

Abstract

Concomitant with a move to more discretionary monetary management, Trinidad and Tobago's average inflation rate fell to 6 % in the 1990s from around 12 % in the previous decade but still remained highly variable. At the same time, however, the use of base money as a nominal anchor has not been firmly established which, in conjunction with the pursuit of multiple and conflicting monetary objectives suggest that more effective control of inflation and better prospects for economic growth may not be readily assured. This paper therefore considers the feasibility of inflation targeting as a more viable monetary option for Trinidad and Tobago. The exploration found that Trinidad and Tobago meets most of the pre-conditions for implementing inflation targeting. Indeed, its inflation process appears to be just as predictable as in the inflation targeting countries prior to their adoption of the regime. Movements in the monetary base, M3 growth, the US Treasury bill rate and changes in real output all have a high degree of predictive content on inflation to guide to policy makers reasonably well into the forecast horizon.

The appropriate inflation target should be headline RPI as long as the horizon spans eighteen to twenty-four months. An inflation path trending downward from around 3-6 % in the short to medium term to 2-3 % in the longer term seems feasible. The central target could then remain well anchored at about the mid-point of the range, which can be interpreted as the operational definition of price stability. The preferred design option is reflected in an Inflation Targets Agreement (ITA), which would be negotiated between the Minister of Finance and the Governor. The Central Bank of Trinidad and Tobago (CBTT) would publish a Monetary Policy Statement every three months to provide detailed assessments of the inflation situation, including current forecast of inflation and discussions of the policy response that is required to keep inflation on track.

Having already achieved some measure of success on the inflation front, Trinidad and Tobago can implement inflation targeting within a year or so once the necessary legal and technical requirements are sorted out. Political support however remains crucial to the success or failure of such an institutional change. Whether the political administration would buy-in to a new monetary strategy may depend on whether the impetus for change emanates from the highest echelons or is initiated in a crisis situation.

THE SCOPE FOR INFLATION TARGETING IN A DEVELOPING ECONOMY

Feasibility, Implications and Design Issues for Trinidad & Tobago

Anston Rambarran*

I. INTRODUCTION

Prior to the late 1980s most central banks adopted monetary frameworks based on an intermediate target to anchor the price level to a specific value at a given time. Some pursued money supply targets, others chose to maintain the exchange rate at a fixed peg or within some specified band. The former found that their ability to control monetary aggregates and to set appropriate growth targets was weakened due to the instability of money demand resulting partly from financial liberalization. Market pressures forced the latter to abandon their exchange rate strategy. Monetary management in all these countries became less credible as monetary policy lost its nominal anchor. For a period after, many central banks resorted to more discretionary policies, often based on an assessment of a "checklist" of indicators rather than a single intermediate target.

In 1988 New Zealand pioneered inflation targeting as a new strategy for monetary policy¹. It requires the central bank to announce publicly a numerical value target for inflation in the medium term. The bank, which must at least be operationally independent, is then responsible for achieving these targets and must provide regular public information about its strategy and decisions. Since then, a number of industrial and emerging market economies have adopted, or indicated that they intend to set monetary policy through a more or less formal process of inflation targeting². Indeed,

* The author is an Economist in the Research Department of the Central Bank of Trinidad and Tobago. The views expressed are those of the author and not necessarily those of the Central Bank.

¹ Haldane (1997) asserts that inflation targeting may not be novel since the intellectual roots of price targets can be traced to Marshall and Wicksell in the late nineteenth century. Moreover, in the early twentieth century Fisher and Keynes both put forward monetary schemes, which explicitly targeted an index number for prices, the forerunner to Sweden's experiment with an explicit price level standard during the early part of the 1930s.

² In a recent survey of ninety-one industrialized and developing countries (Sterne, 1999), fifty-four have some form of inflation target and thirteen had inflation-only targets. This compares with eight and one, respectively, in the early 1990s.

most elements of this regime of “constrained discretion” can be found in the practices of the long-standing and well-regarded monetary targeters, namely, Germany and Switzerland. So far, combining floating currencies with an explicit inflation target appears to have been successful in reducing inflation, but it is probably too early to make such declaration as there has also been a general decline in inflation in many industrial countries that did not explicitly operate such a regime.

In Trinidad and Tobago the search for a more sustainable monetary framework has been no different. The Central Bank of Trinidad and Tobago (CBTT) attempts to achieve its general monetary objective of protecting the value of the domestic currency by steadily bringing inflation down over the medium term to a level prevailing in the country’s major trading partners. Given this goal, the CBTT gradually shifted from a rules-based approach to more discretionary monetary management based on an assessment of current conditions but continuing to make no public commitments about its objectives or future actions.

