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INFLATION TARGETING IN ZAMBIA: PANACEA OR A CASE OF MISPLACED EXPECTATIONS

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Dedication

I dedicate the completion of my studies to all friends who bestowed their confidence in my abilities. Most importantly, I wish to thank my family for their unwavering support and faith in me.

"Central banks don't have divine wisdom. They try to do the best analysis they can and must be prepared to stand or fall by the quality of that analysis."

Mary Kay Ash

ACKNOWLEDGEMENTS

ABSTRACT

The past decade has arguably witnessed the emergency of inflation targeting as the key monetary policy innovation. Accordingly, there has been an important debate on the desirability of this new regime. In the last 15 years or so, an increasing number of central banks have adopted inflation targeting as their preferred framework for the conduct of monetary policy. Although it was initially confined to industrialised countries, many developing countries are also increasingly adopting the inflation targeting regime. This paper seeks to evaluate the feasibility and applicability of this framework for monetary policy in Zambia. Using evidence from South Africa, this paper argues that although the presence of certain preconditions could not be confirmed in Zambia, inflation targeting still constitutes a feasible and advisable framework. The paper casts some doubt on the presence of these pre-requisite conditions in Zambia although in practice the country can be characterised as already pursuing an implicit inflation targeting framework. The study finds that monetary authorities are currently pre-occupied with achieving single digit inflation and as such it can be argued that it is only a matter of time before adopting a fully fledged inflation targeting regime. In the meantime, the paper suggests financial system deepening, reduction of fiscal dominance and central bank independence. The paper concludes that these aspects are not only crucial in determining the speed and efficacy of transmission mechanisms of monetary policy under an inflation targeting framework but also have an impact on the transparency and credibility of monetary policy which are relevant for anchoring economic agents' future inflation expectations. Consequently, swift progress on improving these conditions is essential for reaping full bonuses associated with inflation targeting.

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Acronyms/Abbreviations

BOE	Bank of England
BOZ	Bank of Zambia
BOZFM	Bank of Zambia Financial Model
CB	Central Bank
CPI	Consumer Price Index
ER	Exchange Rate
GDP	Gross Domestic Product
IMF	International Monetary Fund
IT	Inflation Targeting
LAR	Liquid Assets Ratio
MNCs	Multi-National Corporations
MP	Monetary Policy
MPC	Monetary Policy Committee
MTM	Monetary Transmission Mechanisms
OMO	Open Market Operation
OECD	Organisation of Economic Cooperation and Development
OPEC	Oil Producing and Exporting Countries
QTM	Quantity Theory of Money
REPO	Repurchase Agreement
RER	Real Exchange Rate
RSA	Republic of South Africa
RR	Reserve Ratios
SAP	Structural Adjustment Programme
SARB	Reserve Bank of South Africa
SRR	Statutory Reserve Ratio
TB	Treasury Bill
WB	World Bank

1.0   Introduction

According to a Nexis search (1996), inflation has been the most discussed concept in the field of economics. Economists view inflation as a "sustained rise in the general level of prices". Their concerns focus on questions such as whether inflation distorts economic decisions. Although there is no emerging consensus, some argue that high inflation has adverse effects on economic performance. Others argue that inflation distorts investment and consumption decisions and is harmful to the economy in general. Although there is no robust evidence on the negative impact of inflation on economic growth, achieving low and stable inflation has been on the top agenda of most central bankers. These perceptions have continued to dominate monetary policy making. The pre-occupation with fighting inflation has been a major force behind the evolution of monetary policy over the years. Because of this, central bankers have been searching for a framework which can sufficiently address the problem of inflation.

The past decade has arguably witnessed the emergency of inflation targeting as the key monetary policy innovation. Accordingly, there has been an important debate on the desirability of this new regime. Since the early 1990s, an increasing number of central banks have adopted inflation targeting as their preferred framework for the exercise of monetary policy as can be observed from the figure below.

Figure 1: Inflation Rate at Adoption of Inflation Targeting

Sources: Central bank websites and reports; Bernanke and others (1999); IMF, *International Financial Statistics*. See Table 4.1 of this report.
Note: Emerging market countries are in bold.
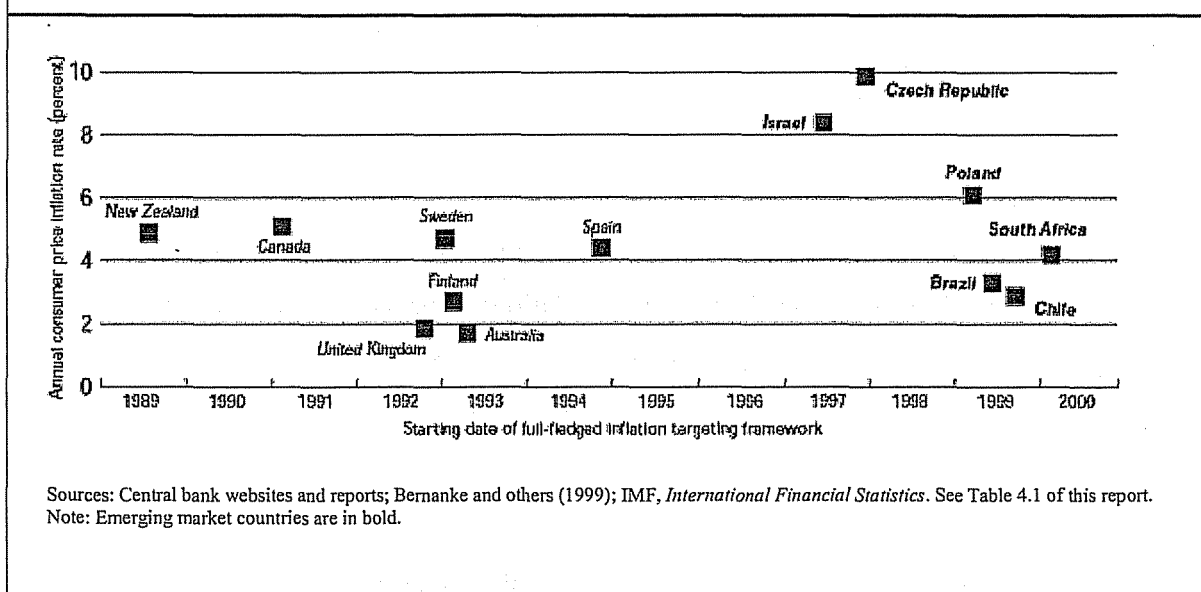
Inflation targeting has replaced previous frameworks such as the exchange rate and monetary aggregates. Although initial inflation targeters were industrialised countries, more recently an increasing number of emerging market countries has also adopted this framework. This was motivated in part by the apparent success of inflation targeting countries in achieving and sustaining low and stable levels of inflation. This perception of success has generated some measure of interest in the regime from a cross-section of developing countries.

Given the high levels of inflation in Zambia[1], monetary policymakers seem to identify a role for inflation targets in developing the credibility of monetary policy. King (1997) identifies a number of subsidiary issues that have come to be associated with the strategy of inflation targeting, such as the accountability and transparency in monetary policy which appear to have helped underpin credibility. These have been at the centre of much debate on the feasibility of this framework in emerging market countries.

Currently inflation targeting has generated some debate in Zambia for many reasons. Firstly, the country has had episodes of significantly high levels of inflation in the past and the experiences of lower and stable inflation in countries that have adopted the IT regime therefore seem appealing. Secondly, the central bank is seeking to enhance its credibility among economic agents in the policy arena by being predictable on its monetary policy stance. Thirdly, the policy pushes from the IMF for increased central bank independence, and transparency and accountability are also clearly at play. The fourth reason is that although the Bank of Zambia has no explicit target for inflation, it is in principle following an inflation targeting regime. This can be evidenced from the quarterly briefing (April 2006); "In view of these expected favourable economic developments, the Bank of Zambia's monetary policy measures will be focused on mitigating any inflationary pressures that may push money supply growth in such a manner as to threaten the inflation objective". In another address, the governor indicated the objective of monetary policy for the year 2006 was to bring inflation

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[1] Zambia is currently receiving technical advise from the IMF and is considering adopting an explicit inflation targeting framework in the medium term 5> years.

to single-digit figures. Given the above, it is no wonder that inflation targeting should generate interest for the monetary authorities in the manner that it has.

Attaining single digit inflation is currently the pre-occupation of the monetary authorities in Zambia (Bank of Zambia, 2005). There has been debate on whether this objective can be achieved under the current monetary policy framework. The debate has mainly centred on whether inflation targeting is a more credible framework in meeting this monetary policy goal. The history of high inflation led to a general loss of confidence in the economy and created uncertainties in the business environment. In contrast the inflation rate in South Africa reached an all time low of 1.4 per cent by the end of 2004, the lowest since 1963 just two years after adopting inflation targeting. This achievement has heightened debate on whether inflation targeting is a more efficient and effective framework for the operation of monetary policy. Many studies on inflation targeting have so far concentrated on inflation targeting as a framework for monetary policy in developed and emerging countries. In this regard, it is necessary to survey the feasibility and applicability of inflation targeting for small open economies like Zambia.

This paper evaluates the feasibility, effectiveness and applicability of inflation targeting (IT) in Zambia as an alternative framework for the conduct of monetary policy. The paper will further attempt to ascertain how advisable the framework is in the context of Zambia. It will seek to achieve this by using a comparative analysis of two case studies on Zambia and South Africa. This approach has got appeal for two reasons; the first is that South Africa is the only country in Africa which has so far adopted an IT regime while the second is that South Africa is the biggest trading partner for Zambia and hence developments in that economy are closely monitored.

This study argues that inflation targeting is a feasible framework for conducting monetary policy in Zambia but only under conditions where the credibility of the central bank is enhanced, transparent and accountable. It further suggests that IT may help with controlling inflation and maintaining it at low and stable levels owing to its ability to anchor rational expectations of economic agents and therefore affecting their price and wage setting behaviour in the presence of a transparent policy stance by the central bank. The paper

concludes that IT is advisable and applicable in Zambia but certain conditions which make it more effective are currently not present.

The scope of this study is limited to Zambia and South Africa in order to compare what lessons can be learnt from South Africa given its apparently impressive management of inflation since the adoption of inflation targeting regime[2]. On the other hand, Zambia has persistently experienced high inflation even by African standards. The study will not undertake a detailed analysis of welfare effects and sources of inflation but seeks to explore the feasibility IT framework in conducting monetary policy in Zambia. It assesses the efficacy and potency of the transmission mechanisms under interest targeting as opposed to money stock targeting and check for its perceived effectiveness in controlling inflation in Zambia. The paper does not build any models but uses already existing models as an analytical framework for investigating the research topic.

The paper is organized as follows: the next section will explore available literature and the theoretical foundations together with a review of empirical support for inflation targeting. In chapter 3, the paper briefly analyses the history of monetary policy and the different approaches that have been used for its exercise in South Africa including the current IT models and their attendant transmission mechanisms. The chapter further looks at the rationale for adopting IT and a review of the evidence of its success in South Africa. Chapter 4 discusses the structure of the financial system in Zambia followed by the nature and background of monetary policy together with the financial model that underpins its operation. The remainder of the chapter is devoted to explaining the performance of inflation, instruments of monetary policy and the role of the central bank. Chapter 5 provides an analytical evaluation of the sources of inflation in Zambia and examines the effectiveness of monetary policy instruments and the potency of the transmission mechanisms. Specifically, it casts light on the feasibility and advisability of the IT in Zambia particularly searching for the presence or absence of the pre-requisite conditions for its effective operation. It further provides an assessment of the effectiveness of the hypothesized channels of monetary policy

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[2] However, inflation levels were already on a downward trend prior to the adoption of the IT framework in Feb 2000.

transmission mechanisms and how responsive these are to changes in the official bank rate. The chapter ends with an evaluation of the implications of the central bank independence for the adoption of IT. Simple linear regressions will be used to check for robustness of these relationships. Conclusions alongside key policy implications are the subject of chapter 6.

2.0   A Survey of Literature

2.1   Introduction

This chapter seeks to highlight some of the major theoretical and empirical arguments in the literature on inflation targeting. It first defines inflation targeting and then discusses the issues in IT while the last part focuses on IT debates with specific emphasis on the nature, rationale and empirical support for Inflation targeting.

2.2   The Meaning of Inflation Targeting

Inflation targeting literature has defined IT as the framework for monetary policy characterized by the public announcement of official quantitative targets or a range of targets for the inflation rate over one or more time horizons, and by explicit acknowledgments that low, stable inflation is monetary policy's primary long-run goal (Mishkin, 2000). There is general agreement among proponents that inflation targeting puts price stability as the primary objective of monetary policy. However, some do not see zero inflation as the ultimate and in this respect; others prefer a point target while some go for the band inflation target. In such a framework, monetary policy works in part by influencing inflation expectations. Since inflation targeting clearly specifies the inflation objective and commitment to achieving this objective, it can help to anchor the public's inflation expectations. This also provides an anchor for future inflation expectations and plays a role in influencing the setting of price and wage levels. It must however, be noted that a mere shift to the inflation targeting framework does little in its own but there needs to be a demonstration of commitment in the way monetary policy is conducted. Advocates of IT argue that this is crucial because even if public commitments can help in forming expectations, these can only be credible so far as the conduct of monetary policy is consistent with them (IMF, 2001).

2.3   Theoretical Foundations for Inflation Targeting

Over the past decade there has been a dramatic shift in thinking about monetary economics and therefore the practice of monetary policy. Many advances have been made in the management of monetary policy as well as in theoretical and empirical research. At a theoretical level, these developments have resulted in a simple framework that incorporates

inter-temporal optimizing behavior, rational expectations, and temporary price rigidities in which monetary policy have both short-term (or temporary output effects) and long-term (or permanent price effects). This model is generally referred to as the New Keynesian model and widely used to assess the desirability of alternative monetary policies (Gali and Gertler, 1999).

Inflation targeting falls within this New Keynesian approach to monetary economics and is used to evaluate alternative frameworks for the exercise of monetary policy to money supply aggregates. Because of the perceived dismal performance of the monetary aggregates and the recognition that monetary authorities cannot control the cash base of the system in a more direct quantitative sense to achieve low and stable inflation, attempts have been made to find a more suitable and reliable framework for controlling inflation. High inflation has always been viewed as damaging to the economy although it is not clear at what levels this is so and the evidence in support of this view remains inconclusive. Given the above, many central banks strive to bring inflation to lower and stable levels for among other reasons, the need to attract investments and also to foster an environment where economic agents can plan with some degree of certainty. The implicit argument for low and stable inflation is the need to provide a stable macroeconomic environment.

