ARTICLES

IS ZAMBIA READY FOR INFLATION TARGETING?

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ABSTRACT

Since inflation targeting (IT) began about a quarter of a century ago, a number of industrialised and an increasing number of emerging and developing countries have adopted it as a framework for conducting monetary policy. Empirical evidence from developed economies suggests that the framework has been associated with low and stable inflation, and a reduction in inflation volatility. The evidence for African countries and other developing regions is not conclusive.



African Review of Economics and Finance Volume 7 | Number 2 | 2015 pp. 1–28 Print ISSN 2042-1478 | Online ISSN 2410-4906 © The author(s) and African Finance and Economics Consult Zambia is contemplating a policy of targeting inflation. This article assesses the readiness of Zambia for IT. We find that a number of preconditions for successful adoption are not fulfilled. Thus, while the idea itself has much merit, IT in an unprepared environment may produce perverse incentives, and complicate both fiscal and monetary policy. It is thus imperative that policy makers in Zambia and elsewhere in the developing world address the preconditions highlighted in this article, before adopting a fully-fledged IT policy.

JEL codes: E3, E4, E5

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INTRODUCTION

After a series of failed attempts at controlling inflation which lasted over a period of more than 20 years, New Zealand formally adopted inflation targeting (IT) as a framework for monetary policy in 1990. Since then, many industrial and an increasing number of emerging and developing countries have adopted IT as a framework for conducting monetary policy. Empirical evidence suggests that the framework is associated with performance improvements in many economies, such as low and stable inflation and a reduction in inflation volatility (Batini & Laxton, 2007; Mishkin & Schmidt-Hebbel, 2007). However, there is a contrary view in the literature (as expressed by Arestis 2009) that states that a central bank does not need to pursue an IT strategy to achieve low inflation, since non-IT central banks have done as well, if not better, in some cases. Thus, IT has been a great deal of fuss about really very little. Moreover, the evidence shows that emerging market economies have fared much worse than their industrial country counterparts (Brito & Bystedt, 2010; Fraga et al., 2004). These countries exhibit more common deviations from target and higher levels of output and inflation volatility. The presence of weaker institutions, historically poor credibility and larger economic shocks presents more challenges to the monetary authorities of developing countries who have to take stronger policy actions to counter inflationary pressures (Fraga et al., 2004; Freedman & Laxton, 2009; Ötker & Freedman, 2009). Furthermore, recent studies have shown that a number of inflation targeters struggled under the financial and economic crises that started in 2007. Frankel (2012) argues that many central banks in IT countries had not paid enough attention to asset bubbles (where the biggest setback hit in September 2008) and that consumer price index (CPI) targeting did not embed an appropriate response to terms of trade shocks. Filho (2010), Roger (2010) and Amira et al. (2013) provide evidence to the effect that while IT may be associated with higher growth rates, it does not necessarily guarantee stable growth, particularly for emerging market economies. Despite this, because IT has been associated with transparency and accountability, it is now seen as the monetary policy framework of choice.

Under an inflation targeting regime, monetary authorities announce projected inflation estimates or 'targets' publicly, and by tinkering with the interest rate and other monetary aggregates actual inflation is steered towards the target. Formal and strict rules for IT are very limited in Africa. Many African countries practise what may be referred to as 'loose inflation anchoring schemes'. Only two African countries (South Africa in 2000 and Ghana in 2007) have *formally* adopted an inflation targeting framework, however, an increasing number of countries are considering doing so. The Bank of Zambia (BOZ) has stated its interest in formally adopting IT as a framework for conducting monetary policy. As a preparatory step, annual inflation targets are announced. The BOZ's target is revised periodically and has been between 5 and 7 per cent since 2011.

Changes have been made to the way BOZ implements policy since the introduction of the policy rate in April 2012. The policy rate was introduced to replace reserve money targeting as the BOZ's main monetary policy tool. However, monetary aggregates continue to play a key role in assessing the monetary policy stance and setting the policy rate (IMF, 2013a).