Concomitant with this change, inflation fell to an average of 6 % during the 1990s from around 12 % in the previous decade but still remained highly variable with a standard deviation of about 3 percentage points. Since high and variable inflation can lead to inefficient resource allocation and to lower long run growth (Fischer 1993) it is desirable for Trinidad and Tobago to lower its average inflation rate to 3-6 % in the near term and to 2-3 % over the longer term. Moreover, Sarel (1996) found evidence to indicate that when inflation exceeds the threshold rate of 8 % it has an increasingly strong negative effect on growth. Inflation in Trinidad in Tobago was above this level in twelve of the past twenty years, and may have partly contributed to a slower rate of improvement in the country’s relative economic performance.

While it would certainly be desirable for Trinidad and Tobago to lower its annual inflation rate on a sustainable basis, this may prove difficult within the present monetary framework. The use of base money as a nominal anchor has not been firmly established which, in conjunction with the pursuit of multiple and conflicting monetary objectives suggest that more effective control of inflation and better prospects for economic growth may not be readily assured. Accordingly this paper considers the feasibility of inflation targeting as a more viable monetary option for Trinidad and

Tobago. Alternative monetary strategies that could dominate inflation targeting are not fully considered here but left for future research.

The rest of the study is organized as follows. Section 2 discusses the current regime of monetary policy that has evolved away from a strict adherence to base money targets. Section 3 evaluates whether Trinidad and Tobago complies with the pre-requisites for inflation targeting, and discusses the implications of inflation targeting for Trinidad and Tobago. Section 4 outlines a proposed Inflation Targets Agreement (ITA) to be negotiated between the government and the CBTT that gives rise to the inflation targeting framework. Concluding remarks are made in Section 5.

II. THE EVOLVING MONETARY POLICY FRAMEWORK

After dropping the exchange rate as the nominal anchor and turning to a floating rate regime in April 1993, base money became the prime intermediate target for the CBTT. In theory, under a floating exchange rate regime a central bank acquires control over the monetary base, since it does not have to add or subtract liquidity derived from compulsory interventions in the foreign exchange market as under the fixed exchange system. By acting directly on the monetary base, a central bank supposedly would be able to influence interest rates and exchange rates, and through these, the general level of prices (Jonsson, 1999). Consequently, as inflationary pressures fall, monetary policy becomes the anchor for the evolution of the general price level. In practice, however, the implementation of monetary policy has been eclectic for the CBTT and base money targets have not often been met for a variety of reasons.

Firstly, there has been a tendency at various times to assign multiple and often incompatible objectives to monetary policy. These include controlling monetary expansion, stabilizing tensions in the foreign exchange market, maintaining export competitiveness and keeping interest rates to a level that supports economic growth and reduces fiscal costs. Moreover, the ensuing tradeoffs between inflation and growth have not always been settled in favor of the inflation objective. Even though numerical

goals for inflation play a key role in the financial program³ established jointly between the CBTT and the Ministry of Finance (they are used to derive the monetary and credit targets) they do not have ultimate priority in determining the policy decision.

Secondly, extended periods of nominal exchange rate stability relative to the U.S. dollar have revealed episodes of implicit exchange rate targeting – just below TT\$6 in 1996 and below TT\$6.30 in most of 1997-1999 and so far into 2000. Changes in reserves rather than changes in the exchange rate have been used to quell ensuing persistent excess demand pressures. Gross sales of foreign exchange by the CBTT to the banking system rose from 2 % of total market flows in 1993 to 6 percent in 1999 and in excess of 10 % in the first half of 2000. Broad money targets have often been missed because of this concern about the exchange rate and partly because of a growing inability to fully tighten financial conditions on the basis of money growth developments alone. Without a credible commitment to one nominal anchor, the economy has effectively lacked a focal point to moor inflation expectations of the public.

Thirdly, the emergence of new financial instruments and their differential taxation appears to have caused gradual portfolio shifts away from monetary assets. This has altered the stability of both broad money velocity and the multiplier, and reduced the predictability of money demand. Several studies on money demand in Trinidad and Tobago [Nicholls (1995), Rambarran (1996), and Dobson (1999)] have been unable to find a strong and compelling evidence in favor of a stable relation between money, income and interest rates. This has complicated the task of forecasting a growth rate for broad or base money that would be consistent with an inflation objective. Consequently, strict adherence to a money anchor may help achieve lower inflation but only at considerable risk.

Fourthly, the new policy instrument - open market operations (OMO)- has not always achieved the desired effect on banks' reserves. At times, the CBTT has had to

³ The annual financial programming exercise sets goals for the balance of payments, prices, and output. An appropriate growth rate for broad money is determined on the basis of projections of real output growth and inflation. The assumption of a relatively stable multiplier gives the target on base money. From this projected path for base money and the floor on net foreign assets a ceiling is then set for the net increase in domestic credit. On a daily basis, the CBTT seeks to satisfy the demand for base money through changes in the reserves of commercial banks, purchases and sales of foreign exchange, and purchases and sales of government securities.

rediscount securities and provide reserves to the banking system even though this conflicted with its monetary objective of removing reserves. In addition, in the face of excessive money creation arising from financing the government's deficit spending within the domestic economy, open market interventions have generally been large and highly frequent rather than small and fine-tuning as originally envisaged. This has affected the capacity of the CBTT to intervene in the domestic money market to control the growth of base money. Indeed, by the end of April 2000 the Bank had virtually reached its limit on the stock of treasury bills and notes available for the purposes of OMO. The CBTT therefore continues to rely heavily on the primary reserve requirement, which has been progressively raised despite an announced intention to gradually reduce the ratio to prudential levels. During the 1990s the primary reserve ratio for commercial banks was changed on no less than nine occasions and its base was expanded in 1998 to the current level of 21 % of prescribed liabilities. Even though the CBTT recognizes the tax aspect of statutory reserves, it also recognizes the effectiveness of the reserve requirement in lowering banks' credit-granting capacity and diminishing some of the risks associated with non-sterilized intervention.