In this regard, the assumed success with which inflation targeters have managed to lower inflation is a source of envy for many central banks particularly those with high levels of inflation. For instance, New Zealand, Canada and the United Kingdom experienced significant decreases in inflation levels following the adoption of IT regime (FRB Policy Review, 1997). However, counter-arguments have been advanced that this success could still have been achieved under any other monetary policy framework since even non-inflation targeters were able to achieve the same levels of inflation. Cecchetti and Ehrmann (1999), attribute the falling inflation rates to the generally benign global economic environment of the 1990s given the minimal performance differences between targeters and non targeters in their study. However, even when global factors are controlled for, the performance of inflation targeters is still better than for non-targeters (IMF, 2006)

In the discussion of the inflation targeting model, the traditional interest rate channel is used to explain the effects of monetary policy where a change in interest rates affects the liability side of spending decisions at both household and firm levels. Thus this channel is assumed to operate through aggregate demand only (Svensson, 1997a). Another postulated channel that has received considerable attention in recent years is the credit channel. It stresses the existence of frictions (such as limited participation) and information asymmetries (that lead to adverse selection and moral hazard) in the financial markets as an important source of monetary non-neutralities. This channel has the potential to affect the spending decisions of firms by affecting their net worth- the financial accelerator mechanism, and their production decisions by affecting their cost of production through bank lending thereby having effects on both the demand and supply side (Bernanke and Gertler, 1995).

The discussion of the bank lending channel or cost channel is necessary as it provides some insights on what should be the primary goal of monetary policy and which variables the central bank should target to achieve this goal. In the recent past, a consensus has emerged among economists that the ultimate goal of monetary policy should be to focus on promoting long-term price stability in the economy and that there are gains from credibly committing to a rule based monetary policy framework (Clarida, Gali and Gertler, 1999).

On the other hand, knowing the relative significance of the cost channel is useful in a number of ways. First it enhances our understanding of the link between the financial and real economic sectors while also providing alternative indicators to measure the stance of monetary policy and therefore increases its ability to offset particular types of adverse shocks. The second aspect is that a clear understanding of the transmission mechanism has the ability to provide more information regarding the choice of intermediate targets. Christiano and Eichenbaum (1992), Christiano, Eichenbaum and Evans (1997, 2001) and Barth and Ramey (2001) have argued that the cost channel is a powerful collaborator of the traditional channel in the transmission of the short run effects of monetary policy.

This is important in two ways in regard to inflation targeting regime since the central bank faces a trade-off between stabilising inflation and output gap in the presence of both demand

and cost push shocks. This however, sharply contrasts with the results in Clarida, Gali and Gertler (1999) who argue that the central bank is perfectly able to offset the demand shock and only faces an inflation and output gap volatility trade-off where there is a cost push shock. However, when the cost push channel is operating, an increase in nominal interest rates to counter the effects of a positive demand shock not only reduces the output gap and hence reducing inflation but also increases inflation directly. In such circumstances the central bank is better off trading some volatility in the output gap for reduced volatility in inflation. Also the presence of the cost channel increases the gains from commitment. Moreover, the outcome of optimal commitment monetary policy is superior compared to optimal discretionary policy even in the absence of an inflationary bias and persistence in the shock processes. Emphasizing on the importance of forward-looking behaviour, the standard New Keynesian model predicts that the central bank only gains from commitment when the cost-push shock exhibits some persistence (even if there is no inflation bias).

An increasing number of countries have accordingly adopted explicit inflation targeting and a substantial body of literature has emphasised the advantages of this approach as a framework for monetary policy[3]. Using this approach, central banks attempt to achieve a target range of inflation at the expense of neglecting the impact that monetary policy creates on other economic variables. Presently many more countries are considering implementing inflation targeting (Mishkin and Schmidt-Hebbel, 2001).

2.4   Price Level or Inflation Target and Their Implications
Under an IT framework, there is need to set targets that are considered accurate, timely and readily understandable by the public. Most central banks that have adopted inflation targeting have embraced inflation targets rather than price level target. Both price level and inflation targeting imply a targeted path for the price level. The main difference between the two is that with an increase in prices, price level targets would need an offsetting decline in prices whereas inflation targets would only require a cessation of the increase. Inflation targets allow for more policy flexibility in responding to (one-time) supply shocks since no price

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[3] See Leiderman and Svensson (1995), Bernanke and Mishkin (1997), Bernanke et al. (1999), Schaechter, Stone and Zelmer (2000), Corbo, Landerretche and Schmidt-Hebbel (2001), Mishkin and Schmidt-Hebbel (2001), Neumann and Von Hagen (2002), Benati (2003), and Svensson and Woodford (2003).

deflation[4] is required. For this reason, inflation targets are seen as more realistic politically and thus, more credible. But since offsetting deflation is not required by inflation targets, these targets also tend to embody base drift[5] and greater longer term variance and uncertainty of prices. However, with respect to an inflation target, a price level target has the advantage of helping to pin down price level expectations over very long time horizons but has the potential of increasing volatility of price level in the shorter term.

Countries adopting explicit inflation targets generally have specified target bands (or tolerance intervals) rather than point estimates for their inflation targets. These bands allow for the realities of measurement imprecision as well as unexpected shocks to specific prices. Accordingly, existing inflation targets normally have a tolerance width of about two percentage points. In addition to tolerance bands and above-cited adjustments to the CPI, some countries (e.g., New Zealand) have provided for escape clauses which allow for further modifications or exceptions in cases of special circumstances (MaCallum, 2001). These features all help to make adherence to explicit targets more believable and hence more credible.

2.5   Nature and Rationale of Inflation Targeting

Many central banks have traditionally been using intermediate targets such as monetary aggregates or exchange rate to achieve the goals of low inflation and sustainable growth. Under this framework, it is assumed that both the intermediate target is controllable and that there is a reliable relationship between the intermediate target variable and the ultimate goals.

This approach to monetary policy has delivered mixed results with some countries being successful while others not. A number of reasons have been advanced why this approach has not uniformly performed for all countries. One being that the central bank cannot pursue both goals of high output and inflation at the same time. The other is that focusing on two goals simultaneously results in conflicting signals of monetary policy and therefore creates uncertainty among the public and undermines the credibility and potency of any anti-inflation

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[4] This also results in less real economic disruption.
[5] This refers to an ever increasing price level.

policy especially at a time when the public's confidence is crucial for it to work. The last reason is that intermediate variables affect output and inflation in different ways.

Inflation targeting is seen to help in alleviating these problems. Because it explicitly states its primary goal of maintaining low and stable inflation, this reduces uncertainty about the priority of alternative policy goals. In addition it eliminates the question of the stability of the relationship between intermediate targets and the objective of price stability becomes irrelevant, since price stability is being targeted directly while money aggregates and exchange rates are merely taken as indicators of market conditions. The main arguments and rationale for IT evolve around the following:

2.5.1 Nominal Anchor

The rationale of inflation targeting as an anchor for monetary policy decisions is that under such a framework, interest rate rise or fall in response to the need to achieve the inflation target set (Mishkin, 1999). In the absence of such an anchor policy actions tend to be haphazard in the face of short-term economic disturbances in the process becoming inconsistent with long-term goals. He further argues that under a nominal anchor like IT, policy is bound to a long-term goal of price stability. The pursuit of such a goal dampens inflation expectations while allowing for the flexibility needed to respond to short-term disturbances (Agenor, 2000). The limited success of traditional nominal anchors such as monetary aggregates and exchange rates prompted the shift to an explicit inflation targeting framework.

2.5.2 Transparency and Accountability

Bernanke (2005) observes that inflation targets have the capacity to improve monetary policy and the accountability of the policymakers. By announcing the inflation targets, the intentions of the central bank are clarified and this reduces uncertainty about the future course of monetary policy. Khan (2003) contends that infact transparency promotes the predictability of monetary policy and that the announcement of numerical targets in a transparent manner gives the public a better indication of both the short and long-term goal of monetary policy because these can be easily understood and are unambiguous. In the case

of RSA the band target for inflation is 3-6 per cent and the objective is to bring inflation within this band (Casteleijn, 1999). The more precise the target the easier it is to ascertain if a target is achieved or not. Where the target is missed, policymakers are obliged to give an explanation for target misses. The argument for this is that it enhances the transparency of the framework (Masson, Savastano, and Sharma, 1997).

Like Calvo (1999a), critics of IT contend that inflation targets act as a strong incentive for policymakers to achieve the target at the expense of other goals of output and employment. For example, this can occur if world oil prices were to rise significantly, and the central bank reacts by raising interest rates which in turn dampen aggregate demand in the economy. In addition inflation targets enhance accountability of policymakers and help discipline monetary policy (Debelle, 2001). This is done by making it easier to assess whether policy has been successful or not. In cases where the targets are missed policymakers can be called to account for the deviations in target

2.5.3   Enhancing Credibility

Another rationale for inflation targets is that accountability and transparency potentially enhance credibility of the central bank (Mishkin, 1999). They are crucial in providing public understanding of the goal of monetary policy and the central bank's commitment to that goal. Credibility is crucial in central banking since it affects the way the public formulates future expectations about inflation. Where economic agents are convinced with the seriousness of the central bank's commitment to combating inflation, they are likely to respond by accepting lower increases in nominal wages and factor lower inflation and inflation risk premiums into asset prices. This lowers interest rates and induces the public to become more willing to make long term commitments on the basis of economic fundamentals instead of inflation expectations.

Moreover, such credibility can be enhanced by more effective communication with the markets and the general public on the part of the central bank. This "credibility effect" can help reduce the loss in production and higher unemployment that typically accompany tight monetary policies designed to reduce inflation pressures. The greater credibility enjoyed by a

central bank under an IT regime could be an important benefit bestowing advantages on the entire economy.

2.6   Central Bank Independence

The pursuit of price stability as the sole prime goal of monetary policy requires that the central bank must have a high degree of independence. Arguments for central bank independence lie in the choice and manipulation of policy instruments than in the choice of the target. This implies in particular, the ability to resist political pressures to stimulate the economy in the short term. Another aspect is the absence of fiscal dominance where fiscal policy considerations do not have an overriding influence over monetary policy. Such requirements are however, difficulty to satisfy in cases where the reliance on seignorage as a source of government revenue is significant. This is common in developing countries like Zambia where government borrowing from the central bank is large[6]. Agenor (2001) observes that in such cases the fiscally induced inflationary pressures nullify the effectiveness of monetary policy, for instance, by keeping low interest rates in order to prevent unsustainable public debt dynamics. In this case, central bank autonomy is encouraged through legislation to grant the authority for an independent pursuit of price stability.

It is generally accepted that there are two important institutional pre-conditions required for the successful implementation of inflation targeting (Agenor, 2000 and Khan, 2003). These are to do with the relationship between the government and the central bank:

- the task/burden of financing government deficits by the central bank must be minimal
- And the central bank must have a strong degree of independence, especially instrument independence.

2.7   Implied Monetary Transmission Mechanism

The achievement of price stability relies on effective channels of transmission. Monetary transmission mechanism (MTM) is defined as the path of the transmission of the central bank

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[6] For a detailed analysis of the seignorage funding see tables in the annex. In addition where the financial system is severely weak, the central bank may be forced to repeatedly inject substantial amount of liquidity to support ailing banks thus hampering its ability to conduct an independent monetary policy.

actions to output and inflation (Thenuwara, 2002). MTM is thought of as a group of reduced form relationships among central bank actions, its impact on interest rates, exchange rates, aggregate demand and supply and finally inflation.

According to Thiessen (1996) as cited in Thenuwara (2002), MTM is thought to take place in four stages. The first stage is where the central bank actions affect short term interest rates through the banking sector liquidity. In the second stage, short-term interest rates affect the rest of the interest rates and the exchange rates. The third channel of transmission is where interest rates and exchange rates impact on aggregate demand and supply and ultimately inflation. As indicated earlier these changes will manifest through cost of capital, changes in inter-temporal substitution and wealth effects. The cost of capital affects the purchases of durable goods, investment in housing, business investments on plant and equipment as well as inventory. An increase in interest rates reduces the present value of any expected income stream and has the effect of dampening consumption generally. The action by the CB to influence the repo rate triggers a series of events. Economists refer to this chain of events as the transmission mechanism of monetary policy. The main links of this transmission mechanism are depicted in the flow chart in the diagram below.

Figure 2: Monetary Transmission Mechanism
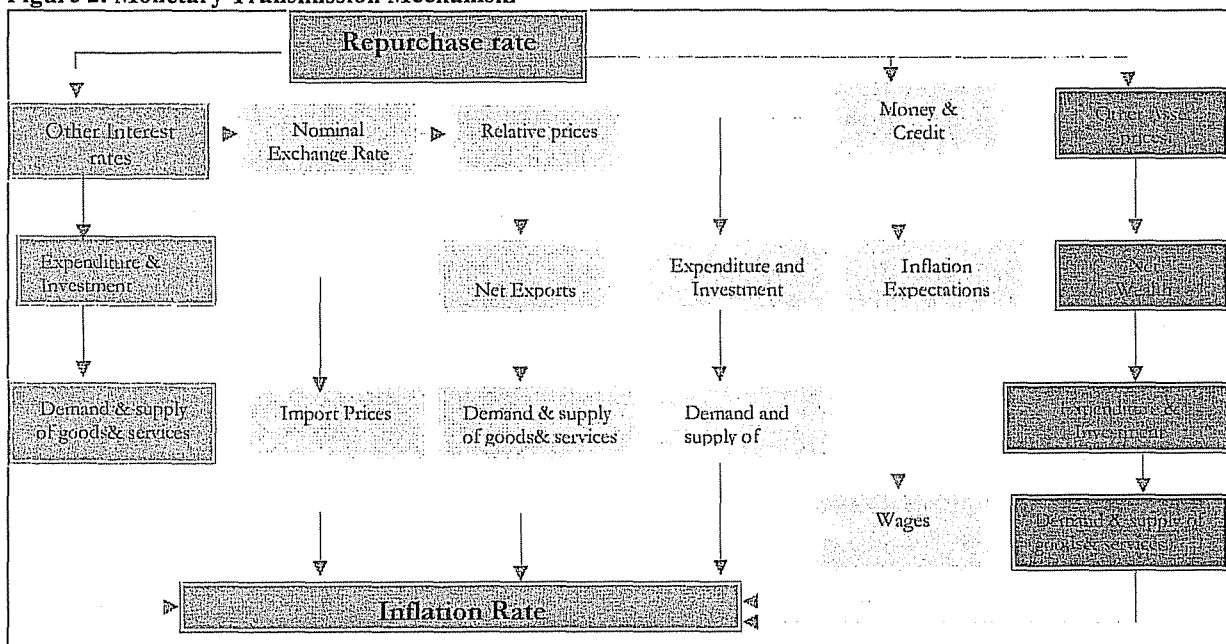
Source: Reserve Bank of South Africa, 2002

The repo rate[7] has direct effects on other variables in the economy, such as interest rates, the exchange rate, money and credit, other asset prices and decisions on spending and investment. As such, any changes in the repo rate are assumed to affect the demand and supply for goods and services. The pressure of demand relative to the supply capacity of the economy is a key factor influencing domestic inflationary pressures. In this case the interest rate channel is assumed to be the main vehicle through which policy will be relayed to the real economy.

