a significant proportion of households who anticipate inflation of 10 percent or more even after a decade of inflation of 2.5 percent (Stevens 2003).

Based on the above statement, it seems that high inflation expectations have not been totally eradicated from the Australian economy. However, it is fair to say that, generally inflation expectations are low, consistent with the inflation target, and reasonably stable.

⁹ This measure of expected inflation, derived from a monthly household survey and funded by the RBA over many years.

Table 2: Inflation and Growth (Percent)				
	Annual inflation		Real GDP growth	
	Mean	Standard Deviation	Mean	Standard Deviation
Australia				
1980-92	7.2	2.4	2.8	2.7
1993-present	2.3	0.6	3.9	1.1

Source: Reserve Bank of Australia Bulletin

Table 2 shows mean and standard deviations for inflation and real GDP growth for two periods: from 1980 to the adoption of inflation targeting, and since the adoption of inflation targeting by Australia.

It is apparent that inflation targeting has reduced the variability in inflation and this has not been associated with reduced growth, but faster and less variable growth on average. However, it is important to acknowledge that apart from efficient monetary policy other factors also played a major role (Stevens 2003). That is, there were major pay-offs during this period from a wide range of policy initiatives which aimed to liberalise markets, and make them more competitive.

3.3 Canada

The ultimate achievement of price stability became the focus of Bank of Canada monetary policy in 1988 when the then Governor John Crow delivered that year's Eric J. Hanson Memorial Lecture at the University of Alberta (McCallum 1996). Canada's formal and explicit inflation target

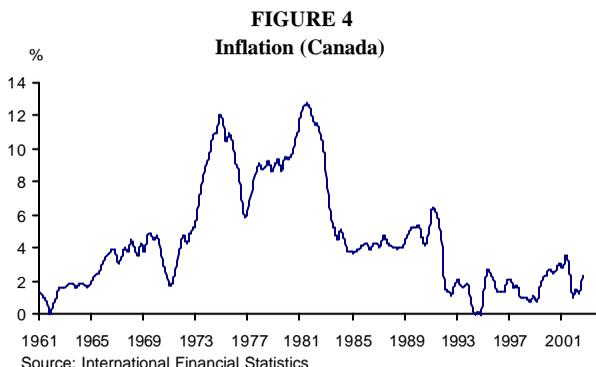
scheme began in February 1991, when the Bank of Canada and the Minister of Finance jointly announced a series of targets.

Since 1991, the series of targets announced had a target band of 2 percentage points. The band's midpoint was specified at 4 percent in 1991 and was then lowered to 3 percent at the end of 1992. In June 1994, the midpoint was reduced to 2.5 percent and finally to 2 percent at the end of 1995. Note that the 1 to 3 percent band has been in place for the last 6 years (1995-2001). The Bank of Canada is "comfortable" with this width and has decided to maintain the 1 to 3 percent band for the next 5-year period (2002 onwards).¹⁰

The Bank of Canada utilised CPI excluding food, energy, and the contribution from changes in indirect taxes, as its target inflation for the period 1991-2001. The rationale for these exclusions is that these components are frequently subject to sharp temporary movements that should not be responded to by monetary policy. However, from the end of 2001 it started to target a new measure of underlying inflation (CPIX). The CPIX only excludes the eight most volatile components of the CPI: fruits, vegetables, gasoline, fuel oil, natural gas, intercity transport, tobacco and mortgage interest costs. It also excludes the effects of changes in indirect taxes on other components of CPI. The new measure includes 84 percent of the basket, as opposed to the 74 percent included in the previous measure.

Inflation in Canada, like in many countries, rose significantly in the 1970s and early 1980s (see Figure 4) and then declined by 1984. After

1991, it declined further. Inflation averaged 6 percent in 1981-1990 period and around 2 percent in the 1991-2002 period.



The variability of CPI inflation, as measured by its standard deviation, also followed a pattern similar to that of the level of inflation, declining from 3 in 1981-1990 period to 1.5 during the 1991-2000 period.