Finally in the absence of an interest rate strategy and the public disaffection surrounding high interest rates there is need to assess the feasibility of using a short-term interest rate as the operating target rather than the monetary base. By varying the quantity of reserves supplied to the banking system the CBTT allows short-term interest rates to be determined by commercial banks' demand for reserves. Through its rediscount policy the CBTT also attempts to guide the direction and magnitude of money market interest rates. However, it is unclear whether the resulting interest rate structure is consistent with monetary conditions. In this respect, with an interest rate operating target a positive shock to money demand would lead to a smaller rise in interest rates and a larger change in the money stock, than would generally be the case with a reserve target.

For all these reasons, while the CBTT continues to set monetary and credit targets and conduct reserve programming, it relies more heavily on variables that provide useful information about the state of the economy. However there is no strong commitment to communicate this particular monetary strategy to the general public, especially the relationship between current conditions and the goal of price stability. Economic

reports by the Bank cover a wide variety of macroeconomic issues and developments but do not provide an explanation of the performance of the financial program, including whether targets were hit or not. Most notably, there is no clear signal to the public and to the markets as to which inflationary shocks the CBTT plans to accommodate and which it will not.

In light of the problems inherent in the current arrangement, there is need to adopt a monetary strategy with a firm nominal anchor that would not only impart a greater degree of price stability, but also to persuasively communicate the strategy to the general public. Inflation targeting, which is now an orthodox and widely used approach to monetary policy, provides a potential alternative.

III. FEASIBILITY AND IMPLICATIONS OF INFLATION TARGETING

This section discusses, first, whether it is feasible for Trinidad and Tobago to implement inflation targeting; and second, what the implications would be if Trinidad and Tobago moved to such a monetary policy framework.

A. Pre-requisites for Inflation Targeting

Each country that has so far adopted inflation targeting has a variant based on its own particular circumstances even though there are certain empirical generalizations [Bernanke et. al., (1999), Mishkin and Posen (1997)]. Table 1 provides some details about the specific operational aspects in a sample of selected countries. Despite varying approaches, it is evident that all inflation targeting regimes have four main features:

- A nominal variable (such as the price level or inflation rate) which is recognized as the sole achievable medium term objective for monetary policy;
- An attempt to drive policy directly at the medium-term objective via a tightly specified inflation target, rather than indirectly through an intermediate target;

- An institutional structure that clearly articulates the respective roles and responsibilities of the key actors (the central bank and the government); and a
- Heavy reliance on transparency to support the arrangement and cover the weak points in the institutional structure.

On this basis, one could establish six pre-conditions that are desirable for implementing inflation targeting in any country, including Trinidad and Tobago.

A Clear Mandate on Price Stability

The Central Bank of Trinidad and Tobago Act 1964 is the legislation that governs the CBTT. The Act specifies dual objectives in “the promotion of such monetary, credit and exchange conditions as are most favorable to the development of the economy of Trinidad and Tobago” and to “encourage expansion in production, trade and employment.” The first step towards establishing an institutional foundation for inflation targeting in Trinidad and Tobago is to provide the CBTT with a more clearly defined mandate on price stability than now obtains. In most inflation targeting economies price stability does not literally mean an inflation rate at or near zero, but is usually synonymous with annual inflation rates closer to 2 %. This is to account for the upward measurement bias of price index measures of inflation and the economic risks to targeting inflation at too low a level. For Trinidad and Tobago, the authorities should choose a transition path of inflation targets trending downward over time toward the price stability goal.

An Instrument Independent but Goal Dependent Central Bank

There is a worldwide trend toward increased independence for central banks. This is based on the notion that independent central banks, compared to central banks subordinated to the government, deliver better inflation outcomes, as well as output and employment outcomes no worse than less independent central banks. Granting instrument independence to the CBTT is a more effective compromise between insulation from political pressures and direct accountability to the public. In this regard, the Minister of Finance would set the inflation target in consultation with the CBTT, but the CBTT would be responsible for the instrument settings to achieve the

desired target. This would increase the credibility of the inflation targeting framework and the role of monetary policy can be reconciled within the government's overall economic policy, including its objectives for growth and employment.