2.8   The Model of Implied Monetary Transmission Mechanism

Taylor (1993) developed the rule as a suitable formulation to set nominal interest rates in reference to a change in domestic growth (or output gap) and the deviation in current rate of inflation from the rate specified in the inflation target. The adapted Taylor rule usually used is similar to that used by the BoE (Westaway, 1999:30) and is specified as follows:

$$I = r + \pi_t + \lambda_1 (\pi_t - \pi^*_t) + \lambda_2 (y_t - y^*_t) \tag{1.0}$$

The modified Taylor rule implies that nominal interest rates (i) are a function of the equilibrium real interest rate (r), the current inflation rate (t), current inflation less the inflation target $(\pi_t - \pi^*_t)$, and the output gap specified as the excess of actual output over potential output $(y_t - y^*_t)$. In this simplified rule, the responsiveness of nominal interest rates to the deviation of the inflation from target, and the output gap is determined by the weights λ_1 and λ_2. In this model, simulations done indicate that the initial impact of the raised level of interest rate will be to lower real domestic demand in particular consumption and investment, and consequently real GDP output(Casteleijn 2000). Further, since the exchange rate is endogenous in the model, the rise in the repo rate changes the interest rate parity differential between domestic and foreign interest rates, and in this case serves as a means to attract foreign funds. These capital inflows cause the exchange rate to appreciate and the relative prices of imported goods to decline.

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[7] is the rate at which the Central Bank is prepared to provide overnight financing to commercial banks that are temporarily unable to meet their liquidity requirements.

Inflation targeting is therefore seen as offering monetary independence and allowing monetary policy to focus on domestic considerations in contrast to multiple goals like the exchange rate targets and output. The primacy of price stability also means that central banks which pursue inflation targeting can easily respond to shocks given the ability of the central bank to use interest rates as a tool for conducting monetary policy. Another aspect of inflation targeting is that velocity shocks are eliminated fairly easily because central banks do not have to stick to a certain hypothesized money-inflation relationship. Nevertheless the stability of the money multiplier through the control of base money [8] is a necessary condition for an appropriate monetary targeting. Although both inflation and monetary targeting enable monetary policy to focus on domestic considerations, inflation targeting offers more flexibility and discretion due to the implicit resistance to velocity shocks in instances where interest rates are not the major channel of transmission. Another advantage of inflation targeting usually cited is its transparency. This is important since it enables the public and other economic agents to easily monitor current and future developments in inflation.

In theory, inflation targeting also confronts the uncertainty in forecasting inflation. In order to minimize the cost of credibility, many inflation targeters perform inflation forecast and attempt to foresee future trends. But due to the variability in inflation rate and its sensitivity to a number of shocks, these forecasts may quite often be inaccurate. However, in many countries, forecasting still offers the most appropriate way to reveal the implicit lag problem of monetary policy and hence inflation targeting. Like Bowen (2001) suggests "the most appropriate guide to monetary policy is the best obtainable forecast of the probability distribution of inflation, over a time horizon defined by how long it takes for a change in monetary policy to affect inflation."

2.9   Empirical Support for Inflation Targeting

Although theoretical literature has argued that inflation targeting has several benefits, there is no clear empirical support for this view. In comparison to theoretical contributions, there are relatively few empirical studies on inflation targeting. Neumann and von Hagen (2002) conducted a study to examine the changes that occur in levels of inflation after adoption of IT

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[8] It is usually assumed that the central bank has the ability to control money velocity by limiting money growth.

regime. They confirm that IT makes a difference and reduces inflation to low levels and curbs volatility of inflation and interest rates. In the case of Germany and Switzerland, they conclude that it helped to reduce previously high levels of inflation and helped restore the credibility of the central banks. However, the study finds little evidence to support the view that IT is superior to strategies focusing on monetary aggregates.

Other studies conclude that IT reduces the premium on expected future inflation and increases the certainty with which inflation can be predicted because the public have confidence in the CB sticking to its announced inflation target (Corbo, Landerretche, and Schmidt-Hebbel, 2001; Johnson 2002, and Mishkin and Schmidt-Hebbel 2001). Taylor (1980) was one of the first to estimate the long run trade-off between variability of inflation and output. He concluded that any attempt to keep the inflation rate stable leads to fluctuations in real GDP, a result that is consistent with rational expectations and sticky prices[9]. Taylor (1994) revisited the issue, again to conclude in favour of a trade-off between variability of inflation and output, essentially because of slow adjustment of prices.

More recently, Mishkin and Schmidt-Hebbel (2005) find that inflation targeters experience significant improvements in performance relative to their own previous performance and relative to most non-targeters. Batini and Others (IMF,2006) state that although most countries have benefited from relatively buoyant growth and low inflation, those that adopted inflation targets have, on average, outperformed countries with other frameworks. But they also state that due to the relatively short period of time since the introduction of inflation targeting, these findings are merely suggestive rather than definitive.

The study by the IMF (2006), also finds that inflation targeting has been associated with a 4.8 per cent reduction in average inflation when compared with other monetary policy regimes (Batini et.al, 2006). It further states that IT has also been associated with a reduction in standard deviation of inflation as well as low inflation expectations (Ibid). But more importantly, the study finds no evidence that inflation targeters meet their objective of price

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[9] See also Fuhrer and Moore, 1995

stability at the neglect of output stabilisation. The study shows that output volatility was slightly lower for inflation targeters than for the non-targeters.

Many emerging market countries have implemented IT recently. Although they have implemented IT framework under distinct circumstances and country specific conditions, they have commonly achieved lower inflation rates, and inflation expectations (IMF, 2005). According to Mishkin and Bernanke (1999), these countries have experienced less "pass through" into the inflation rate of shocks to the price level and they have typically enjoyed lower nominal interest rates due to lower inflation expectation. A similar study by Levine and others (2004) suggests that IT central banks have been quite successful in delinking expectations from realised inflation. Batini and others (2006) provide evidence from their study that inflation expectations for targeters are between 2.1 and 2.7 percentage points lower than that for non-inflation targeters. The same study also confirms the tendency to deviate from expected inflation to be much lower for targeters than non-targeters. Current experience also shows that IT enhances the transparency of monetary policy and helps the public to understand monetary policy.

Fuhrer (1997) uses an optimal (weighted combinations of inflation and output) variance and finds evidence of a long run variability trade-off using US data. The optimal policy frontier implies severe increases in output and inflation variances when monetary policy attempts to decrease the standard deviation of inflation or output to below 2 percent (Ibid). But a number of empirical studies claim not to find any clear evidence in support of inflation targeting with regard to reducing inflation-output variability. Ball and Sheridan (2003) examine changes in the level and variability of inflation and output as well as persistence of inflation for seven inflation targeters and 13 non targeters and conclude that there is no significant evidence that inflation targeters performed better than non targeters.

Cecchetti and Ehrmann (1999) estimate the change in the preferences of monetary policy makers in 23 industrialised and developing economies, including nine that had adopted inflation targeting. They find that inflation targeting countries exhibit an increase in the

weight attached to inflation variability by policymakers[10]. Non-inflation targeting countries also increased their aversion to inflation targeting variability, but by slightly less than the inflation targeters. However, this resulted in high output variability.

In contrast, Batini and Haldane (1998) show, through a calibration analysis on the UK economy, that inflation targeting has the potential to smooth both output and inflation variability. Amano et al (1999) performed a similar analysis on the Canadian economy. They employ a small rational expectations macroeconomic model with sticky prices and forward looking economic agents to argue that inflation forecast based rules have a tendency to minimize inflation and output variability in an efficient manner than the standard Taylor rules (See Taylor, 1993) and are as efficient as fully optimal rules. They, however, acknowledged that 'inflation targeting was an embryonic monetary framework whose performance was yet to be properly evaluated' (Batini and Haldane, 1998, p. 42). Svensson (1998) examines inflation targeting using an open economy model. Ball (2000) also did a similar study. Employing sensitivity analysis, he demonstrated that a flexible inflation targeting policy lacking a serious concern of the monetary authorities with output, interest rate and exchange rate variability, may be a preferable alternative.

Most empirical studies on the performance of inflation targeting regimes are based on sensitivity analysis of dynamic general equilibrium models. In addition, these studies have concentrated on the relationship between the unconditional standard deviation of the output gap and inflation. They have tended to focus on the long-run variability trade-off. A number of cross-country empirical studies have confirmed a weak or even absence of the inflation-growth trade-off. Gosh and Phillips (1998) find that at low inflation rates there is a positive inflation-growth correlation, and a negative inflation-growth relation for higher inflation rates. This negative relation they find is non-linear whereby the marginal effect is stronger at lower rates than at higher ones. For Judson and Orphanides (1998), they find a negative inflation growth effect for a large panel but this turns out to be insignificant for rates below 10 per cent.

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[10] It is thought that these countries were forced to behave more like inflation-targeting countries throughout the 1990s.

The most frequently cited is Bruno and Easterly (1996) and was followed by another in 1998. Khan and Senhadji (2000) find a significant negative effect of inflation above a 1 per cent threshold level and 11 per cent for industrial and developing countries respectively. Below these thresholds, the inflation growth effect is positive. Other studies find that inflation and economic growth are positively related but the sensitivity of inflation to changes in growth is much more significant than that of growth to changes in inflation rates [11](Malik and Chowdury, 2001).

2.10 Summary

Although most literature suggests that inflation targeting has been successful since its inception, there are still questions regarding the costs that come with its perceived success and adoption. In particular, the extent to which there is a trade-off between variability of inflation and of the real economic activity is an issue that cannot be resolved on merely theoretical grounds. The emerging empirical difference in the inflation targeting literature can be attributed to the small number of inflation targeting countries and the short period under which this framework has operated. As such further empirical investigations of inflation targeting can provide an evaluation of what has so far been done and a sensible suggestion about what might happen under an inflation targeting framework. However, for the time being this framework is gaining popularity as a useful alternative to monetary aggregates in the conduct of monetary policy.

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[11] Cointegration analysis of inflation on growth for Bangladesh, India, Pakistan and Sri Lanka

3.0   Inflation Targeting: The South African Experience

3.1   Introduction

This chapter analyses the performance of IT policy and seeks to show evidence of the success of the implied transmission mechanisms in South Africa under the IT regime. It also evaluates the evolution of monetary policy in South Africa. In particular, it examines the historical trends of inflation in comparison with other countries within the Southern African region.

3.2   Adoption of Inflation Targeting in South Africa

The De Kock Commission of inquiry on monetary system and monetary policy in RSA (De Kock, 1985) set the tone for monetary policy implementation during the 1980s.The belief at the time was that maximum economic development could only be achieved and sustained under a stable financial environment (Stals, 1997). The De Kock report concludes by stating that higher inflation impedes real economic growth and employment in the long run and that balance of payments objectives, growth and employment can best be supported by maintaining a climate of reasonable price stability (De Kock, 1985: A10).

South Africa was for the most part during this time largely isolated from global economic conditions due to sanctions. Van de Merwe (1997) notes that the pursuit of price stability was made even more difficult because the complex transmission mechanisms of monetary policy had become weakened by these changing world economic conditions that had now started to influence the variables within the RSA economy. Under these liberalised conditions, the relationship between interest rate changes, money supply and inflation rate had become severely obscure than was the case when South Africa was isolated from external foreign influences. Because of the increase in international capital flows, the effect of changing domestic interest rates started to reflect the change in the external value of the rand, i.e. the exchange rate.

In essence, it was these changes in the transmission mechanisms of monetary policy that eventually undermined the credibility of the money supply as the intermediate guideline of

monetary policy. It had become apparent that changes in money supply were less reliable as an indicator of underlying inflation, and therefore a less reliable anchor for monetary policy.

Under this framework, developments in the monetary aggregates were still considered important elements in the inflation process but developments in other financial and real sector indicators were also monitored in arriving at decisions on the appropriate levels of short term interest rates. In an effort to ensure that financial instruments are more flexible and that interest rates must react more quickly to the periodic changes in the financial markets, the SARB introduced the repurchase rate (repo) in 1998 (Ibid). The repo system was seen as more transparent than its predecessor because it continuously signals the SARB's policy intentions through regular disclosure of the amount of liquidity that the bank was willing to make available on the daily tender to the banking institutions. The amount of liquidity provided by the bank was a very important policy signal. The table below highlights the evolution of monetary policy conduct in RSA.

Table 1: Evolution of Monetary Policy in South Africa

Years	Monetary Policy Framework
1960 – 1981	Liquid asset ratio-based system with quantitative controls over interest rates and credit
1981 – 1985	Mixed System during transitio
1986 – 1998	Cost of cash reserves-based system with pre-announced monetary targets (M3)
1998 – 1999	Daily tenders of liquidity through repurchase transactions (repo system), plus pre- announced M3 targets and informal targets for core inflation
2000	Formal Inflation Targeting

Source: SARB website(2006)

Until 1981, monetary policy relied on liquid ratio based system with quantitative controls over interest rates and credit in the economy. The phase that followed adopted a mixed system followed by cash reserve based system with pre-announced intermediate targets for broad money (M3). The period 1998-1999 saw the introduction of the repurchase

transactions commonly known as the repo system. At the same time, informal targets for core inflation were introduced before moving on to the formal inflation targeting framework in 2000. The informal inflation targeting framework had achieved considerable success in bringing down the inflation rates to lower levels. With consumer price index inflation fluctuating around the 15 per cent mark in the later part of the 1980s and the early part of 1990s, it subsequently hit the single digit in December 1992 before further declining to an annual average rate of 5.2 per cent by 1999 (Van der Merwe, 2004). Figure 2 below captures the trends discussed above.