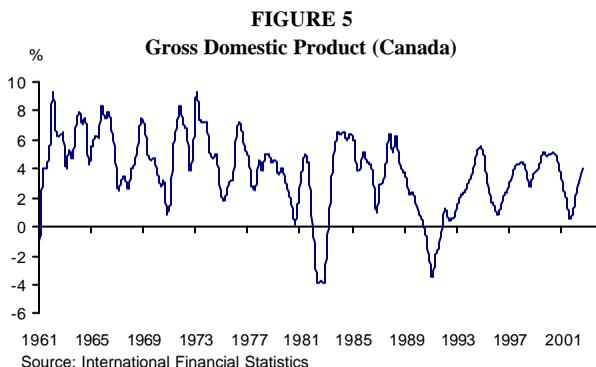
Based on the above outcome, it is evident that, with the move to inflation targeting in February 1991, the Bank of Canada has been able to achieve both, lower and more stable inflation. Not only did monetary policy deliver lower and more stable inflation in the 1990s than in the 1980s, but inflation also became less uncertain or, put another way, more predictable, as evidenced by many empirical studies.¹¹ Certainly, inflation targeting have proven to be an effective way of maintaining a low and stable inflation environment, as well as have provided an anchor for

¹⁰ Source: Renewal of the Inflation-Control Target, Background Information. Bank of Canada Publication, May 2001.

¹¹ Crawford and Kasumovich (1996) and Jenkins and O'Reilly (2001), imply that estimates of uncertainty continued to decline.

inflation expectations. This in turn provides the crucial underpinning that enables the economy to perform well.

The growth of GDP was higher in the 1991-2000 period than in the period from 1981-1990 (see Figure 5). However, this comparison depends on the specific years chosen. In particular, economic growth was especially weak in 1990 and strong from 1996-2000, with cyclical reasons a significant cause in both cases (Longworth 2002).



The variability of quarterly real GDP growth declined from 1.03 in 1980s to 0.68 in 1990s. In addition, many studies also confirm that the Canadian economy has undergone a dramatic transformation over the past decade. It has emerged as a low-inflation economy with declining levels of public and foreign debt and a private sector that is more cost-conscious, productive and efficient.¹²

¹² See Longworth (2002), David Dodge (2002), Frederic *et. al* (1997) and MaCallum (1996).

3.4 United Kingdom

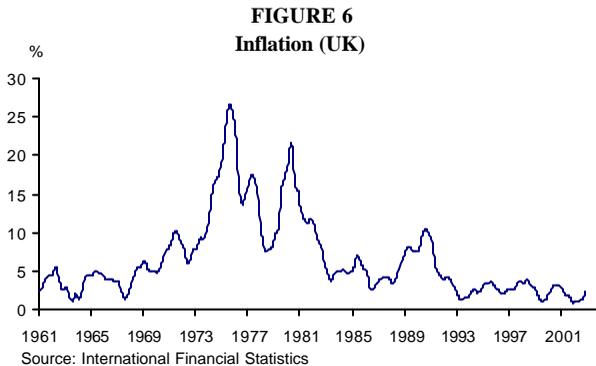
The United Kingdom switched to inflation targeting after its exchange rate that was pegged to the ECU, collapsed September 1992. However, there was more governmental involvement, since the Bank of England has had very little independence vis-à-vis the Treasury. Thus, the initial announcement in October 1992 of inflation targets was made by the Chancellor of the Exchequer, rather than the Governor of the Bank of England. The target band specified for the retail price index excluding its mortgage interest component (RPIX) was 1 to 4 percent, with the rate to be below 2.5 percent by “the end of the present Parliament” (i.e., by spring 1997 at the latest). In addition, since September 1992 there have been four significant institutional changes, as follows.¹³

- i. Monthly meetings between the Chancellor and Governor now provide the forum in which decisions on interest rates are made. However, the Chancellor continues to make decisions after hearing the Governor’s view.
- ii. The Bank now publishes a quarterly Inflation Report that presents analysis and views of its staff.
- iii. In April 1994 the Chancellor agreed to publish minutes of his monthly meetings with the Governor, the publication date being two weeks after the subsequent meeting. Also, when interest rates are changed, a press notice outlining the rationale is issued.

¹³ See McCallum (1999)

- iv. The Bank has been given control over the precise timing of interest rate changes, provided that any change chosen by the Chancellor will be effected before the next monthly meeting.