An Accurate, Timely and Easily Understood Inflation Series

In general the practice has been to specify the inflation target in terms of a consumer price index, or some variant thereof, because it is the price index most familiar to the general public, and also because it is timely and not subject to revision. The Retail Prices Index (RPI, Sep.1993=100)⁴ which is compiled by the Central Statistical Office (CSO), an agency independent of the monetary authorities, meets these requirements in Trinidad and Tobago. The focus should be on the more transparent published or headline RPI on which most price and wage decisions in the economy are made. Table 2 presents univariate AR models for the eleven main components of the RPI, of which two would appear especially prone to supply shocks, namely food and housing (homeownership). These two components have a combined weight of about 40 %. The persistence of the shocks in these categories is similar to that of the other nine components but they stand out in terms of the size. Shocks in the food and homeownership categories are twice as large as those of headline RPI and the confidence interval containing 90 % of the shocks is also roughly twice as wide. Thus, food price volatility is likely to have a significant impact on the headline RPI. Indeed, there is a high contemporaneous correlation of food price shocks with headline RPI.

Impulse response analysis (not presented) indicate that food price inflation shocks do increase the short-run volatility of headline inflation in Trinidad and Tobago but the differences in responses of headline and underlying inflation are quite small after the first year. With an inflation target horizon greater than a year, it makes no difference whether food prices are included or not in the RPI that is targeted. If a "core" inflation measure is preferred, the CBTT must explain to the public how this price index is constructed and how it is related to headline RPI.

⁴ The Central Statistical Office (CSO) rebased the Retail Price Index (RPI) to September 1993 using information from a 1988 Household Budgetary Survey (HBS). The composition of the market basket may therefore not fully reflect current consumer expenditure patterns. The methodology used by the CSO in constructing the RPI is generally in accordance with international standards except for the

A Target Range and Bandwidth that Builds Flexibility

Inflation outcomes are likely to be highly uncertain even with the best monetary settings. A narrow range for an inflation target communicates a greater commitment to meeting the inflation goal than does a broader range. At the same time, a narrower range reduces the ability of the monetary authorities to respond to unforeseen events, which may well drive inflation outside of the target range and damage credibility. An inflation band with varying targets over time allows for these uncertainties and increases the flexibility of the regime. The CBTT should choose a range for the inflation target over a point estimate as this would:

- Recognize the inherent volatility in prices, notably for items like food and housing (homeownership) which are more prone to supply shocks;
- Recognize the positive bias in the RPI measure of inflation which arises from a number of sources including the introduction of new goods, substitution of relatively cheaper items and quality improvements, and which is endemic to price indices and cannot be fully remedied by the CSO;
- Recognize the inherent uncertainties about future events when managing in monetary policy; But to
- Place limits which, if breached, require the CBTT to explain inflation developments and the measures taken or proposes to take to ensure that inflation comes back within the range. This helps ensure that inflation expectations remain well anchored at about the mid-point of the range, which can be interpreted as the operational definition of pricestability.

The combination of the use of headline inflation and the absence of escape clauses justifies the adoption of a relatively wide tolerance interval of three-percentage points around the central target. The need to reduce instability in the instruments of monetary policy is an important consideration in determining this soft-edged and wider band.

A Target Horizon in which Monetary Policy can offset Short-term Shocks

treatment of homeownership costs. See Rambarran (1994) for a discussion on the construction of the RPI as well as its associated technical biases.

Targets of less than one year or more than four years are unlikely to be operationally meaningful, the former because monetary policy cannot control inflation at such short horizons and the latter because such distant targets would have little credibility. The CBTT consequently needs to be able to forecast inflation reasonably well over the policy horizon (Bernanke et. al., 1999). The degree of predictability that is sufficient for the inflation forecast to be used as the operational intermediate target can be benchmarked to the inflation forecasts of inflation targeting countries (Hoffmaister, 1999). Table 3 provides details of univariate autoregression AR (p) models and of the inflationary experiences of Trinidad and Tobago and the inflation targeting countries⁵ prior to their adopting the regime. The data suggest that Trinidad and Tobago's inflationary process - the average, volatility and persistence - is similar to that in the sample of inflation targeting countries. Nonetheless, the distribution of inflation innovations in Trinidad and Tobago has fatter tails (positive kurtosis), that is inflation is subject more frequently to larger shocks than would be expected given its standard deviation.

The forecast performance was evaluated over the five years prior to adopting inflation targeting using the AR models in Table 3. The root mean square error (RMSE), a standard measure of forecasting performance, was calculated using out-of-sample forecast errors based on the typical inflation target horizon of between eighteen to twenty-four months. At eighteen months the RMSE in Trinidad and Tobago is about 1.3 percentage points, similar to the RMSE in Finland (1.7). This in turn is somewhere between the UK (2.7) and Sweden (2.7) with worse forecasting performance and Canada (0.8) and Spain (0.8) with better forecasting performance. At twenty-four months the RMSE in Trinidad and Tobago is about 1.2 percentage points, better than all inflation targeting countries except Canada (0.7) and Spain (0.8).