Figure 3: Historical Trends of CPI in RSA
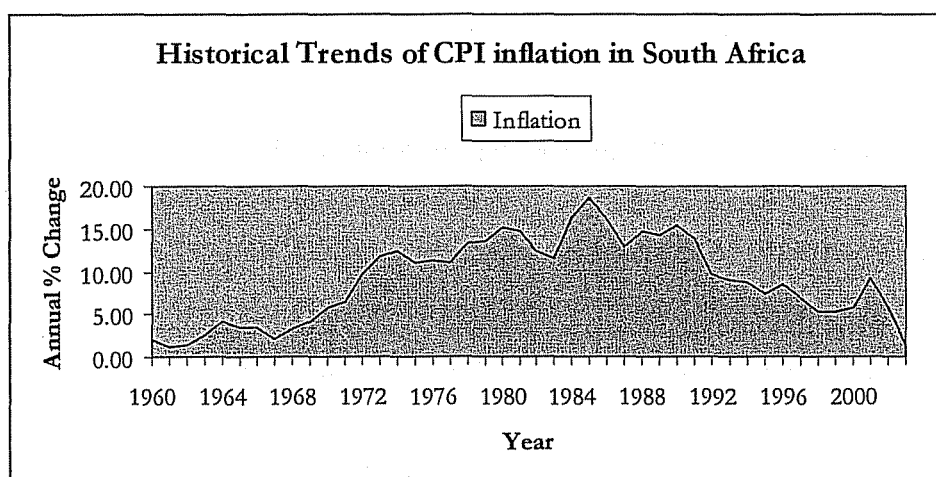
Source: World Development Indicators (2005)

South Africa's IT framework is characterised by the public announcement of the official target ranges for the inflation rate over specific time periods. Government sets the inflation target in consultation with the SARB and the National Treasury. This means that the bank does not have autonomy in deciding the inflation target[12] but is allowed independence in the monetary policy decisions aimed at hitting the target. In the case of South Africa, inflation targeting has impacted on monetary policy in a number of ways (Mboweni, 2005).

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[12] This implies that the bank does not have goal independence but does have instrument independence.

IT has strengthened the SARB's mandate to focus on price stability. Because the numerical inflation target has become the overriding objective of monetary policy, it has created more certainty about the monetary stance and has made the ultimate objective of monetary policy transparent. The SARB's transparency, accountability and communication have been mutually reinforced with inflation targeting. In previous policy regimes there was no explicit benchmark against which performance could be objectively measured. Transparency and communication have also been enhanced by creation of monetary policy forums where business, labour and the academic sectors discuss monetary policy with members of the SARB, publication of the bi-annual inflation report, the monetary policy review and statements issued after every Monetary Policy Committee meetings and various presentations by senior SARB officials.

In the application of inflation targeting in South Africa, allowance was made for serious supply shocks. Some discretion must therefore be used in order to avoid costly losses in output and jobs. But also important is not to forego the discipline of inflation targeting by use of unconstrained discretion. The challenge therefore is to apply monetary policy framework while maintaining some degree of flexibility in its approach.

By adopting a forward-looking approach, IT should allow monetary policy to reduce variability in business activity and smooth out the growth trend. Previously, monetary policy had a "stop-go" phenomenon where monetary policy was tightened only when inflation had clearly risen. Policy was reactive and did not employ pre-emptive measures such that it was only changed when inflation had already been entrenched in expectations and therefore, wage demands. This called for higher interest rates and longer periods than might otherwise have been the case. This resulted in greater cyclical fluctuations making it difficult to control inflation to low and stable levels.

3.3 Evidence of Success of Inflation Targeting in South Africa

This section examines the available evidence on the success of the IT framework in South Africa. It evaluates this in terms of pre and post IT performance in inflation outcomes, transparency and credibility.

3.3.1 Pre and Post Inflation Targeting Record of Inflation

South Africa adopted the IT regime in February of 2000. The chart below captures the performance of inflation and growth in South Africa before and after the adoption of the IT regime. A visual inspection seems to confirm that performance has improved in both the average inflation outcomes and GDP. The inflation rate still showed resilience in the face of the 2002 depreciation of the rand in the absence of which, it could have been much better. In terms of GDP, the period under the IT regime posted higher GDP growth than any other period except for 1970-1974.

Figure 4: Pre and Post inflation Targeting CPI and GDP (Annual %)

Pre and Post IT CPI and GDP in South Africa
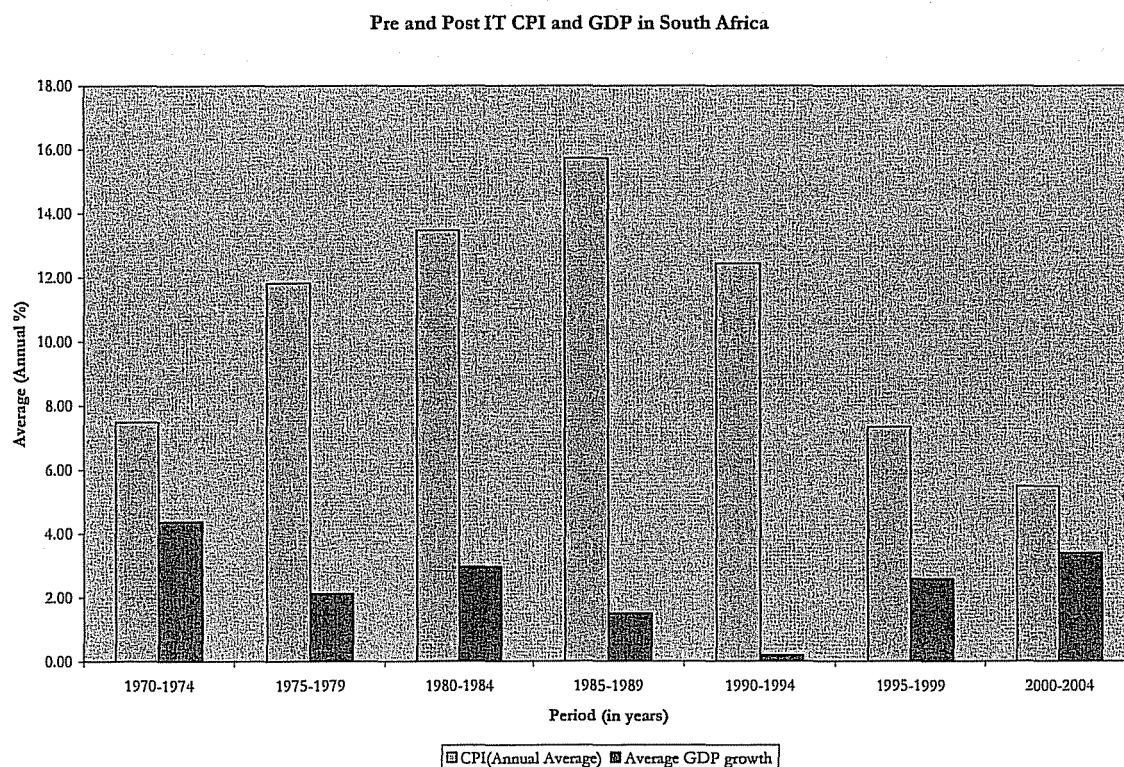
Source: Reserve Bank of South Africa Website (2003)

The table below shows the regional trends in inflation. RSA has performed relatively well compared to other countries in the region even before the adoption of inflation targeting but its average performance improved substantially after that relative to its neighbours.

Table 2 Comparative Inflation Rates in Southern Africa Region

Country	1997	1998	1999	2000	2001	2002	2003	2004	2005
Botswana	8.9	6.5	7.8	8.5	6.6	8	9.3	6.9	8.6
Lesotho	8.4	8.2	7.8	6.1	8	12.2	6.4	4.4	4
Namibia	8.8	6.2	8.6	9.3	9.3	11.3	7.2	4.1	2.4
South Africa	8.6	6.9	5.2	5.4	5.7	9.2	5.8	1.4	3.4
Swaziland	7.9	7.5	5.9	7.2	7.5	11.7	7.4	3.4	4.8
Zambia	24.4	24.5	26.8	26.1	21.7	22.2	21.4	18	18.3
Zimbabwe	18.8	31.3	58	55.6	73.4	133.2	365	350	237.8

Source: IMF Statistics database (2005)

It is also worthy noting that South Africa experienced a massive depreciation of its currency in 2002 but the inflation outturn tended back to its pre-crisis levels to record a better performance than its neighbours who did not have any crises.

3.3.2 Transparency

Central banks that have adopted an IT framework have placed a premium on transparent monetary policy- defined as the disclosure of information about monetary policy. Geraats (2002), Eijffinger and Geraats (2006) have recently surveyed a framework to asses how transparency changes under the IT framework of monetary policy using a total transparency index constituted by political, economic, procedural, policy and operational aspects of central banking. The results show that CB transparency in RSA has greatly improved under inflation targeting from a score of 5 in 1994 to 9 in 2004. The study reports that the score is likely to improve further as the institutional design of the system matures. When compared with OECD central banks, this performance is at par despite most of them having had the IT framework over longer periods of time.

3.3.3 Increased Credibility of Monetary Policy

Another way to measure the success of the IT regime is by examining the evolution of inflation expectations before and after its adoption and checking whether there has been convergence to the target. The aim is to assess how credible monetary policy is to agents. According to a survey conducted by the Bureau of Economic Research (BER) (Kershoff, 2000), inflation expectations came within the target range for the different agents surveyed and converged in the case of analysts. The graphs below capture the expectations excluding

the relevant reference rate, a simple proxy for backward-looking element of expectations. A successful reduction of inflation expectations is represented by values of less than zero since expected inflation falls below previously experienced inflation. Where IT is successful in bringing down inflation expectations, values should oscillate around zero. The result also confirms successful convergence to credible policy as reflected in negative values followed by a nudge towards zero. The survey concludes that monetary policy under the IT regime has been successful in anchoring agent expectations of future inflation and interest rates.

Figure 5: 3rd Q CPIX Inflation (One year ahead and Expected Inflation Shift
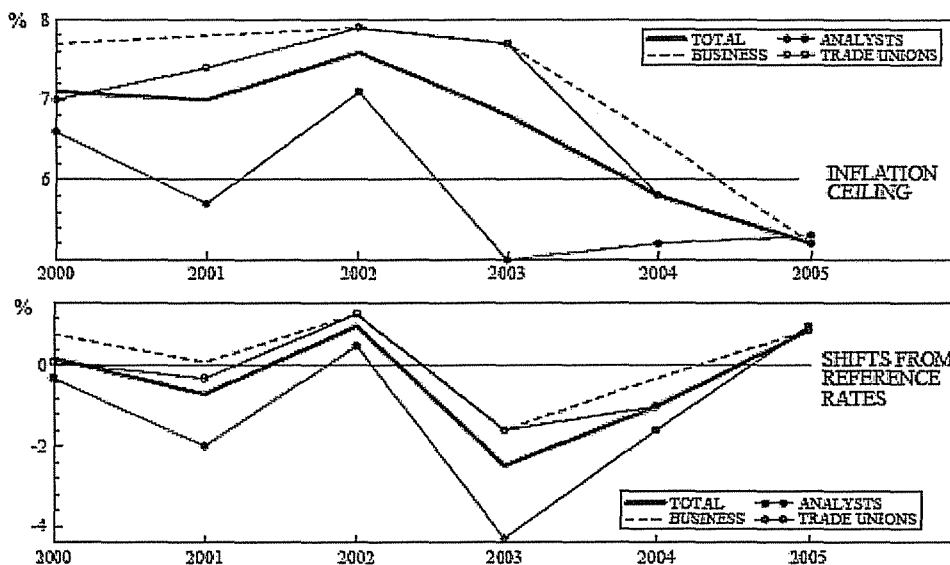
Source: Inflation Expectations Survey, Bureau of Economic Research, University of Stellenbosch.

3.4   Summary

In order to understand the effectiveness of IT in South Africa, the chapter discussed the evolution and performance of monetary policy in combating inflation followed by the reasons why the South African reserve bank opted to adopt this framework. The evidence of the success of the IT regime is measured in terms of inflation outcomes and GDP growth rates. Both variables have shown improvements under the IT framework. The success is also measured in terms of transparency and credibility and an attempt was made to show how these variables have improved after the adoption of this new framework.

4.0   Monetary Policy in Zambia

4.1   Introduction

This chapter is organized into four sections. It discusses the nature and background of monetary policy in Zambia starting with the history of inflation. The next two sections will look at the financial system and the role of the central bank respectively while the last one looks at the monetary policy environment and implementation in Zambia.

4.2   Structure of Financial System in Zambia

Since independence, Zambia's economy was dominated by the state owned enterprises, price controls and trade protection. Under this environment, the financial sector and monetary policy were geared towards the provision of subsidized credit to state enterprises. On the other hand, monetary policy relied on administrative measures of credit and capital controls involving credit ceilings, interest rate controls and exchange controls as a way of channeling resources to the preferred enterprises. In the mid 1970s, macroeconomic performance had sharply deteriorated and major problems emerged in the financial sector. By the early 1990s it had become apparent the policy of subsidized credit and direct lending had become unsustainable.

As part of the overall macroeconomic reform, Zambia embarked on a programme of financial liberalisation in 1992. Interest rates, wages and prices were freed as a first step in the financial liberalisation process while government also embarked on an ambitious privatisation programme. Reforms were also instituted in the external sector which was liberalised in phases between 1992 and 1994. The first was to remove controls on capital account and this was followed by gradual but eventually complete deregulation of capital controls. Money markets were introduced for the first time in 1993 starting with treasury bill auctions and in 1995, daily auctions of credit and deposits to commercial banks were introduced. Another aspect of the reforms was the introduction of rediscount facilities and an active management of the statutory reserve requirements.

4.2.1 The Financial Sector

The financial system in Zambia is small and underdeveloped, and operates in the context of a low level of monetization. The ratio of M2 to GDP has been at a level of only about 15–20 percent over the last five years, compared with an average of about 35 percent for sub-Saharan African countries as a group (IMF Statistics, 2004). The financial system is dominated by the banking sector with assets amounting to about 90 percent of total financial system assets (Table 3). In terms of foreign equity participation, about three-fourths of the banking system capitalization is foreign. Dollarization is also high with about half of deposits and one-third of loans maintained in foreign currencies particularly the US dollar.