These, with other accompanying changes, have been implemented with the view to move towards formal IT. Questions have been raised as to whether developing countries such as Zambia should adopt such a 'restrictive' framework when the focus in these countries should be on long-term development (Heintz & Ndikumana, 2011). This view is echoed by Jha (2008) and Subbarao (2013), with respect to India; they argue that alleviating poverty should be one of the major concerns of India's monetary policy. This requires a sustained high GDP growth in the country. However, Roger (2010) points out that growth performance under IT compares very favourably with performance under alternative frameworks.

While stable inflation is generally accepted as a precursor to development, there is no consensus on what level of inflation is conducive to development. It is almost an unsaid practice amongst inflation targeters that inflation should be low, often in the single digits. The literature indicates that double-digit inflations of below 20 per cent may encourage economic growth (Bruno, 1995; Bruno & Easterly, 1998; Khan & Senhadji, 2001; Pollin, Wa Gĩthĩnji & Heintz, 2008).¹ Furthermore, it is debatable whether developing countries have the required institutional and technical capacities to model and forecast inflation in order to successfully conduct monetary policy under such a framework.

Alternatives to IT include exchange rate targeting, monetary targeting and some form of flexible inflation targeting (see Epstein & Yeldan 2009 for some country case studies on alternatives to inflation targeting). In practice, many developing countries under the guidance of the International Monetary Fund (IMF), practise what has been referred to as 'inflation targeting lite' in that they set annual targets for inflation.²

The aim of this article is to address the so-called key 'preconditions' of IT adoption. It assesses the readiness of Zambia for formal rule-based IT. In addition, it discusses the principle of IT itself. The article is thus important for two reasons: 1) it sheds further light on IT as a principle, and 2) it offers a detailed country-specific analysis to provide specific rather than generic information, so as to inform policy formulation. While the merits of IT in developing countries are inconclusive, there seems to be consensus that satisfying preconditions for macroeconomic stability, financial deepening and policy certainty may enhance the success of an IT regime.

The next section presents a brief overview of the Zambian economy. This is followed by a broad examination of the preconditions for IT. The financial sector and fiscal policy requirements as well as the institutional set-ups that support inflation targeting, are discussed. The specific case of Zambia is analysed by considering the readiness of Zambia's monetary, fiscal and political authorities to instigate a successful IT regime. Inferences are drawn for developing countries.

OVERVIEW OF THE ZAMBIAN ECONOMY

Zambia is a landlocked lower middle-income country, with a GDP (2014) of about \$62 billion (see Table 1). This means that the size of the economy is about 12 per cent of that of the biggest sub-Saharan economy, Nigeria.

GDP	\$61.79 billion (2014 est.) \$58.03 billion (2013 est.) \$54.39 billion (2012 est.)
GDP – real growth rate	7.5% (2015 projection)*** 7.3% (2014 projection)*** 6.5% (2013)** 7.2% (2012)***
GDP – composition, by sector of origin	Agriculture: 10.8%, industry: 32.9% (including mining), services: 56.3% (2014 est.)
Unemployment rate	15% (2008 est.) 50% (2000 est.)
Population below poverty line	60.5% (2010)
Budget surplus (+) or deficit (-)*	-5.7% of GDP (2015 projection) -6.6% of GDP (2014 projection) -6.7% of GDP (2013 est.)** -2.8% of GDP (2012)
Public debt	37.3% of GDP (2014 est.) 28% of GDP (2013)**
Inflation rate (consumer prices)	6.0% (2015 projection)*** 7.0% (2014 projection)*** 7% (2013)** 6.6% (2012)***
Current account balance	-0.4% of GDP (2015 projection)*** -0.6% of GDP (2014 projection)*** -1.3% of GDP (2013)** 0.1% of GDP (2012)***
Exports – commodities	Copper/cobalt, cobalt, electricity, tobacco, flowers, cotton
Exports – partners	China 38.7%, South Africa 11.6%, Democratic Republic of the Congo 10.5%, Zimbabwe 6.2% (2013)
Debt – external	\$7.384 billion (31 December 2014 est.) \$5.943 billion (31 December 2013 est.)
Exchange rates (Zambian kwacha [ZMK] per US dollar)	6.1 (2014 est.) 5.4 (2013 est.) 5.147 (2012)***

 Table 1:
 Selected economic indicators

Sources: The world factbook (2013); Lwanda et al. (2014), ** Ministry of Finance and *** IMF (2014).