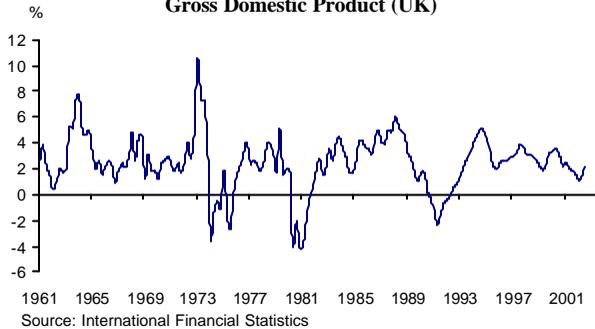
Figure 6, shows consumer price inflation in UK over the past four decades.



It is evident from the above illustration that the decade of inflation targeting stands out as a period of low and stable inflation. Not only has inflation been lower since inflation targeting was introduced, but that, as measured by its standard deviation, it has been more stable than in previous decades.

Figure 7, depicts the growth performance in the UK.

FIGURE 7
Gross Domestic Product (UK)



In the ten years since the inflation target was introduced, the annual growth rate of GDP averaged 2.8 percent. To a large extent, that reflects a cyclical recovery. Nevertheless, the last sustained period in which GDP growth exceeded inflation was in the first half of the 1960s. Inflation has averaged 2.5 percent, and been no lower than 1.5 percent and no higher than 3.3 percent. This suggests that the reduction in inflation has not come at the expense of either averaged output growth or, greater variability in output.

Overall, price stability appears to have led to a more stable macroeconomic environment, with less inflation uncertainty, and a lower level of real interest rates. This improved nominal performance led to greater stability of the real economy. Since 1992, output has grown at a little above its forty year average (2.5 percent), and has been much more stable than before. The standard deviation of quarterly growth rates over the past decade was less than half of that in earlier periods.

3.5 Israel

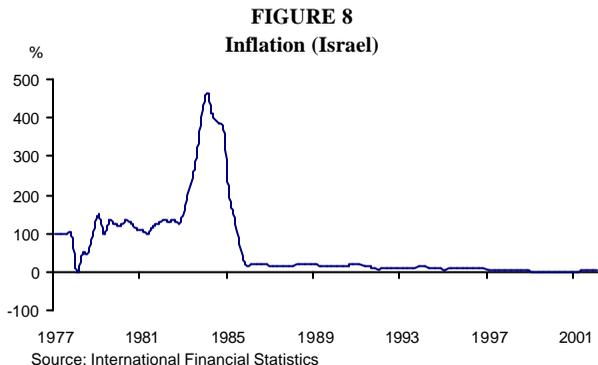
An inflation target was first announced in Israel at the end of 1991, when a maximum inflation rate of 14-15 percent was set for 1992. From then until 1995, inflation target was set at 8-11 percent a year. In 1996, the target was set at 8-10 percent, while the 1997 and 1998 target was reduced by one percentage point to 7-10 percent. It was also decided that inflation target would be gradually reduced in order to achieve the price stability which was defined as “rate of inflation accepted in the industrial countries”. From 2000, the government set explicit long-term inflation target that expressed a declining inflation path towards price stability; defined as 1-3 percent for 2003 and thereafter.

Under the inflation targeting regime the government of Israel in consultation with the central bank sets the target. The Bank of Israel targets headline inflation and a public explanation on the deviation of inflation forecast from target is made, if the actual inflation exceeds the target by over 1 percent.

From the beginning of the 1980s, the rate of inflation rose persistently and at an increasing rate, well into triple digit territory, up until mid-1985 when the Economic Stabilisation Program was introduced. From 1986 to 1991 average inflation was 18 percent per year, mainly due to the targeting of other variables such as, the nominal exchange rate and international reserves. As a result of explicit inflation targeting, the rate of inflation was sharply reduced to an average of 10 percent per annum in the period 1992 to 1996. There was a further reduction in inflation in 1997 and

1998 to 7-8 percent per annum. Inflation has been below 2 percent since then.