Prima facie, these results suggest that inflation predictability in Trinidad and Tobago during the past five years is comparable to the inflation targeting countries prior to their adopting the new regime. Thus forecasting inflation should not be a major obstacle for the adoption of inflation targeting in Trinidad and Tobago.

⁵ New Zealand and Australia are not included in this exercise because their price data are only available at quarterly frequency. Comparing the predictability of inflation in these countries based on quarterly price data to the predictability of inflation based on monthly data in the other inflation targeting countries would be misleading.

An inflation forecast need not wholly depend on a model; at times the CBTT may need to use a large degree of judgement, especially since the economy has undergone a large degree of structural change in recent years. Bivariate Granger-causality tests provide information on the leading indicator properties of potential variables (Baumgartner et. al., 1999). A pragmatic choice of such indicator variables would include: real output, the TT/US dollar selling rate, broad money (M2), broad money plus foreign currency deposits (M2*), base money (M-0), the US inflation rate, the three-month TT treasury bill rate, and the U.S. treasury bill rate.

Table 4 reports p-values for lag lengths one to eight based on the null hypothesis that the indicator variable does not Granger-cause inflation. Movements in the monetary base, M2* growth, the U.S. treasury bill rate and change in real output have a high degree of predictive content on inflation. Broad money and changes in the exchange rate appear to have little predictive information. Surprisingly, there is no evidence that domestic treasury bill rates contain predictive information on inflation within a two-year time horizon.

Since the predictability of inflation in Trinidad and Tobago is comparable to that in inflation targeting countries before they adopted the regime an implementation period of around two years is reasonable given the lags in the operation of monetary policy. This would also allow for some understanding to be developed of how the economy operates in the transition to an inflation targeting regime, and to allow some time to determine what exactly price stability corresponds to in practice.

A More Transparent and Accountable Framework for the Central Bank

The hallmark of an inflation targeting regime is the announcement by government or the central bank, or some combination of the two that in the future the central bank will attempt to hold inflation at or near some numerically specified level (Bernanke and Mishkin, 1997). In the case of Trinidad and Tobago this could be accomplished through the negotiation of an Inflation Targets Agreement (ITA) between the Minister of Finance and the Governor. The credibility of the CBTT would depend as much on the objectivity and plausibility of its communications as on its record of hitting targets. In

this regard, the CBTT should publish a **Monetary Policy Statement** approximately every three months to provide information about the economy at large and the monetary strategy and policy intentions. Beyond such information, the communication process can be enhanced through regular speeches and press conferences by senior officials of the Bank about what monetary policy can and cannot do.

In general, it is not difficult for Trinidad and Tobago to satisfy most of the pre-conditions for implementing inflation targeting. Nonetheless, it is important for the authorities to understand that under such a regime the paramount goal of monetary policy is achieving the inflation target. Any other goal can be pursued to the extent that it is consistent with the inflation target. In the recent past there has been strong fiscal dominance of monetary policy as well as a strong attachment to nominal exchange rate stability in Trinidad and Tobago. With inflation targeting, the conduct of monetary policy cannot be subordinated to fiscal needs, nor can monetary policy be used to ultimately target the exchange rate or any other nominal variable. The CBTT would explicitly justify policy changes in the context of achieving the inflation target.

To control inflation (under any monetary policy framework) there must be a reasonably stable relationship between the monetary policy instruments and inflation outcomes. The authorities therefore need access to policy instruments that are effective in influencing the economy, while money and capital markets must be sufficiently well developed so as to react quickly to the use of these instruments. Trinidad and Tobago has a fairly well developed capital market and policy changes are increasingly influencing money market interest rates in a transparent manner. The CBTT's open market operations together with the repo system constitute an appropriate framework for monetary policy operations. It is possible however that some further experience with the repo system, which was introduced in November 1999, including how changes in the repo rate feed into the inflation forecasts, is needed before the introduction of a fully fledged inflation targeting framework.

Considering the importance of accurate inflation projections in an inflation targeting regime, it might also be necessary to further refine and strengthen the CBTT's forecasting framework in the event that the authorities decide to switch to an inflation targeting framework.

B. Implications of Inflation Targeting for Trinidad and Tobago

Given that the most important underlying conditions for the adoption of inflation targeting in Trinidad and Tobago are in place, or are at least not subject to binding constraints, the next question is whether it would be desirable to implement such a regime, and what the implications would be (Jonsson, 1999).

As mentioned earlier, the current monetary policy framework is in some respects similar to an explicit inflation targeting framework. In particular, the mandate to protect the value of the currency has been interpreted as a mandate to control inflation; the CBTT takes a forward looking approach to monetary policy to achieve this objective; and it uses a set of financial indicators and intermediate targets to achieve the inflation target. Consequently, if Trinidad and Tobago was to implement a more formal inflation targeting framework, the actual conduct of monetary policy may not change in a significant way. The medium-term inflation outlook would still guide policy actions, with due regard paid to the evolution of a set of economic and financial variables.