Table 3 Financial System Structure in Zambia
Zambia: Financial System Structure

Dec-02	Number of Institutions	Assets K'Billions	Assets % GDP
Banks	15	3,460	26.5
Non bank Financial Institutions			
Development and Savings Banks	2	253	1.9
Building Societies	3	37	0.3
Leasing Companies	10	95	0.7
Microfinance Institutions	98	....	....
Exchange Bureaus	45	....	....
Others (Investments/Venture)	4	....	....
Pension Funds	17	590	4.5
Insurance Companies	6	96	0.7
TOTAL		4,531	34.6

Source: Bank of Zambia

The banking system's total asset base stood at 30 percent of GDP in 2001 with a total of 15 commercial banks (Table above). The stock market is small with stock market capitalization equivalent to about 8 percent of GDP as of March 2002.

4.2.2 Financial Market Infrastructure

The money market in Zambia is traditionally concentrated in the overnight maturity segment, although there have been improvements in the longer-term maturity segment with more active use of loans of 2- to 14-day maturity (term money market). Use of longer-term maturity is, however, sporadic (IMF Report, 2002). The interbank market is usually characterized by excess liquidity. According to the same report, a general lack of short-term liquidity instruments to manage short-term liquidity, coupled with inadequate central bank smoothing operations and a punitive rediscount rate, has induced banks to prefer holding liquid funds in their current account at the central bank. Short-term liquidity is also demanded since banks want to have the possibility of buying foreign exchange at very short notice. Operating in a context of excess liquidity implies that the Bank of Zambia has to constantly withdraw liquidity in order to meet its operating target (commercial banks' current account with the BoZ). This constrained the ability of the central bank to manage liquidity since it does not have enough government securities to sterilise all the excess liquidity.

Another feature that has characerised the overnight interbank money market is significant interest rate volatility, due to a number of reasons including limited windows for funds at the BoZ, a costly rediscount facility, volatile flows of cash between the government and the private sector, and market segmentation. The interbank rates also exhibit a high degree of seasonality related to government flows and tax payments, with spikes concentrated at the end of each month. This is indicative of a cyclical reduction of available liquidity in the interbank market at the end of each month; as a consequence, a statistically predictable component of the liquidity forecasting exercise might not be adequately taken into consideration.

The interbank market is supplemented with a government securities market. The Bank of Zambia organizes the primary market for securities and maintains and processes all transactions relating to these securities. Although the CB is supposed to only act as the government debt-issuing agent, in practice it has a great degree of flexibility in determining the terms at which securities are auctioned and the amount issued as well as deciding the cut-off rate. Until March 2001, tenders were managed as uniform-price auctions where bidders

paid the price of the lowest acceptable bid. However, there has since then been a multiple-price tender system in place implying that the BoZ's larger responsibility of deciding the terms at which securities are auctioned has removed the incentive for efficient liquidity forecasting and cashflow management. In turn this has had the effect of hampering the ability of the central bank to forecast and fine tune liquidity in the system.

Although a secondary market for government securities exists, it is small mainly because investors prefer to hold securities to maturity. In the case of commercial banks, they typically purchase securities to meet their liquid asset ratios and secondly as an alternative investment to low quality private sector lending opportunities. Besides, securities offer sizeable income at minimal risk and as such are attractive to nonbank investors.

4.3   Monetary Policy Environment

The principal purpose of the Bank of Zambia's monetary policy is to ensure price and financial system stability (Bank of Zambia Annual Report, 2004). The focus of monetary policy on the single objective of price stability is crucial to convince savers and investors that, in making their decisions, they need not factor inflation risk. For this reason monetary policy mainly operates on the demand side of the economy and in this respect policy has a vital but more indirect role in allowing the economy achieve the longer-term goal of economic growth. This involves, in part, ensuring that demand in the economy grows approximately in line with the potential of the economy in meeting this demand.

The pursuit of price stability in many countries and the success so far achieved in bringing inflation down implies that countries like Zambia will have to re-align their inflation rates and bring them in step with at least those of their major trading partners. Neoclassical theory suggests that although monetary policy cannot solve structural problems of unemployment and economic growth directly, it can best contribute by providing an environment of price stability in which economic agents can take decision with some degree of certainty. If Zambia fails like in the past to achieve price stability, it will continue to make inevitable and costly adjustments to compensate for inflation differentials. These adjustments could include

among others repeated disruptive capital outflows, a depreciating local currency and high levels of interest rates.

The Bank of Zambia (BoZ) has traditionally conducted monetary policy by targeting monetary aggregates in line with its mandate of maintaining price stability that is conducive to economic growth. This approach to controlling inflation through appropriate level of money supply is based on the quantity theory of money (QTM). This is consistent with standard International Monetary Fund (IMF) policy advice to many developing countries. The central bank has assumed as its prime goal, to maintain inflation in single digit figures and bring it in line with those of its major trading partners like South Africa (Bank of Zambia Annual Report, 2004).

Currently, the Bank of Zambia (BoZ) seeks to achieve this objective by implementing a reserve money program where commercial banks cash balances[13] are the operating target and reserve money is the intermediate target. Direct quantity targeting has therefore been preferred than an interest rate target due to the difficulty of setting the interest rate that is consistent with the inflation target and the high volatility of the expected inflation. The objective of price stability is pursued in the context of a managed float with no pre-announced path for the exchange rate, and with a target for reserve money serving the purpose of the nominal anchor.

4.4   Monetary Policy Conduct in Zambia

The control of inflation measured as an annual growth rate is the main goal of monetary policy and the central bank sets the target for this variable every year. After the reforms, policy implementation was mainly based on the identity where reserve money is the sum of currency and reserves. Reserves in turn comprise of required and excess reserves and currency in vaults which banks use for meeting daily liquidity requirements. This identity takes the form in equation below.

$$Mh = C + RR + ER + VC \qquad\qquad (1.1)$$

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[13] These are balances in the Bank of Zambia settlement account, also known as excess reserves.

Where C is currency in circulation, ER and RR are excess and required reserves while VC is vault cash. Given the negative correlation between currency and interest rates, the central bank can reduce or raise reserves by either increasing or lowering interest rates through intervention in the open market operations, the discount window and other indirect methods. The central bank can also influence money supply levels through reserve requirements. The key element in this process is the money multiplier whose relationship with reserve money and money supply can be shown as below.

$$M = \beta Mh \tag{1.2}$$

Where $\beta = \left(\frac{cd+1}{cd+rr}\right)$ cd is the currency deposit ratio and rr the required reserve ratio. Therefore, it is possible for the central bank to adjust reserve money in the economy by raising and lowering reserve and other statutory ratios. However, in practice this involves taking open market operations as the principle instrument for the operation of monetary policy in combination with reserve and/or base money. This then implies that the central bank makes a forecast of the amount of liquidity in the market and derives the desired paths of reserve money using end of year broad money targets. Central bank activities in the money market; buying and selling securities serve to inject and mop up liquidity respectively. The central bank has recourse to other policy variables such as statutory ratios, foreign exchange intervention and moral suasion should OMO be ineffective in delivering results.

Below is the Bank of Zambia financial model which underpins the conduct of monetary policy.

**Figure 6: Bank of Zambia Financial Model
BOZFM)**
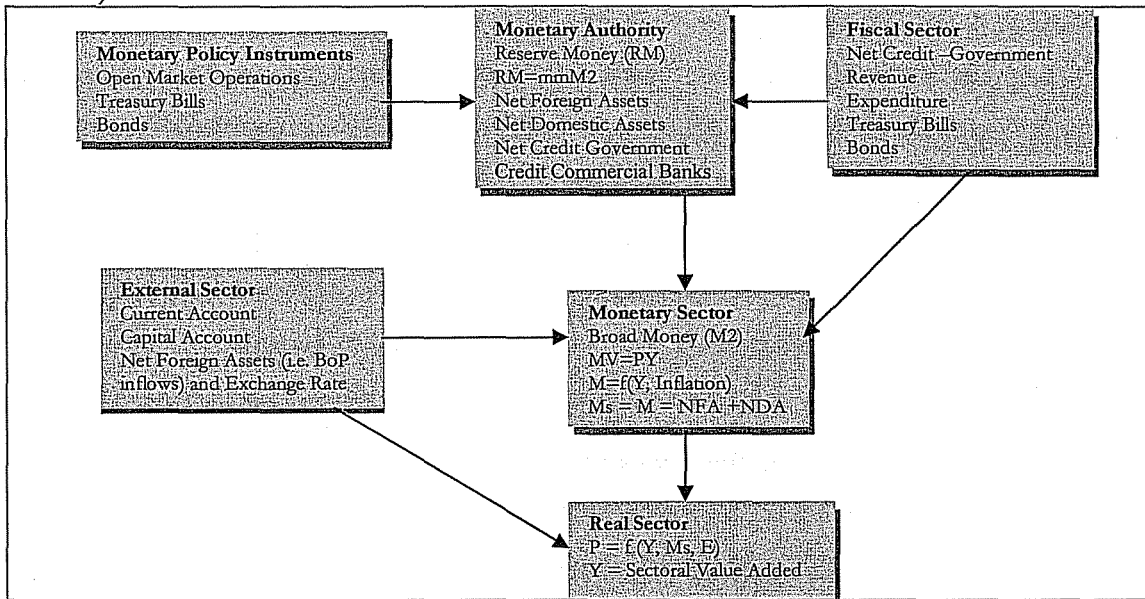
Source: Kalyalya, Bank of Zambia Presentation at SADC Central Bankers Workshop, 2004

The conduct of monetary policy in Zambia is based on the premise that when the central bank adjusts its short term interest rate, then these effects will be transmitted onto the cash base and money stock through the money markets and ultimately affect consumer behavior in the market. The changes in the interest rates take place through the monetary policy instruments of open market operation, treasury bill and bond sales and repurchase activities. These activities of the central bank will lead to changes in reserve money holdings, net foreign assets, and net domestic assets as well as in net credit to government and credit of commercial banks. This relationship can be captured through the consolidated balance sheet of the central bank in the form below.

$$Mh = NDA + NFA \tag{1.3}$$

Where reserve money (Mh) is a sum of net domestic assets (NDA) and net foreign assets (NFA) and NDA can further be broken into credit to government and credit to private sector such that any changes in the repo rates will have an effect on reserve money.

4.5 Monetary Policy Transmission Mechanisms in Zambia

The key to exercising monetary policy effectively is an efficient transmission mechanism through which monetary policy actions work their effects on aggregate demand in an economy and ultimately inflation. The functioning of the transmission mechanism, and hence the effectiveness of monetary policy depends on the structure of the economy and its financial system. In particular, several factors are at play including the degree of competition in the banking sector, the extent of access to alternative domestic funding sources and the depth of money and capital markets. Others are the extent of government involvement in financial markets, liquidity of the financial system, the degree of financial intermediation, the prevailing exchange rate system, the extent of liberalization of current and capital accounts, as well as the degree of development of the foreign exchange market. All these constitute important elements that influence the speed and intensity of the transmission mechanism, and therefore the extent to which monetary instruments can be relied upon to transmit monetary policy signals through the normal channels.

The discussion on the financial system structure and the existing market infrastructure in Zambia reveals a case where the traditional monetary transmission mechanisms do not operate as effectively as might be expected in a more developed financial system. Although it has been possible to transmit some monetary policy signals through the interest rate channel, via the treasury bill rate, the other channels (credit, exchange rate and asset prices) have either been very weak or nonexistent.

The weekly treasury bill auction provides yet the clearest and most important direct signal to the market from the central bank. The auction rate represents the base for the determination of the Bank Rate which in turn is applied by commercial banks in setting deposit and lending rates.

The interest rate channel, through the money market, has not functioned as strongly as expected. Like indicated, the interbank money market in Zambia is characterized by high volatility of interest rates and average excess liquidity. Monetary operations have largely tended to provide policy signals from the three-four weeks maturity onward, leaving the shortest end of the money market-especially the overnight interbank-to fluctuate wildly, in

the range of between ten to over eighty percent. These deficiencies have only served to weaken the interest rate monetary transmission channel.

4.6   Performance of Inflation in Zambia

During the period 1970-83, inflation trends exhibit spikes of changes as the prices were administratively controlled. The period around 1989 and 1990 was characterised by noticeably huge fluctuations in the consumer price index (CPI).This can be explained by the re-introduction of IMF policies. Following the break in ties with the IMF in 1987, the government restored all controls that had earlier been removed on commodities such as maize. However, prices were decontrolled again in 1989 after the restoration of ties with the IMF thereby increasing food and maize prices significantly as can be noticed during the period around 1990. Another notable rise in inflation occurs around 1995 when the country was faced with dual factors of drought and banking crisis.[14]

Figure 7: Inflation Trends in Zambia
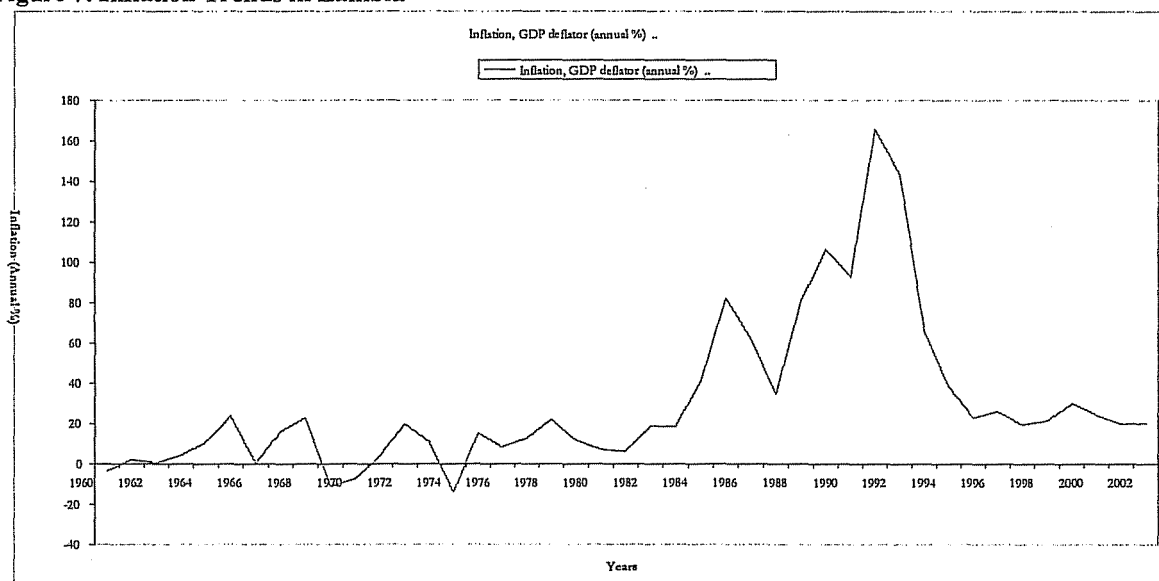
Source: Author's Computation, IMF statistics Report (2004)

As a result of increased maize prices together with these forces, inflation rose from 26.8 per cent in May 1995 to 46 per cent by November of the same year. However, from the late

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[14] Zambia experienced a banking crisis during that time and a number of banks went under while substantial amounts of money was injected in the banking system in attempt to rescue some of the banks in distress.