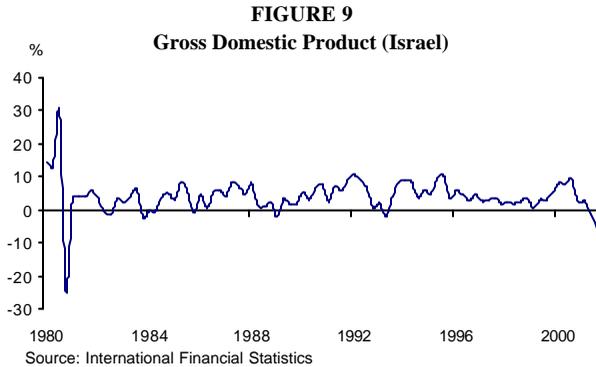
However, there was a one-off rise in 2002 to 6.5 percent (above the band) as a result of exchange rate depreciation (see Figure 8)



Overall, the inflation targeting regime has provided to be very successful in reducing the rate of inflation from 15-20 percent per annum, at the end of the 1980's, to a range of 1-3 percent at present. However, the success of inflation targeting in Israel is somewhat hampered by presence of an official exchange rate band. Although the band is at present more than 40 percent wide and is widening with the passage of time, it still causes potential difficulties for the inflation targeting regime (see Leiderman and Bar-Or 2000).

In terms of economic growth, the average quarterly growth in GDP rose from 3.5 percent for the 1981-1990 to 4.6 percent in the inflation-targeting era (1991-2002). However, growth in the inflation target period

has been more volatile than the period 10 year period before the policy (see Figure 9).



During the 1981-1990 standard deviation for growth in GDP was 2.9 percent, compared with 3.5 during the 1991-2002 periods. One of the reasons could be the liberalisation of foreign exchange control since 1990s. This means that Israel's economy is now more open to free flows of goods and capital, as well as changes in the domestic and international economic environment is reflected by exchange rate more quickly.¹⁴

¹⁴ The relatively more volatile growth pattern during the inflation targeting period can also be attributed to the geo-political tension.

4.0 Overall Performance of Inflation Targeting Regime

Table 3: Inflation and Growth (Percent)

	Annual inflation		Real GDP growth	
	Mean	Standard Deviation	Mean	Standard Deviation
Inflation targeting countries				
1980 to adoption of targets ^(a)	10.2	6.1	2.3	2.6
Adoption of targets to latest	2.7	1.3	3.0	1.6
OECD				
Non-inflation targeting countries ^(b)				
1980-92	6.4	3.9	2.6	2.0
1993-latest	2.2	0.9	2.9	1.8

Note: (a) Inflation targeting countries and dates used for adoption are: Canada (1991), Finland (1993), Greece (1998), Iceland (2001), New Zealand (1990), Norway (2001), Spain (1994), Sweden (1993), United Kingdom (1992).

(b) Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Japan, Luxembourg, Portugal, and the United States. Finland and Spain are considered to have become non-inflation targeting countries upon joining the third stage of the EMU in 1999, and Greece in 2001. The EMU is treated as a single entity after 1999.

Source: RBA Bulletin 2003 and IFS

The Table shows mean and standard deviations for inflation and real GDP growth for two periods: from 1980 to the adoption of inflation targeting, and since the adoption of inflation targeting to latest. The data are for two country groups: inflation targeting countries and other (non-inflation-targeting) countries in the OECD.

The essential results are.

- All groups observed a decline in inflation, much reduced inflation volatility, a pick-up in growth and reduced volatility of growth - it was a good period for most economies.
- Compared with non-inflation-targeting countries, inflation-targeting countries saw a bigger reduction in inflation (from a higher starting point), a proportionately large reduction in inflation variability, a larger pick-up in growth and a more marked reduction in volatility of growth (again, from a higher starting point);

It is also acknowledged that the connections between low, stable inflation and the behaviour of output growth and the unemployment rate may be strong, as the favourable effect coming from improved monetary policy could easily be dominated by other factors over any medium-run (or even longer-run). Nonetheless, an economy with low and stable inflation would be expected to have fewer distortions and imbalances than an economy with higher and less stable inflation rates. Thus, all else equal, countries would experience a higher level or rate of growth of output.

The reduced uncertainty about inflation has also had a number of significant benefits in most of the 'pioneer' inflation targeting countries. First, it seems to have led a decline in relative wages variability because of less disagreement about the inflation outlook, therefore leading to a better allocation of labour. Second, it has made planning easier and has led to longer labour and financial contracts, which means lower transactions and bargaining costs for firms and households. Third, it means that there is less need to protect oneself against unexpected inflation, which is a real saving

of resources. Finally, it helped in the development of more complete financial markets (with longer-term instruments), which allows a greater diversification of risks at lower cost.