It has high growth potential with its substantial mineral wealth and largely untapped resources in agriculture, hydropower and tourism (IMF, 2014). More specifically, Caledron (2009) estimates that bringing the infrastructure (e.g., roads and electricity)

to a level comparable with the regional leader (Mauritius) would boost real GDP per capita growth by between 2 and $3\frac{1}{2}$ percentage points.

Notwithstanding infrastructure constraints, poor education and the scarcity of skilled labour over the past decade, its economy has grown rapidly. Overall, output growth has averaged 6.2 per cent a year since 2003, about half a percentage point more than for sub-Saharan Africa as a whole. Forecasts for 2015–2018 see this pattern continuing with yearly growth rates between 7.5 and 7.7 per cent. Growth has mainly been driven by construction and services (IMF, 2014).

Despite its high growth, poverty remains widespread. Available national poverty data (for 2010) indicate that 61 per cent of the Zambian population are poor. Half the population was living in extreme poverty in 2006, but this number decreased to around 42 per cent in 2010. There are various social assistance and transfer programmes in the country, but coverage of the extremely poor is very low (Lwanda *et al.*, 2014).³

The main sectoral components of GDP are agriculture (10.8%), industry (32.9%) (including mining) and services (56.3%). According to the World Bank (2014) the agricultural sector is the major employer (70% of the population). However, the sector's potential to contribute to the country's development (and thereby reduce poverty) remains largely underexploited. Less than 20 per cent of arable land is cultivated, and most farmers operate on a subsistence basis. In a nutshell, here large-scale and continuous investments are needed. In line with this, agriculture is the main recipient of World Bank support.

Manufacturing accounted for about one-tenth of GDP in 2013. The government plans to increase this share via multi-facility economic zones (MFEZs). Food and beverages account for more than two-thirds of manufacturing value added.

Exports are dominated by copper, which accounts for about 70 per cent of export earnings. Total growth in mining slowed in 2011 and 2012, however the sector (especially copper) has continued to grow. The IMF (2014) forecasts growth over the period 2015–2018 to be between 7 and 8.2 per cent per year. However, an impediment to growth is a reliable electricity supply, as mining consumes more than 50 per cent of the total power supply. This sector is the most important recipient of large foreign direct investment (FDI) and accounts for about 10 per cent of the formally employed and about 5 per cent of FDI. However, non-copper exports are growing rapidly. Agricultural exports are growing in nominal US dollar terms by an average of about 45 per cent a year (IMF, 2014).

Zambia's external position weakened in 2013 largely due to fast rising imports against moderate gains from exports. As a result, the current account moved into a deficit of 1.3 per cent of GDP (compared to a surplus of 0.1% in 2012). Due, amongst others, to the Central Bank's efforts to stabilise the kwacha, during 2013

³ Obeng-Odoom (2013, 2014) criticises traditional perspectives on development in Africa and suggests consideration of, *inter alia*, happiness and ecological factors.

international reserves fell to 2.8 months of imports cover. This is equivalent to less than 5 per cent of GDP. The latter illustrates the narrow scope for intervention in the foreign exchange market.

With respect to fiscal policy, the following developments are noteworthy: the fiscal deficit more than doubled in 2013 to 6.7 per cent of GDP (relative to 2.8% in 2012). This was mainly a result of significant spending on subsidies for fuel, maize and agricultural inputs and public sector wages. Notwithstanding IMF (2014) advice to the contrary, fiscal policy was expected to remain broadly expansionary in 2014, focusing mainly on capital spending (Lwanda *et al.*, 2014).

Table 2 shows data on Zambia's monetary policy and monetary variables, including a history of its inflation rate.