1990s to date, inflation has exhibited a downward trend to surge at 9.17 per cent by the end of first quarter of 2006 (Bank of Zambia Monetary Policy Statement January-June 2006).

4.7 Instruments of Monetary Policy

Given the limited effectiveness of transmitting monetary policy signals in Zambia through traditional market-based channels and in view also of the fact that the framework for monetary policy is itself still in transition, the BoZ has had to rely on a combination of rules-based instruments and money market operations to conduct monetary policy. The most important instruments that have been used include reserve requirements (RR) and a minimum liquid asset ratio (LAR). In particular, the level of reserve requirements has been increased several times to adjust structural liquidity imbalances. A wide range of money market instruments have been introduced in order to reduce reliance on the RR and LAR and because changes in these instruments require substantial portfolio adjustments, which are not easy to implement at short notice. However, repo operations have only been conducted infrequently as the BoZ does not have enough treasury bills in its portfolio to sterilise excess liquidity in the market on a regular basis.

4.8 Role of the Central Bank

In Zambia, the central bank is responsible for formulating and implementing monetary policy. As regulator of the financial sector, in particular the banking sector which is the most critical for effecting monetary policy, the central bank determines interest rates in the economy through its activities in the open market operations. It is anticipated that this can then affect all other interest rates in the market and ultimately have an effect on demand and supply in the entire economy.

4.9 Summary

This chapter attempted to shed light on the structure of the financial system in Zambia. It further evaluated its importance in determining the effectiveness of transmission mechanisms followed by a discussion of how monetary policy has been conducted previously and the performance in terms of inflation. It also discussed the various instruments and market infrastructure available in Zambia for the conduct of monetary policy together with the role of the central bank and how these affect the efficacy of monetary policy transmission.

5.0   Analysis of Feasibility, Effectiveness and Advisability of IT

5.1   Introduction

This chapter evaluates the feasibility, effectiveness and advisability of IT for Zambia. It first provides an explanation of the sources of inflation in Zambia followed by a discussion on the effectiveness of instruments of monetary policy. A further task of this chapter is to examine the potency of the monetary policy transmission mechanisms and their effectiveness. The rest of the chapter analyses the implications of central bank independence and an evaluation of whether inflation targeting is an advisable framework for conducting monetary policy in Zambia.

5.2   Sources of Inflation in Zambia

In order to formulate any effective monetary policy for combating inflation, it is important to determine the sources of inflation. There are different views at both theoretical and empirical levels on the importance of various factors that influence inflation significantly.

Import prices and the exchange rates are seen as having a sizeable influence on inflation in Zambia. In a small open and dependent economy like Zambia's, domestic inflation is partly determined by foreign prices and nominal exchange rate depreciation. This can be observed in co-movements of the exchange rate and consumer price index over the period 1971 to 1996 in the graph below. The trends were subdued until 1990 when the economy was liberalized and prices rose substantially in line with the liberalized exchange rate and price decontrol which were repressed prior to this period. The trends depicted in the graph below yield a correlation coefficient of 0.9825 when consumer prices are regressed on the exchange rate. These trends further suggest some degree of association between prices and events in the exchange rate movements.

Figure 8: Consumer Prices and Exchange Rates
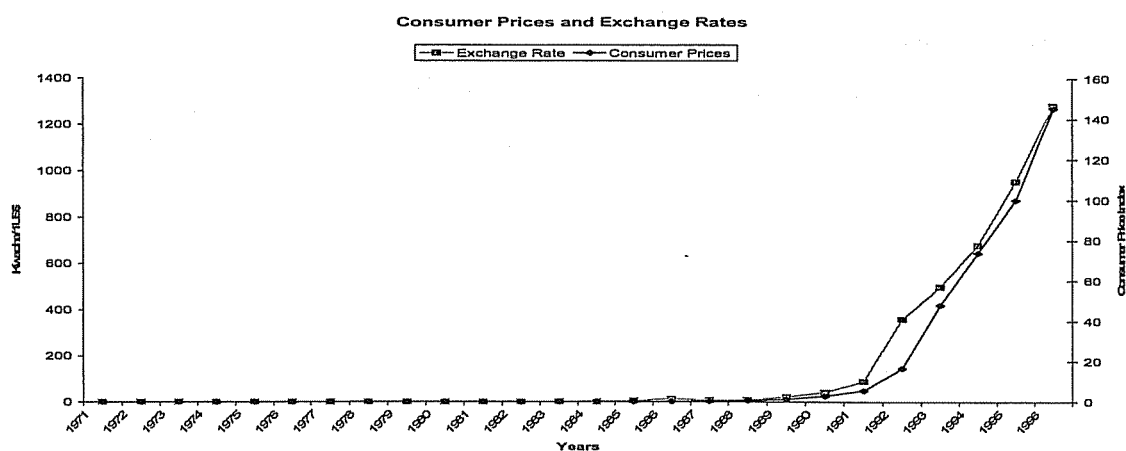
Source: Computed from IMF Statistics data (2004)

In extreme cases, there could be a complete and immediate "pass through effect" of exchange rate and foreign prices to domestic prices. However, in the main an exchange rate policy that entails a nominal depreciation or devaluation cannot promote exports and only serves to create inflationary pressures. In the case where the "pass through" is incomplete or is slow, then the exchange rate policy becomes relatively effective in influencing the short run competitiveness of exports (Dornbusch, 1987).

Another important determinant of inflation is expectations of future inflation. Rational expectations do not affect current inflation independently but work through demand and supply factors. Current expectations are usually formed based on the inflation situation in the preceding period. Therefore, future inflation expectations are a proxy of previous period inflation and a one period lag value of inflation variable ($\pi \equiv \pi_t - \pi^*_{t-1}$). Until recently, the public in Zambia reflected this channel of inflation through price setting and wage bargaining behaviour. In some cases, salaries and asset prices are indexed to inflation in order to account for changes to values in real terms.

5.4   Effectiveness of Instruments of Monetary Policy

An identifiable and stable relation between central bank policy rate and other short term money market rates is an important element in the transmission mechanism. In many countries, short term money market rates track the repo (Bank Rate) extremely closely. The

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graph below captures this relationship in the case of Zambia. It shows that lending and deposit rates closely match the TB rate (proxy for the repo rate) except between 1992-95 when the deposit rate remained at lower levels despite sharp increases in both the repo and lending rates following economic liberalisation.

Figure 9: Movements in Money Market Rates

Money Market Rates
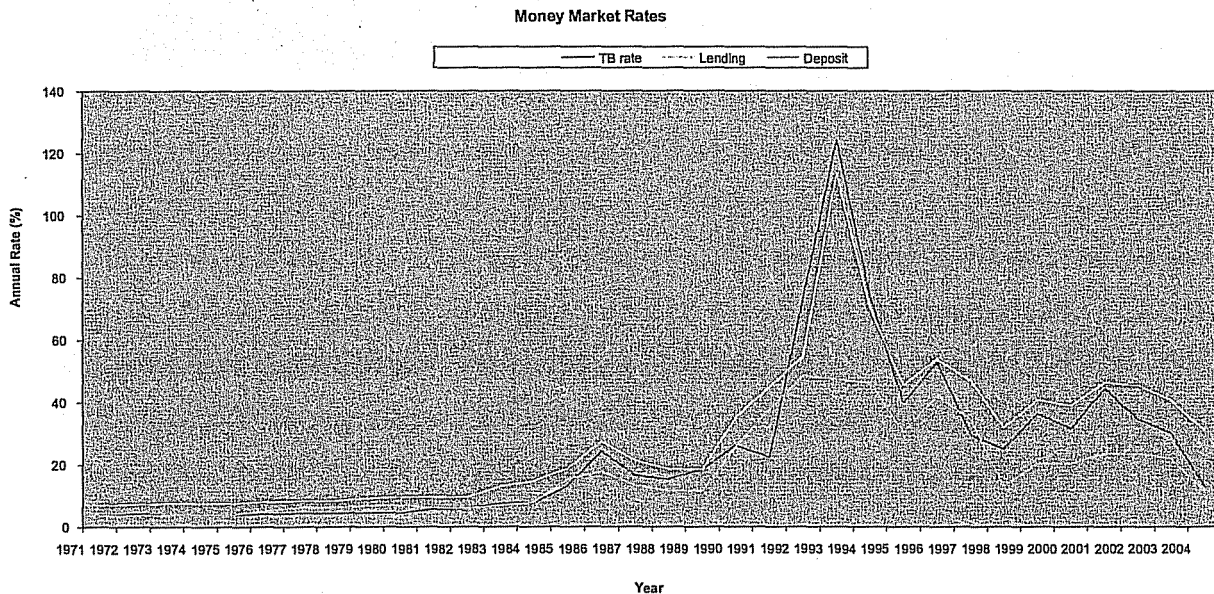
Source: Bank of Zambia Fortnightly Statistics (2006); www.boz.zm

The short-term correlation between the central bank policy rate and other short-term interest rates appears to be stronger and much more stable. Monetary policy is based on the ability of the central bank to manage interest rates in the market. The more control it has, the easier it is to manage demand in the economy and attain the inflation targets. A mismatch between these rates is suggestive of a weak and unstable relationship between these rates and reflects inefficiencies in the financial system. In such situations the CB needs to ensure promotion of an active and efficient financial system

The determination of long-term interest rates (for instance the five year bond) in Zambia is partly influenced by the central bank but is largely market determined. As a result any changes signaled in the TB rates will trigger a spiral effect on other money market interest rates as well as the discount rate. It also has an impact on longer term expectations of future

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interest rates especially the deposit and lending rates. Simple linear regressions confirm the correlation to be significant between the different interest rates as evidenced in the table below.

Table 4: Pair wise Correlation of Money Market Rates

	Disc Rate	TB Rate	Lending	Deposit Rate
Disc Rate	1.0000			
TB Rate	0.7671	1.0000		
Lending	0.8071	0.9642	1.0000	
Deposit Rate	0.8093	0.8809	0.9111	1.0000

Source: Own Computation with Data from IMF Statistics (2005)

5.4 Potency of Transmission Mechanisms of Monetary Policy

The key to exercising monetary policy effectively is an efficient transmission mechanism through which monetary policy actions work their effects on aggregate demand in an economy and ultimately inflation. The nature, speed, and intensity of the transmission from the variables directly under the control of the central bank-for example, short-term interest rates or base money to those variables that most directly affect conditions in the non-financial sector such as loan rates, deposit rates, asset prices—determine not only the extent of the overall effectiveness of monetary policy but also the type of instruments that can be used effectively.

The functioning of the transmission mechanism, and hence the effectiveness of monetary policy, in a given economy depends on the structure of the economy and its financial system. In particular, several factors are at play including the degree of competition in the banking sector, the extent of access to alternative domestic funding sources, the depth of money and capital markets, the extent of government involvement in financial markets, liquidity of the

financial system, the degree of financial intermediation, the prevailing exchange rate system, the extent of liberalization of current and capital accounts, as well as the degree of development of the foreign exchange market. All these constitute important elements that influence the speed and intensity of the transmission mechanism, and therefore the extent to which monetary instruments can be relied upon to transmit monetary policy signals through the normal channels.

5.5   Effectiveness of Channel Transmission Mechanisms

The discussion on the financial system structure and the existing market infrastructure in Zambia reveals a case where the traditional monetary transmission mechanisms do not operate as effectively as might be expected in a more developed financial system. Although it has been possible to transmit some monetary policy signals through the interest rate channel, via the treasury bill rate, the other channels (credit, exchange rate and asset prices) have either been very weak or non-existent. The weekly treasury bill auction provides yet the clearest and most important direct signal to the market from the central bank. The auction rate represents the base for the determination of the Bank Rate which in turn is applied by commercial banks in setting deposit and lending rates.

The interest rate channel, through the money market, has not functioned as strongly as expected. Like indicated, the interbank money market in Zambia is characterized by high volatility of interest rates and average excess liquidity. The high fluctuations of interbank interest rates has been attributed to the limited availability and high cost of BoZ liquidity facilities, volatile flows of cash between the government and the private sector, and market segmentation. In addition, monetary operations as implemented in Zambia provide little signals (guidance) to the short-term money market as to the policy stance of the BoZ. A visual inspection of the trends in overnight interbank rate, TB rate and the Bank rate in the graph below seem to confirm that interbank rates do not respond to changes in the two rates used for signaling the stance of monetary policy. Although interbank rates are not the main channel through which IT monetary transmission would work, they are an important indicator as they determine the cost of funds for commercial banks. The cost of funds in turn is used in determining prime lending rates and deposit rates. Monetary operations have

largely tended to provide policy signals from the three-four weeks maturity onward, leaving the shortest end of the money market-especially the overnight interbank-to fluctuate in the range of between three to over twenty percent(http//:www.boz.zm). These deficiencies only serve to weaken the strength of the interest rate monetary transmission channel.