5.0 Future Direction of Inflation Targeting

It might be argued that the environment in which inflation targets were developed – a legacy of high inflation, and high inflation expectations, with little credibility of monetary policy in the countries concerned – has been left behind. The world has moved on, it might be said, and inflation is no longer the threat it was. Everyone generally accepts that inflation will be low, some countries are even battling deflation. In such an environment, some will perhaps argue that policy should avoid excessive focus on inflation.

However, some countries still experience bouts of inflation, but mainly due to fiscal, exchange rate or adverse external shocks. Therefore, to enhance credibility, central banks in many non-inflation targeting countries are expected to move towards inflation targeting regime in the coming years. Moreover, it is likely that the central banks put more emphasis on transparency aspects of the regime. There are also possibilities that the US may also adopt inflation targeting framework, while for Japan the central bank is currently weighing the possibility of adopting such a framework. Although, Bank of Japan, at present does not see the need to switch to inflation targeting regime, as it has other structural problems that it needs to deal with.

6.0 Conclusion

The study suggests that the performance of the ‘pioneer’ inflation targeting countries has been quite good. These Inflation targeting nations seem to have significantly reduced both the rate of inflation and inflation expectations. Furthermore, once inflation was down, it has stayed down. In other words, the inflation rate has not bounced back up during the subsequent cyclical expansion of the economy. Also, the regime seem to ameliorate the effects of inflationary shocks, by leading to a one-time increase in price levels as a results of adverse one-off policy shocks.

Israel was the only country that targets inflation and exchange rate simultaneously and its experience suggests that the success is limited regardless of how wide the band is. Nevertheless, the framework has enabled the country to reduce its inflation significantly. Performance, in the other countries can be classified as a success and it can be argued that no other framework would have delivered this beneficial outcome.¹⁵

¹⁵ A paper focusing on the possibility of adopting inflation targeting in Fiji is currently in process.

Appendix 1

Table 1: Formal Inflation Objective

Country	Date Introduced	Target (percent)	Target Price Index	Timeframe
Australia	Sep. 1993	2-3	Headline CPI	Average over the business cycle
Brazil	Jun. 1999	4	Headline CPI	In 2001; tolerance band of +/-2 percentage points
		3½		In 2002; tolerance band of +/-2 percentage points
Canada	Feb. 1991	1-3	Core CPI	Through to end of 2001
Chile	Jan. 1991	3	Headline CP	Over the medium term; tolerance band of +/-1 percentage point
Colombia	Sep. 1999	8	Headline CPI	In 2002
		6		In 2002
Czech Republic	Jan. 1998	3	Core CPI	In 2001; tolerance band of +/-1 percentage point
		2		In 2005; tolerance band of +/-1 percentage point
Finland	Feb. 1993	2	Core CPI	
Israel	Jan. 1992	3-4	Headline CPI	In 2001
		1-3		In 2003
Korea, Rep.	Jan 1998	3		In 2001; tolerance band of +/-1 percentage point
		2½		Over the medium term
Mexico	Jan. 1999	<6½	Headline CPI	In 2001
		<4½		In 2002
		3		By the end of 2003
New Zealand	Mar. 1990	0-3	Headline CPI	For the five-year tenure of the Governor (2004)
Peru	Jan. 1994	2.5-3.5	Headline CPI	In 2001
		1.5-2.5		In 2002 and 2003
Philippines	Jan. 2002	4-6	Headline CPI	Over a two year period
Poland	Oct. 1998	5.4-6.8	Headline CPI	In 2000
		<4		By 2003
South Africa	Feb. 2000	3-6	Core CPI	For 2002
Spain	Nov. 1994	2	Headline CPI	
Sweden	Jan. 1993	2	Headline CPI	Tolerance band of +/-1 percentage point
Switzerland	Jan. 2000	<2	Headline CPI	Over the medium term, defined as three years

Country	Date Introduced	Target (percent)	Target Price Index	Timeframe
Thailand	Apr. 2000	0-3½	Core CPI	For the period from 2000 to 2002
United Kingdom	Oct. 1992	2½	RPIX	Tolerance band of +/-1 percentage point
EU-12		<2	Core CPI	Over the medium term; for the euro area as a whole

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