Indicator Name	1961– 1970	1971– 1980	1981– 1990	1991– 2000	2001– 2010	2011	2012
Average annual inflation rate	-	11.1	76.9	68.1	15.5	6.4	6.6
Broad money (per cent of GDP)	19.3	29.0	30.9	18.2	21.3	23.4	24.1
Broad money growth (annual per cent growth)	27.2	10.5	41.5	49.9	22.7	21.7	17.9
Real interest rate (per cent)*	-	0.8	-15.5	3.1	11.3	5.6	5.6
Domestic credit (per cent of GDP)	-	41.9	63.9	59.6	28.2	18.1	18.5
Domestic credit to private sector (per cent of GDP)	8.5	17.1	14.0	7.5	9.6	12.3	14.8

 Table 2:
 Selected monetary variables

Source: Chileshe et al. (2014) * The real interest rate is the lending rate adjusted for inflation, as measured by the GDP deflator

As pointed out by Chileshe *et al.* (2014), the conduct of monetary policy in Zambia can be divided into two broadly distinct periods: the pre-liberalisation period (1964–1991) and the post-liberalisation period (1992–to present).

During the first period, monetary policy had multiple and poorly defined objectives and its implementation relied mainly on direct instruments such as controlled interest rates, directed credit allocation, as well as ratios on core liquid assets and statutory reserve requirements. As can be seen from Table 2, during this period inflation was close to hyperinflation; for example it averaged 76.9 per cent during 1981–1990. This was partly due to central bank financing by government – fiscal dominance – as well as the failure of the monetary authority to control the money supply (Chileshe *et al.*, 2014).

In the second period, the amended *Bank of Zambia Act*, 43 of 1996, narrowed down the Central Bank's objective to price and financial system stability. BOZ increasingly relied on indirect (i.e., market related) rather than direct instruments. These included primary auctions of treasury bills and government bonds, as well as auctions of short-term credit and term deposits to and from commercial banks. Partly as a condition of IMF/World Bank-supported reforms, Zambia adopted monetary targets as a guide to monetary policy (Mutoti, 2006). This helped to improve control over the money supply and inflation. As is evident from Table 2, money growth and inflation declined sharply. As pointed out by Chileshe *et al.* (2014), the relationship between money growth and inflation has weakened, as the two have declined. In response the BOZ has started to move towards targeting inflation rather than monetary aggregates, which seems to be in line with Baldini *et al.* (2012, p. 25), who note that while

money targeting remains a common practice in Sub-Saharan Africa, the flexibility with which it is implemented can help avoid potential policy mistakes. In addition, as central banks in the region move toward incorporating additional elements of inflation targeting in their frameworks – with its emphasis on the inflation forecast, greater policy clarity, less reliance on monetary aggregates, and a greater role for short-term rates – the response to large unexpected events should improve.

The literature identifies several preconditions required for the successful adoption of full IT. These include commitment to an inflation target; an efficient transmission mechanism; a developed financial system; and an independent, transparent and accountable central bank. In the next section, we discuss how each of these contributes to the success of IT.

IT: FRAMEWORK AND PRECONDITIONS

IT is characterised by three tenets, namely a) a clear focus on an announced inflation target; b) the use of an inflation forecast; and c) a high degree of transparency (Svensson, 2010). Transparency is important, because as is the case with all public policies, monetary policy benefits from increased public support and understanding.

The inflation target is more often than not defined around the CPI and, in some cases, around broader measures such as the GDP deflator (Freedman & Laxton, 2009). In some instances the measures of CPI are modified, as in the case of South Africa and Ghana. The need to modify the inflation target depends on the dynamics of individual economies. If mortgage payments are a component of the CPI, for

example, in the short run, changes in the policy rate lead to a contrary response in the housing item, thereby increasing the inflation rate if the policy rate changes. To control for this, South Africa modified its initial measure of CPI to exclude mortgage interest payments in the first few years of IT. Similarly, Ghana excluded petroleum prices and utilities in its measure of CPI (used as the inflation target to reduce the potential volatility that arises from these sources of inflation). This was to avoid exacerbating the feedback effect of the policy rate on flexible market rates. Moreover, the CPI sometimes captures transitory fluctuations such as changes in food and energy prices (Heintz & Ndikumana, 2011).