Nevertheless, the absence of an explicit and well-defined target for monetary policy under the current framework has created some measure of discomfort among the public and the markets about the CBTT's objectives. This credibility problem may have been reinforced by the observations that monetary and credit target have usually not met their programmed benchmarks in recent years, and that the CBTT has intervened heavily in the spot foreign exchange market. Thus, to the extent that a formal or explicit inflation targeting framework would be perceived as a stronger commitment to prudent monetary policy and bring more clarity to the conduct of CBTT's monetary policy through an enhanced communication effort, some uncertainties might be eliminated. This, would in turn, improve the accuracy and coordination of inflation expectations, and possibly reduce the risk premia on investment in Trinidad and Tobago, implying a lower path for long-term interest rates.

Thus, the main implication and advantage of a formal inflation targeting regime in Trinidad and Tobago would be the associated enhancement of both the transparency of

monetary policy and the accountability of the CBTT. Under inflation targeting, the CBTT would need to intensify its efforts in communicating and clarifying to the public its monetary policy. Moreover, with clearly specified targets for monetary policy and more frequent communication of the plans and outcomes of monetary policy, the CBTT would become more accountable about its actions. The enhancement of transparency and accountability, together with a clear mandate to focus on inflation, could also help limit short-term motivated criticism of the CBTT's actions.

In the event that there is a breach of the inflation target, it could be difficult to determine whether the breach reflects policy failure or events outside the control of the CBTT. This is because there is typically a long lag between the change in the instruments of monetary policy and the inflation outcome. On these occasions, or when such occasions are projected, the open letter to the Minister of Finance becomes particularly important.

An alternative policy option to inflation targeting in Trinidad and Tobago would be to return to monetary targeting. However, since the second half of the 1990s there has been substantial financial deepening, partly as a result of the liberalization of the foreign exchange regime, and money demand has increased rapidly. Consequently, there has been a growing demand for monetary liabilities both within and outside the formal banking system. Generally, it can be expected that further financial deepening and other structural changes will cause the demand for any monetary aggregate to be uncertain in the short-run, and the CBTT would have little capacity to control it. In that case, stricter monetary targeting would unlikely yield the desired inflation outcomes, and would not be seen as very credible placing an excessive burden of adjustment on the real economy. Too tight monetary policy may unnecessarily constrain output, while too loose policy may not achieve the inflation target.

A third option would be to gear monetary policy to maintaining the nominal exchange rate within a predetermined path, as currently practiced, notwithstanding having a floating exchange rate system with no restrictions on capital movements. While the adoption of a nominal exchange rate anchor could be consistent with better inflation control, this would limit monetary independence and weaken the ability to cope with real shocks that generally affect the Trinidad and Tobago economy. Moreover, such a

framework might invite speculative attacks because the CBTT would have an exchange rate objective that might not be perceived as credible. It is likely that some of the volatility in the foreign exchange market has been driven by uncertainties about the CBTT's goals regarding the exchange rate. Indeed, to the extent that the adoption of inflation targeting signals a clear commitment to allow the exchange rate to float, namely, not to defend a particular level or path for the exchange rate, such a framework is viewed as the more viable option.

IV. THE INFLATION TARGETS AGREEMENT (ITA)

The Inflation Targets Agreement (ITA) should be a usefully simple and clear negotiated document. It should seek to give some emphasis to the medium term focus of monetary policy, including specification and attainment of the inflation target. At the same time the ITA should acknowledge that occasional breaches of the inflation target should emphasize the CBTT's explanations to the public and the financial markets of developments, over mere compliance with the quantitative inflation target.

A. *Proposed Structure of an ITA for Trinidad & Tobago*

This agreement between the Minister of Finance and Governor of the Central Bank of Trinidad and Tobago (the Bank) is made under section 3 (3) of the Central Bank of Trinidad and Tobago Act 1964 (the Act), and shall apply for the balance of the Governor's present term.

The Minister of Finance and the Governor agree as follows:

(a) *Price Stability*

Consistent with section 3 of the Central Bank Act, the Central Bank shall formulate and implement monetary policy with the intention of maintaining a stable general level of prices, so as to make the maximum contribution to the most favorable growth, employment and development opportunities within Trinidad and Tobago.

(b) *Inflation Target*

- (i) In pursuing the objective of a stable general level of prices, the Bank shall monitor prices as measured by a range of price indices. The price stability target will be defined in terms of the Retail Prices Index (RPI, Sep.1993=100) as published by the Central Statistical Office (CSO).
- (ii) The inflation target shall be the accumulated change by year-end in the RPI. The inflation target is to be kept within a 3-6 percent range for 2000-2001. For 2002 and subsequent years targets will be set no later than June 30, two years in advance.
- (iii) The target will be considered met whenever the observed accumulated inflation during the period January-December measured on the basis of changes in the RPI falls within the stipulated range.