Figure10: Bank Rate, TB Rate and Interbank Rates

Trends in Bank Rate, TB Rate and Interbank Rate
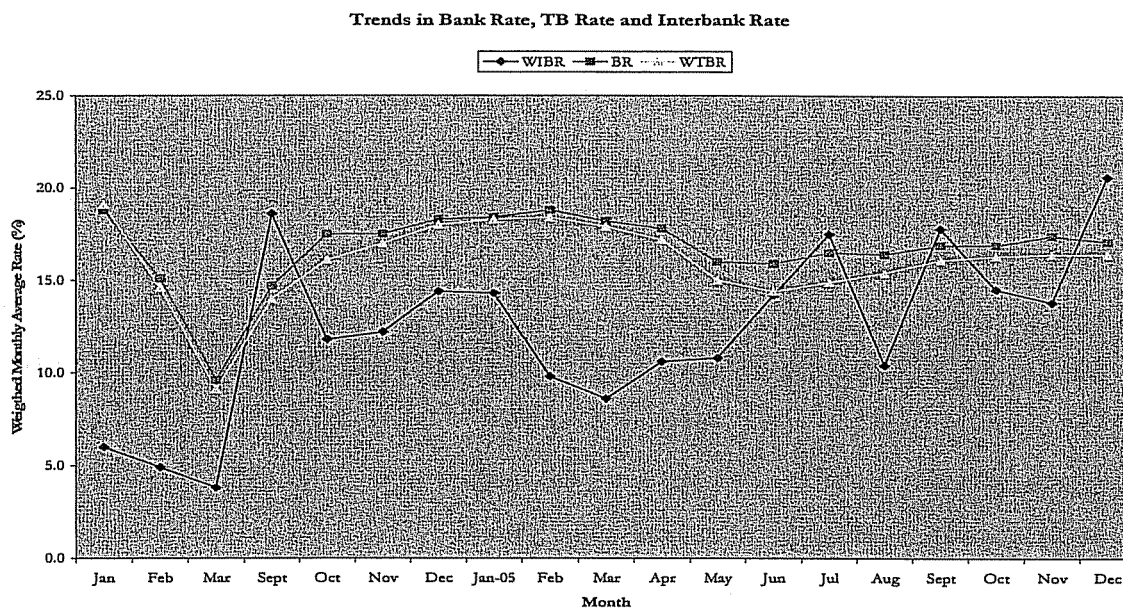
Source: Computed using data from Bank of Zambia Website (2006)

5.6   Implications of Central Bank Independence

Enhanced central bank autonomy has been the centre piece of financial sector reforms in developing countries by the IMF and World Bank. The case for central bank independence is that an institutional commitment to price stability is one way to make time-inconsistency of monetary policy less likely. This is because it makes it clear that central bank must focus on the long-run objective and thus resist the temptation to pursue short-run expansionary policies that are inconsistent with the long-run price stability goal.

Debelle and Fischer (1994) and Fischer (199) provides a useful distinction between goal independence and instrument independence. Goal independence is the ability to set goals for monetary policy while instrument independence is the ability of the central bank to independently set the instruments of monetary policy to achieve the goals.

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Under democratic setting, this suggests that the public must be able to exercise control over government actions strongly implying that goals of monetary policy should be set by the elected government. In short, the central bank should not be goal independent. The corollary of this view is that an institutional commitment to price stability should come from the government through an explicit, legislated mandate for the central bank to pursue price stability as its overriding long-run goal. The assumption is that once there is a political commitment to price stability by passing central bank legislation with a price mandate, it then becomes difficult for them to put pressure on the central bank to pursue short-run expansionary policies that are inconsistent with the goal of price stability. Another aspect is that a government commitment to price stability is also a commitment to making monetary policy dominant over fiscal policy such that fiscal policy is better aligned with monetary policy.

Further, when central banks are allowed to control the setting of monetary policy, they are insulated from political pressures to exploit short-run trade-offs between employment and inflation. Instrument independence implies that the central bank is better positioned to avoid pursuit of time inconsistent policies. Arguments for central bank autonomy seem to find support in recent evidence in the conjecture that macroeconomic performance is improved when the central bank is more independent. Alesina and Summers (1993), Cukierman (1992) and Fischer (1994) find that inflation performance is better for industrialised countries with the most independent central banks.

The institutional structure of the Bank of Zambia has not changed much from one inherited from the colonial period. The President appoints the governor while the minister of finance and the permanent secretary appoint members of the board of directors. These appointments reinforce the strong relationship between the central bank and the government. The Bank of Zambia Act (1965) further strengthened this relationship by making a provision where the governor was obliged under the Act to follow instructions issued by the minister of finance.

Despite the introduction of the Banking and Financial Services Act 1994, the provision requiring the governor to comply with the minister of finance's directives remains in force. In the discussion of literature review, central bank independence is one of the major preconditions for effective adoption of IT regime. Apparently, Zambia lacks an independent central and inadvertently this has implications if the central bank were to go for the IT monetary policy framework. However, it is also possible that the CB can still exercise some limited form of independence in terms of choosing the instruments for conducting monetary policy. But it is also possible that these can be overruled by the minister on the basis of their political correctness and short term fiscal objective of the government.

5.7   Advisability of Inflation Targeting

In discussing the advisability of inflation targeting in Zambia, an examination of the effect of inflation on economic growth is necessary. Orthodox economists argue that the impact of inflation on economic growth takes two major channels; the savings channel and the relative price effects. In Zambia, most arguments concentrate on the savings channel due to the difficulty of establishing empirical validity of the other channel. The argument is that inflation discourages savings since nominal rates cannot match inflation rates.

**Figure 11: Trends in CPI, Deposit Rates and Private Investments**
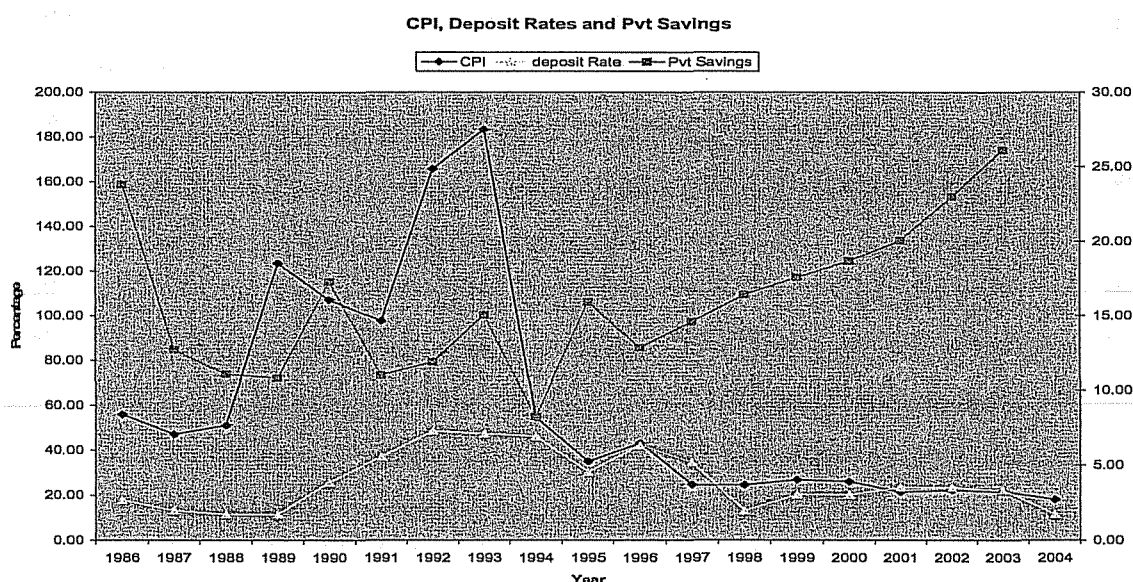
Source: Own Computation, Data from www.boz.zm (2006)

A comparative analysis of the annual inflation rates to real deposit rates during the period 1996-2004 yields a correlation of 0.40 suggestive of a fairly strong and stable relationship. This analysis uses annual data with the assumption that nominal deposit rates do not immediately adjust to changes in inflation. However, the chart seems to render credence to arguments that high inflation in the case of Zambia has had a negative effect on savings. As can be seen savings show an upward trend as inflation starts to fall. During times of high inflation growth in savings is somewhat subdued.

Another argument is that inflation discourages investments as financial institutions start to ration credit in the presence of moral hazard and information asymmetry which also lead to increased transaction costs. Ultimately, a lack of credit to investors has negative effects on economic output thus slows growth. In Zambia, most financial institutions invested in government securities when inflation was very high in order to mitigate risk associated with inflation. This meant a decline in credit to the productive sectors as it was difficult to select credible clients.

Figure 12: Trends in CPI, Lending Rates and Private Credit
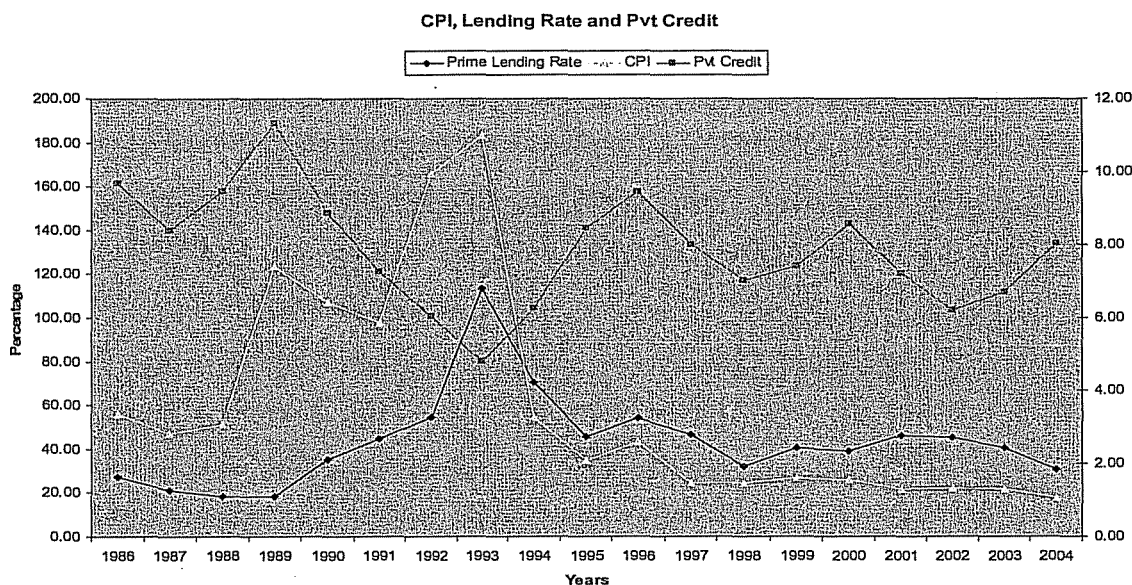
Sources: Own Computation, Data from www.boz.zm (2006)

The graph above shows that at points of high inflation, credit tended downwards while it peaks as the inflation rate goes down. The case for fighting inflation may be born out of the

fact that since 1993, falling inflation has been followed by an increase in private credit as a percentage of GDP. To this extent, arguments that inflation has negative effects may be justified. Besides, planning in the longer term has been very difficulty given the unstable nature of trends in inflation until recently.

Presently, in order to influence inflation, the central bank uses the demand side of the economy. It is assumed that high interest rates would dampen demand for credit and consumption and thereby reducing consumer price inflation. Arguments against this approach are that high interest rates discourage investments since credit becomes expensive and thereby dampening output in the economy while appreciating the exchange rate leads to loss of exports. These arguments however, can only be valid to the extent that firms depend on bank credit as their major source of financing. In Zambia, this is hardly the case[15], most banks and firms can borrow from international financial markets so that demand will not slacken and inflation will remain unabated in such situations. Credit to private sector is estimated to be only about 15 per cent of total bank assets while credit to government was estimated at 28% (Brownbridge, 1996).

However, given that the exchange rate continues to significantly condition price levels in the economy, the central bank cannot afford to ignore it in setting policy. Experience with IT shows that countries like Chile, Hungary, Israel and Poland combined inflation and exchange rate targets in the initial phases of disinflation in order to maintain credibility (Appel et.al, 1999). To this effect it is possible to initially adopt both targets. This is especially important to maintain both price and exchange rate stability before adopting a fully fledged IT regime.

On the perceived negative aspects of IT, it is clear that IT regimes imply a strong emphasis on stabilising inflation with little concern for real effects on output and employment. Such central bank behaviour can generate a procyclical and asymmetrical pattern on monetary policy and deepen economic contractions, particularly in developing country economies with liberalised capital accounts. However, this problem can be minimized in a framework that

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[15] See appendix for private sector credit.

assumes away long-term real effects of monetary policy, and more generally, of aggregate demand fluctuations.

5.8   Summary

This chapter discussed the available instruments of monetary policy and the feasibility of having an autonomous central bank given the current institutional structure of the Bank of Zambia. An analysis was made of the effectiveness of monetary policy under the current framework and the efficacy of the transmission mechanisms. It established that under its current institutional structure, the central bank does not meet the required precondition of central bank independence which is deemed as necessary for the adoption of an IT regime. Authors like Agenor (2002), Khan (2003) and the IMF (2001) stress the relevance of having these preconditions while others like Debelle (2001), Amato and Gerlach (2002), and Jonas and Mishkin (2005) hold relatively neutral views on the importance of preconditions. Another aspect of this is the heavy reliance by government on the central bank for financing its budget deficits. These do not allow for the independence of the central bank to pursue its objectives without interference. With regard to advisability of IT, an analysis on the negative effects of inflation in Zambia was done and revealed that it has constrained credit given by financial institutions as well as savings. Also inflation erodes the value of assets in the economy and as such constrains ability to increase consumption and demand in the economy. In light of these findings, a policy like IT that effectively controls inflation would be viewed as advisable.

6.0   Conclusions and Policy Implication

6.1   Conclusions

The paper attempted to investigate the working hypothesis that IT is a feasible and effective framework for the conduct of monetary policy in Zambia and therefore, advisable. It evaluated the advantages of the IT framework and the necessary pre-conditions for it to be effective. It further examined the efficacy of the hypothesized path of transmission under this framework from the treasury bill rate to the very short term market interest rates to other long term money market rates.

Although the exchange rate is one of the major influences on inflation in Zambia, pursuing exchange rate targeting alone is not a viable option given low levels of reserves that the central bank has and that this would open the exchange rate to speculative attacks. Under such circumstances, the central bank will not be able to protect the currency and would require substantial amounts of reserves in order to do that. Besides frequent interventions in the foreign exchange market may send wrong signals about the intentions of the central bank's monetary policy.

The paper finds that the interest rate channel is the strongest in transmitting monetary policy signals to the rest of the economy while the exchange rate channel and the credit channel are fairly strong. This implies that any adjustments in the official rate would have the ability to affect consumption and demand accordingly. An inflation targeting framework relies on the interest rate and credit channel on the premise that the central bank has a fairly effective control over interest rates. But because of the fairly sizeable influence of the exchange rate and the need to take advantage of the central bank's handle on interest rates, it may be advisable for the central bank to adopt inflation but watching developments closely in the foreign exchange rate. This concern for the exchange rate should not however imply a lack of commitment to the pursuit of price stability.

Available evidence points to the financial system exhibiting oligopolistic traits which hinder an effective interest channel. It is mainly centred on a few large banks and therefore does not promote innovation and competitiveness as can be observed by their huge investments in

government securities when compared to the exposure in loans and advances. Since credit is not a huge exposure the impact of changes in the repo rates may not be effectively transmitted to affect demand and supply in the wider economy. But trends in overall private credit as a percentage of GDP are on the upward swing given the disinflation process which started in the mid- 1990s.