The target rate is often phrased as a band or a point within a range. Typically, these ranges tend to be narrower for more industrialised countries and wider for emerging and developing countries. Monetary policy under an IT framework is implemented by targeting this rate. However, due to the lags between monetary policy actions and the impact on the inflation rate, a forecast of inflation is often used as an intermediate target (see King, 1994; Svensson, 1997, 2005). The effective implementation of IT therefore relies significantly on the ability of the Central Bank to model and forecast inflation, which requires the availability of adequate data. Most IT emerging economies started with little or no forecasting capabilities. It has been argued that an associated (forecasting) model can be simple initially, allowing for the Central Bank's improvement in capacity and increase in complexity over time. Furthermore, most African countries' central banks are also beneficiaries of IMF technical support, and can call on this in the developmental stages. However, difficulties with modelling and forecasting inflation can undermine the credibility of monetary policy and lead to volatility in economic activity when the Central Bank gets it wrong (Ötker & Freedman, 2009). This is compounded by inadequate data series and an incomplete understanding of the transmission mechanism. Understanding of the transmission mechanism, particularly through the interest rate channel, coupled with improving liquidity forecasting and the management and development of highfrequency indicators of economic activity is important for strengthening monetary policy.

A relatively efficient transmission mechanism is important for the successful implementation of IT, and needs to be underpinned by a sound financial system.⁴ It has been argued that IT does not necessarily impose a significantly higher requirement for the soundness of the financial sector (Ötker & Freedman, 2009). While this may be true, other aspects of IT make the need for a sound financial system more essential. In the absence of a sound financial system, the transmission mechanism is unclear. Changes in the monetary policy instrument cannot effectively be translated into changes in economic activity by the public. This makes policy implementation a somewhat hit-and-miss affair, compromising the credibility of the Central Bank, a pillar in the successful implementation of policy under the framework.

⁴ For an analysis of financial development in Africa, see Gwama (2014).

Additionally, a sound and developed financial system is necessary for the successful implementation of IT, as it increases government's financing options (see below). If the financial sector is weak, raising the interest rate in response to positive inflationary shocks may create fears of negatively affecting bank profitability and hence creating instability in the banking sector. Finally, weaker financial systems are more susceptible to the 'sudden stops' of capital inflows (Mishkin, 2004). When markets recognise the weakness of the financial system, a reversal of capital flows is likely to ensue. The result is a weakening of bank balance sheets and a depreciation of the currency which increases the value of foreign denominated liabilities relative to assets. The ultimate result may be the collapse of the banking system as investment and economic activity decline. Moreover, small economy central banks are vulnerable to spill-over effects from larger economies (see Rey, 2015).

The impact of monetary policy on the economy mostly works through its impact on private sector expectations. Therefore, monetary policy in reality entails the management of expectations (Svensson, 2010). Those expectations affect both current pricing decisions and short-term inflation. It is therefore important that such expectations be anchored by the inflation target set by the Central Bank. The more closely private sector expectations are aligned to the inflation target, the more credible the IT regime. (For recent work on the anchoring of inflation expectations in South Africa, see Kabundi and Schaling [2013].) Consequently, the success of IT has to be underpinned by a high degree of transparency and accountability. Regular announcements and publications for the public are typical (Freedman & Laxton, 2009).

In addition to these characteristics, Masson *et al.* (1998) suggest that there are two main prerequisites for inflation targeting: central bank independence and a firm commitment to target inflation. A considerable amount of central bank independence is desirable so that the it has the freedom to steer the policy instrument towards the achievement of the set target, without undue political or fiscal pressure. Consequently, our definition of central bank independence in this article differs from the typical agency theory definition (see Cukierman, 1992; Cukierman, *et al.*, 1992) which constitutes a more comprehensive list including full legal independence, term of office, policy formulation, goal setting and lending to the government.

Full autonomy would entail both goal and instrument independence. In reality, however, many countries do not have goal independence and central banks typically set the goal in consultation with the elected government. In fact, the involvement of government in setting and announcing the inflation target may help to enhance credibility (Berg, 2005). Long-term credibility can, however, be compromised if government changes its target. Surveys of inflation targeters have shown that most central banks which have adopted full IT in general had a high of degree instrument independence at the time of adopting (Batini & Laxton, 2007).