(c) Unusual Events

- (i) There is a range of events that can have a significant temporary impact on inflation as measured by the RPI, and can mask the underlying trend in prices, which is the proper focus of monetary policy. These events may even lead to inflation outcomes outside the target range. Such disturbances include, for example, shifts in the aggregate price level as a result of exceptional movements in the prices of key commodities traded in world markets, changes in indirect taxes, significant government policy changes that directly affect prices, or a natural disaster affecting a major part of the economy.
- (ii) When disturbances of the kind described above arise, the Bank shall react in a manner that prevents general inflationary pressures emerging.

(d) Implementation and Accountability

- (i) The Bank shall constantly and diligently strive to meet the inflation target.
- (ii) It is acknowledged that, on occasions, there will be inflation outcomes outside the target range. On those occasions, or when such occasions are projected, the Bank shall issue an open letter addressed to the Minister of Finance explaining why such outcomes have occurred, or are projected to occur, and what measures it has taken, or proposes to take, to ensure that inflation comes back within the range, and the period of time that will be needed for these measures to have an effect.
- (iii) The Bank shall issue approximately every three months a **Monetary Policy Statement** which will provide information on the performance of the inflation targeting framework, the results of the monetary policy actions, and the prospects regarding inflation.
- (iv) The Bank shall implement monetary policy in a sustainable, consistent and transparent manner.

- (v) The Bank shall be fully accountable for its judgments and actions in implementing monetary policy.

V. CONCLUSIONS

Concomitant with a move to more discretionary monetary management, Trinidad and Tobago's average inflation rate fell to 6 % in the 1990s from around 12 % in the previous decade but still remained highly variable. While it would certainly be desirable for Trinidad and Tobago to lower its annual inflation rate on a sustainable basis, this may prove difficult within the present monetary framework. The use of base money as a nominal anchor has not been firmly established which, in conjunction with the pursuit of multiple and conflicting monetary objectives suggest that more effective control of inflation and better prospects for economic growth may not be readily assured. This paper therefore considers the feasibility of inflation targeting as a more viable monetary option for Trinidad and Tobago.

The exploration found that Trinidad and Tobago meets most of the pre-conditions for implementing inflation targeting. Indeed, its inflation process appears to be just as predictable as in the inflation targeting countries prior to their adoption of the regime. Movements in the monetary base, M3 growth, the US treasury bill rate and change in real output have a high degree of predictive content on inflation to guide to policy makers reasonably well into the forecast horizon. The appropriate target should be headline RPI as long as the inflation target horizon spans eighteen to twenty-four months. Targeting headline RPI would allow foster better coordination of economy-wide inflationary expectations because of its pervasive use as an escalator for wage and benefit payments. A transition path of inflation targets trending downward from around 3-6 % in the short to medium term to 2-3 % in the longer term seems feasible. The central target could then remain well anchored at about the mid-point of the range, which can be interpreted as the operational definition of price stability.

The preferred design option which balances insulation from political pressures and public accountability is reflected in an Inflation Targets Agreement (ITA), negotiated between the Minister of Finance and the Governor. Such a framework would clarify

the monetary policy objectives of the instrument-independent CBTT, enhance transparency of its operations, and strengthen the CBTT's accountability. This could contribute to more accurate and coordinated inflationary expectations, which would help in reducing and stabilizing actual inflation. Inflation targeting could also lead to a better cyclical performance of the economy, and thereby improve the outlook for growth and development. However, in practice inflation targeting can be better, similar, or worse than other monetary policy frameworks depending on the specific manner in which the CBTT conducts monetary policy.

Adopting inflation targeting demands that monetary policy must focus primarily on the inflation forecast. Movements in other nominal variables, especially the nominal exchange rate, would enter into the monetary policy realm only to the extent that they affect the inflation forecast. Moreover, the CBTT should publish a **Monetary Policy Statement** every three months to provide detailed assessments of the inflation situation, including current forecast of inflation and discussions of the policy response that is required to keep inflation on track. Regular speeches by senior officials of the Bank on the inflation outlook would also enhance the communication process.

The impetus for the adoption of inflation targeting has varied across countries. The collapse of the exchange rate peg in the United Kingdom and Sweden led to the search for an alternative nominal anchor for monetary policy. Some countries such as Canada came to it after unsuccessful attempts with monetary targeting. Other countries that had reduced their core rate of inflation adopted inflation targeting as a means of locking in their inflation gains (Bernanke and Mishkin, 1997). Trinidad and Tobago falls into the latter category having already achieved some measure of success on the inflation front. From this perspective, once the necessary legal and technical requirements are sorted out a move to inflation targeting can be accomplished within a year or so. Political support however remains crucial to the success or failure of such an institutional change. Whether the political administration would buy-in to a new monetary strategy may depend on whether the impetus for change emanates from the highest echelons or is initiated in a crisis situation.