Adopting the IT framework requires that the amount of budget financing through the central bank is minimal and that the central bank needs to be independent in its conduct of monetary policy. The findings are that although Zambia is making progress in reducing the component of the budget deficit financed through government securities, the amount is still a large burden and would pose conflict with the stated objective of the central bank, that of price stability. Seignorage financing is quite huge and may override the central bank objective. The current institutional arrangements where the central bank is not independent through legislation compromises its ability to choose the appropriate tools to use as instruments of monetary policy. This has implications for transparency and accountability which are essential ingredients for the success of an inflation targeting regime. These aspects of institutional arrangements are crucial in establishing the credibility of the central bank and its perception among economic agents. If the public think that the central bank is credible to commit to its objective, this will help in shaping and forming their expectations about future inflation.

In general the paper finds support for a case of inflation targeting despite the absence of the necessary pre-conditions for an inflation targeting regime. This support is based on the evidence that the most IT countries have managed to achieve low and stable inflation outcomes after adopting it. The interest rate channel which is the main transmission mechanism under the IT regime exhibits yet the clearest and strongest channel in the case of Zambia although studies also show a fairly strong exchange rate influence on inflation. At the same time, the structure of the financial system is underdeveloped and therefore, constrains a more effective hypothesized interest channel of transmission for monetary policy. It is also evident that the central bank makes little attempt to intervene in the foreign exchange market. Consequently, the paper concludes that, while IT maybe feasible and it has

inherent advantages although the current environment does not confirm the presence of the necessary pre-requisites for the framework. Many inflation targeting countries did not exhibit all the preconditions including South Africa and had to start with disinflation process. Currently, the Bank of Zambia has a commitment to low and stable inflation. According to findings of an IMF study (2006), successful adoption of IT depends more on establishing a credible commitment to the strategy than on fulfilling the pre-requisites. The disinflation process is currently working and inflation is currently in single digits for the first time in many decades. But swift progress on improving these conditions is essential for reaping full bonuses associated with inflation targeting. The next section highlights some of the areas that may require attention in order to create these conditions in support of the current achievements in fighting inflation.

6.2 Policy Implications

This paper suggests that a monetary policy framework based on inflation targeting could improve the current policy framework in Zambia, which can be characterized as "informal inflation targeting". An explicit inflation targeting regime would set a clear objective of monetary policy apart from enhancing transparency of its operations and strengthening the Bank of Zambia accountability. The public may have more confident in a central bank that is less likely to be interfered with while this can help them to form future inflation expectations in a more accurate and coordinated fashion therefore, assist in reducing and stabilising actual inflation.

6.2.1 Fiscal Dominance

The current efforts at reducing reliance on issuance of government securities for financing budget deficit are a positive move in the direction of minimizing fiscal dominance in the economy. A situation where fiscal policy is subordinated to monetary policy will give rise to an increased commitment by the central bank to commit to long term price stability with little political interference. This is important in building the credibility of the central bank in the eyes of the public and ultimately in anchoring their future inflation expectations.

6.2.2 Central Bank Independence

Compelling arguments for autonomous central bank have been advanced. Many developing countries tend to abuse their privileged influence over central banks and this has at sometimes only served to reinforce calls for central bank independence. Nonetheless, there are indicators that these calls are mainly aimed at maintaining the international financial markets status quo and meant to service their interests rather than developing country governments. However, what is needed is proper coordination of fiscal and monetary policy by the government and the central bank. In this regard, efforts at ensuring that the central bank has instrument independence to choose tools of monetary policy is crucial in achieving the goal of price stability in the longer term. The central bank may still be goal dependent but what is needed is legislation to confer authority on the central bank to conduct monetary policy without political interference. There is need to establish institutional structures like the monetary policy committee. Consideration should also be made to delink the office of governor from the chairmanship of the Board in order to promote transparency and accountability consistent with tenets of good corporate governance.

6.2.3 Financial System Development

As noted in the analysis, the financial system structure needs to be developed in order for the monetary policy transmission mechanisms to be potent. The effectiveness of these channels of transmission has greater significance in determining whether an IT regime would work. The current structure which is dominated by a few large banks and a very small secondary market for government securities needs deepening. However, it must be noted that at present there are already efforts in that direction. A financial sector development plan is being put in place to improve the market for financial services. This is essential because then it broadens the range of instruments of policy available for the central bank to conduct monetary policy.

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Appendices

Table 5: Evaluation of SARB Forecast Errors

Simple Evaluation of SARB Forecast Errors

Date of MPR	Date of Forecast	Forecast: One Year Ahead	Actual: One Year Ahead	Forecast Error	Forecast: Two Years Ahead	Actual: Two Years Ahead	Forecast Error
May-06	2006Q2	5	N/A	N/A	4.7	N/A	N/A
Nov-05	2005Q3	5.7	N/A	N/A	5.3	N/A	N/A
May-05	2004Q4	4.8	4	-0.8	5	N/A	N/A
Nov-04	2004Q2	4.8	3.7	-1.3	5.6	N/A	N/A
May-04	2004Q4	5.9	4.4	-1.5	5.7	4	-1.4
Oct-03	2002Q2	4.5	4.7	0.2	5.1	3.7	-1.6
Mar-03	2002Q4	5.7	4.2	-1.6	5.7	4.4	-1.3
Oct-02	2002Q2	6.4	7.6	1.2	5.2	4.7	-0.05
Apr-02	2001Q3	8.1	10.2	2.1	5.3	6.1	0.8
Oct-01	2001Q1	5.9	7	1.1	6	9.6	3.6
Mar-01	2000Q3	6.5	5.6	-0.09	5.2	10.2	5

Source: South African Bureau of Economic Research, 2000.

Table 6: Key Macroeconomic Indicators 2002-04

|	2002	2003	2004 Target	2004 Outturn
Real GDP growth	4.9	5.1	3.5	5
Overall Budget Deficit(%of GDP)	-6.3	-6.6	-6.9	-3.3
Domestic Financing of Budget Deficit(%of GDP)		5.1	2.2	1.9
Money Supply Growth (Annual % change)	10.8	23.4	18.1	30.2
Annual Inflation	26.7	17.2	15	17.5
Current Account Deficit (% of GDP Excl grants)	-17.3	-16.2		13.1
Current Account Deficit (% of GDP incl grants)	-6.5	-7.5	-6.4	-6.4
Of months cover)	2.2	0.3	1.5	1.2

Source: Ministry of Finance and National Planning (2004)

Table 7: Selected Economic Indicators (1990 -2001)

| Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Macroeconomic Indicators												
NGDP Growth		105.4	92.6	160.9	183.4	54.1	33.8	31.6	31	16.6	44.7	67.1
RGDP	-0.5	-0.1	2.1	-0.2	-8.6	-2.3	6.6	3.3	-2.0	0.32	5.9	5.2
IIP	96.3	90	96.7	88.3	77.3	73.1	71.3	77.1	68.6	52.8	37.6	42.6
CPI	4.7	9.3	26.1	59.6	82.5	120.4	162.2	240.2	298.9	408.1	531	630.3
X/GDP	37.3	25.9	28.4	19.4	32.2	15.5	32	42	28	35	31.02	21.2
Financial Sector Indicators												
M2/GDP	26	28	18.6	14.4	15.5	18.1	18.4	17.4	17.7	19.622	25.1	15.7
M1/GDP	13.27	11	8.95	6.48	5.09	7.61	6.84	6.87	6.37	7.27	7.89	6.02
T/b Rate	34	42	54	122.5	24.8	51.5	69.8	23.3	43.6	36.2	31.4	47.2
Lending Rate	40	46	60.6	119.6	45.8	66.7	69	37.2	37.4	42.6	37.6	45.2
Savings Rate	27	33	43	80.9	13.3	30.6	30.2	16.5	7.6	7.6	7.1	7.1

Source: Ministry of Finance and National Planning (2003)

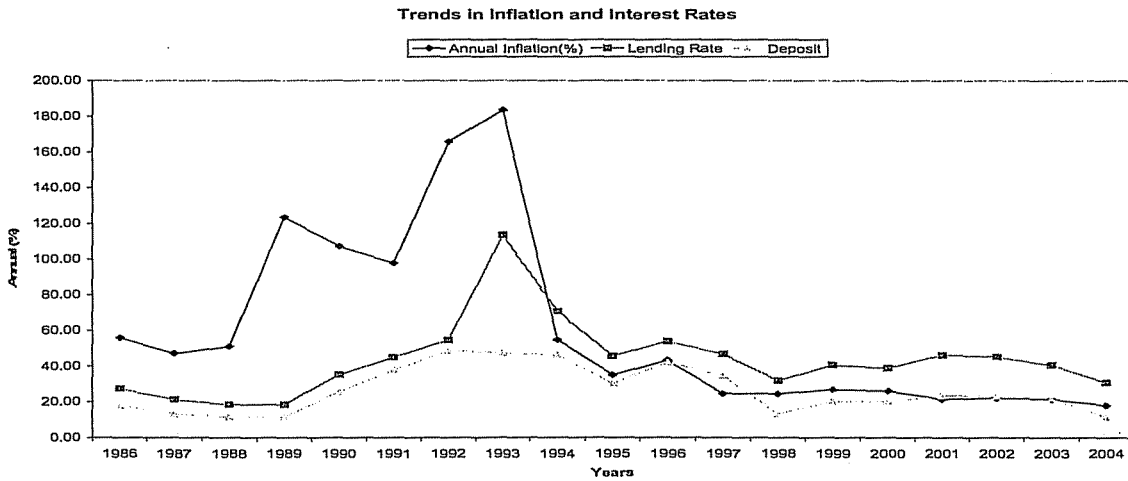Figure 13: Trends in Money Market Rates
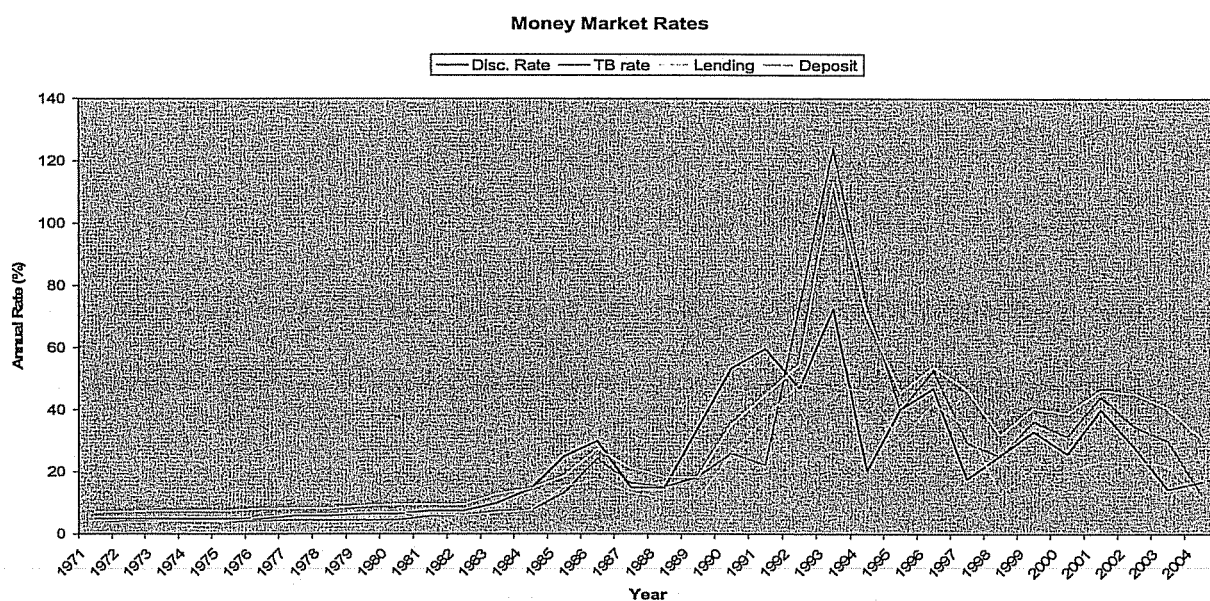
Source: Computed Using Data from IMF Statistics (2005)

Figure 14: Hypothesized Transmission Path of Interest Rate Channel
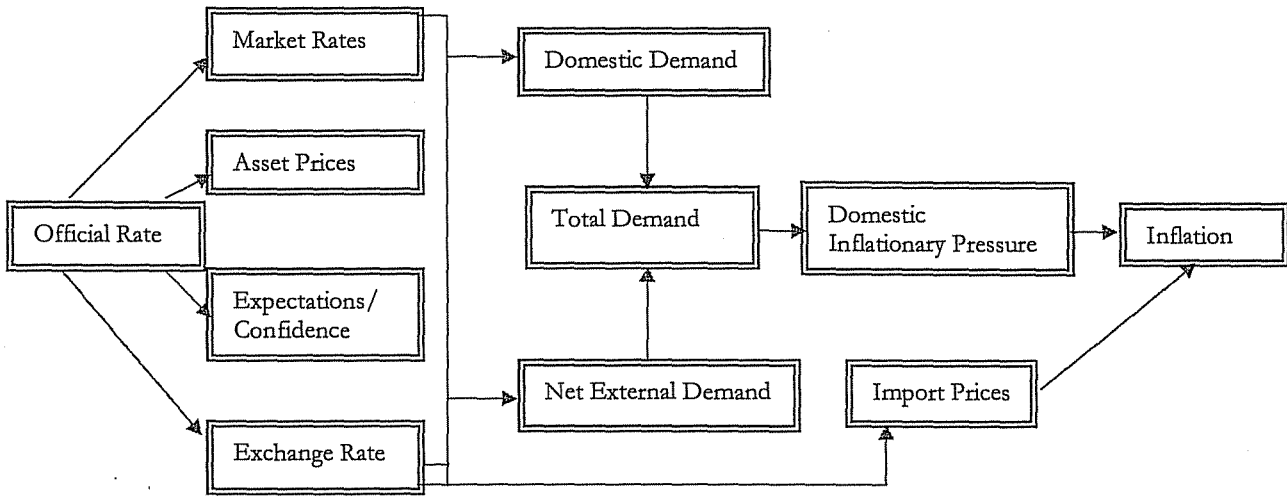
Source: Adapted by Author from the SARB and BOZ websites (2006)

Figure 15: Inflation and Interest Rate Trends

Source: Own Computation, WDI and IMF Statistics (2005)