Another important aspect of central bank independence (key to the success of IT) is the absence of fiscal dominance and freedom from political pressure. Fiscal dominance can be defined as the extent to which government deficits condition the growth of the money supply. Where fiscal dominance exists, monetary policy is constrained by purely fiscal considerations. Moreover, Schaling (1998) shows that greater fiscal dominance may lead to higher inflation persistence. To minimise fiscal dominance, public sector borrowing, both from the Central Bank and the banking sector, should be low. This is possible where the government has a variety of sources of income and in particular a broad tax base. Furthermore, domestic financial markets need to have sufficient depth to enable the treasury to diversify its sources of income and therefore reduce the need for inflationary finance (Woo, 2003). African developing countries in general tend to have high domestic debt levels and narrow tax bases, mainly due to high levels of unemployment and inappropriate policies. The IMF (2014) points out that the government of Zambia has used central bank bridge loans, which are intended to assist with cash management but could - if not quickly repaid – constitute central bank financing of the budget.

Batini and Laxton (2007) found a large diversity of fiscal conditions in their survey and conclude that a lack of fiscal dominance is not a prerequisite for the adoption of IT. It is worth noting, however, that their study does not explore the impact of such preconditions on monetary policy implementation, but rather looks at before and after macroeconomic indicators. Such an approach does not account for the challenges that a lack of independence poses for the Central Bank in policy implementation. Ötker and Freedman (2009) detail the IT experiences of eight countries, and state that countries with weak fiscal situations struggle with the successful introduction and implementation the IT regime.

The second prerequisite outlined by Masson et al. (1998) is that central banks 'should refrain from targeting the level or path of any other nominal variable'. Having more than one target variable presents a problem for IT, mainly because the framework relies on influencing inflationary expectations. The presence of a second target variable creates confusion and makes it difficult for the Central Bank to communicate its intentions to the public. This not only creates a signalling problem, but also a credibility problem. Inflationary dynamics in most African countries are very closely linked to the exchange rate (Heintz & Ndikumana, 2011). Where exchange rate pass-through is significant, such countries tend to target exchange rates in some way. This creates the sort of goal tensions discussed above. Aizenman et al. (2011) note that a number of IT central banks in emerging economies actually use mixed strategies in responding to both inflation and the real exchange rate. While responding to fluctuations in the exchange rate is not the same as targeting the exchange rate, the pressure in these countries from IT is often high enough to result in a goal conflict, so that the response to exchange rates fluctuations is more constrained. The simultaneous pursuit of inflation and exchange rate targets has been found to pose challenges with respect to both the introduction and implementation of full inflation targeting (Ötker & Freedman, 2009).

In summary, then, the successful implementation of IT requires the following:

- i. Technical capacity to forecast inflation and understand the transmission mechanism;
- ii. Commitment to inflation as the nominal policy target;
- iii. Central bank independence;
- iv. A sound financial system;
- v. Transparency and accountability.

It is important to ascertain whether the Zambian economy contains the rudiments necessary for IT. The next section addresses this question.

DOES ZAMBIA HAVE THE BUILDING BLOCKS IN PLACE?

Until the early 1990s, Zambia's economy was dominated by government ownership and control. The financial sector was pervaded by direct controls. Monetary policy was implemented through a series of direct instruments such as interest rate controls. credit allocation and reserve requirements. In 1992, Zambia embarked on economic reforms under the auspices of the IMF, and as part of that process the financial sector was liberalised and all controls were removed. The impact of the reforms on interest rates was drastic. Between December 1992 when interest rate controls were removed and June 1993, the lending rate rose by 260 per cent from 47 per cent to 171 per cent. The deposit and three-month treasury bill rates rose similarly from 46.8 per cent to 97.9 per cent and 47 per cent to 164 per cent respectively. Domestic prices increased with a lag so that real interest rates were high and positive for about a year. The annual inflation rate increased to a maximum of 187 per cent in early 1993. By 1996, when the new Bank of Zambia legislation was enacted, the inflation rate had dropped to 41 per cent and has largely been declining since, reaching single-digit figures for the first time in 2005 (Simatele, 2004). However, in early 2014 the BOZ introduced caps on lending rates (IMF, 2014).