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Table 1. Selected Aspects of Inflation Targeting Regimes

Country	Date of Adoption	Prevailing Inflation Rate at adoption	Target Rate and Horizon	Price Index	Weight of Items excluded from headline	Ins the
New Zealand	Mar-90	5.8%	0-2 % through the 5-year tenure of the Governor	CPI excluding credit services	6.50%	Se be anc Bai
Canada	Feb-91	4.8%	1-3 % through 1998	CPI excluding food, energy and indirect taxes	25%	Set anc of (
United Kingdom	Oct-92	3.8%	2.5 % + or - 1 % 1%	RPI excluding mortgage interest payments (RPIX)	5%	Set the
Sweden	Jan-93	2.3%	2 % with a tolerance band of + or - 1%	CPI	0%	Set
Finland	Feb-93	2.60%	About 2 % in 1996 and beyond with no explicit band	CPI excluding indirect taxes, government subsidies, house prices, and mortgage interest payments	33%	Set
Australia	1993	1%	Underlying inflation of 2-3 %, on average, over the cycle	CPI excluding interest rates, indirect taxes, and certain other volatile price items	48.90%	Set Au: in Mc th
Spain	Nov-94	4.7%	Less than 3 % by 1997, 2 % by 1998	CPI	0%	Set
Brazil	July-99	10%	8% for 1999, 6% for 2000, and 4% for 2001	CPI	0%	Set the Fin

Sources: Hoffmaister, A., 1999, *Inflation Targeting in Korea: An Empirical Exploration*, IMF Working Paper 99/7 (Washington: International Monetary Fund); Bogdanski, J. et. al., 2000, *Implementing Inflation Targeting in Brazil*, mimeo.

Table 2. Autoregressive Models for Main Categories of the Retail Price Index (RPI), 1991:01-1999:12

	Food	Meals Out	Drink & Tobacco	Cloth. & Footwear	Housing (total)	Housing (Homeowner ship)	Household Operations	Household & Services
Weight in Headline Index	217	14	24	104	216	196	66	77
Annual Percent Change								
Mean	12.67	3.38	6.02	-0.82	1.83	3.91	1.23	1.6
Standard Deviation	5.36	2.85	6.09	1.01	1.61	3.41	2.92	1.9
AR Model								
No of Lags Included	15	15	10	13	9	9	10	9
Adjusted R2	0.86	0.78	0.8	0.78	0.82	0.88	0.74	0.7
Sum of AR Coefficients	0.98	0.93	0.94	0.95	0.96	0.97	0.88	0.9
(standard error)	0.01	0.02	0.03	0.03	0.02	0.02	0.04	0.0
Inflation Innovations								
(standard error)	2	1.3	2.68	0.46	0.67	1.18	1.47	0.8
Jarque-Bera Test of Normality	2.7	2925.8	4898.9	162.8	501.1	155.6	2859.4	147
Corr. with headline innovation	0.79	0.52	0.02	0.14	0.61	0.68	0.5	0.4

Note: The number of lags included in the AR models is determined using the Akaike Information Criteria where the maximum lag tested is 18.

Table 3. Autoregressive Models of Inflation for Trinidad & Tobago and Selected Inflation Targeting Countries.

	Trinidad	Canada	United Kingdom	Sweden	Finland	Spain
Sample period (10 years ending in)	Dec-99	Jul-91	Oct-92	Jan-93	Feb-93	Jul-94
Inflation						
Mean (annual rate)	5.8	5.67	5.56	6.7	5.22	6.54
Standard Deviation	3.12	12.53	15.63	17.24	14.8	23.04
AR Model						
No. of Lags	16	17	14	13	17	13
Adjusted R ²	0.93	0.98	0.96	0.9	0.97	0.94
Sum of AR Coefficients (standard error)	0.98 0.01	0.95 0.01	0.96 0.02	0.89 0.04	0.98 0.02	0.95 0.02
Inflation Innovations (standard error)	0.81	0.3	0.33	0.72	0.3	0.41
Jarque-Bera Test of Normality	2.86	149.62	6.85	63.46	0.16	19.25

Note: The AR models are taken from Hoffmaister (1999), and the number of lags is determined using the Akaike Information Criteria where the maximum lag tested was 18.

Table 4. Leading Indicators of Inflation: Bivariate Granger-Causality Tests

Indicator Variables	Lags of VAR						
	1	2	3	4	5	6	7
Output	0.74	0.011	0.04	0.045	0.024	0.034	0.419
Base Money	0.114	0.161	0.121	0.1	0.334	0.472	0.731
Broad Money (M2)	0.264	0.504	0.55	0.738	0.819	0.748	0.049
Broad Money (M2*)	0.029	0.097	0.02	0.076	0.351	0.607	0.827
TT treasury bill rate	0.893	0.83	0.893	0.311	0.194	0.367	0.151
US treasury bill rate	0.022	0.347	0.005	0.016	0.0186	0.097	0.605
US inflation	0.546	0.404	0.4609	0.461	0.125	0.069	0.345
Exchange Rate	0.744	0.713	0.395	0.22	0.043	0.019	0.111

Note: p-values shown for the likelihood ratio tests of the null hypothesis show that the indicator does not Granger-cause inflation.