Given the new environment, the operations of the BOZ had to be reformed. Its functions were more focused and framed in the *Bank of Zambia Act*, 1996. Under the new act, the role of the BOZ was to 'ensure price and financial system stability so as to promote balanced macroeconomic development'. Monetary policy was implemented using the IMF monetary programming framework with monetary aggregates as the nominal anchor. Reserve money was the operational target and broad money the intermediate target. As the financial sector developed, the bank

took more ownership of the implementation, with more instrument independence albeit with strict oversight by the IMF (Kaylalya, 2001).

The kwacha, the Zambian currency, became fully convertible in 1993. Since then, Zambian inflation has been closely tied to fluctuations in the exchange rate.⁵ Despite this, the BOZ Act makes no explicit reference to the role the BOZ plays in maintaining exchange rate stability. In practice, however, the bank pays close attention to fluctuations in the exchange rate and periodically intervenes in the foreign exchange markets to stabilise the exchange rate (Simatele & Sweeny, 2009). The focus of monetary policy remains on managing inflation within the context of development. It is within this context that the BOZ is now looking to adopt full IT as its monetary policy framework. In the sections below, we discuss the 'state' of preconditions, as set out in the section above, for the Zambian case.

Technical capacity to forecast inflation and understanding the transmission mechanism

Until 2010, the BOZ used the IMF model to forecast inflation. In 2010, the BOZ developed a basic model for simple inflation forecasts. Discussions with BOZ staff indicate that by 2012, the model had been sufficiently developed and a macro model is now used for forecasting inflation. The problem, however, in the Zambian case is inadequate data series. While financial data are easily available, real sector data are scanty. For example, GDP data are only available at annual frequency, while the index of industrial production data is infrequent and often unreliable. The inadequate data series means that results from the forecasting models will be insufficient to provide a good understanding of the transmission mechanism. This will make it difficult for the BOZ to have appropriate reactions to shocks and consequently may damage its credibility.

The transmission mechanism in Zambia is not very clear. Empirical evidence indicates that inflation dynamics in the country are dominated by exchange rate and supply-side shocks (Bova, 2009; Mutoti, 2006; Simatele, 2004). The IT framework, however, is arguably a demand-side framework which can pose problems when inflation emanates from the supply side. Specific clauses can, however, be put in place to allow deviations from target beyond the allowable bounds, when the sources of inflation are supply side – as in the case of Australia and New Zealand (Edey, 2006).

While such caveats are useful, they may not solve the problem if inflation is consistently driven by supply-side factors. Inflation in many African countries is imported mainly via oil and food prices. Given their weak economies and accompanying high unemployment levels, many of these countries would struggle under the pressure of IT which would, in such a case, not have much impact on

⁵ The kwacha is the Zambian currency and at the time of writing was priced at K6.8/USD

inflation (Stiglitz, 2008). Thamae and Letsoela (2014) point out that food inflation in Lesotho is more persistent than non-food and headline inflation. As a result, the monetary authorities have to be vigilant when supply shocks hit food, since such shocks could be propagated into non-food prices and could exert upward pressure on non-food, headline and core inflation (see also Alagidede et al. [2012] for inflation persistence and output shocks). Consistent misses of the target can create credibility problems for the bank and make IT ineffective. Furthermore, the significance of the exchange rate in the transmission mechanism should not be underestimated. The exchange rate is seen as an important variable by the BOZ, particularly due to the high import content of both intermediate inputs and consumer goods. Accordingly, the BOZ intervenes periodically in forex markets to contain excess volatility of exchange rates. Officially, the bank states that it is not an important goal due to the presence of a flexible exchange rate regime, yet it is common knowledge that the public in Zambia closely associate central bank credibility with the depreciation of the currency. Controlling inflation in the early part of 2014 proved to be a major challenge for the bank, owing to the rapid depreciation of the kwacha. As a result, the bank cannot afford to ignore large depreciations if it is to successfully implement policy under IT.

The source of exchange rate fluctuations determines what kind of response the bank will have. For example, if shocks are driven by fundamentals, then an interest rate response is required (Eichengreen, 2002; Jonas & Mishkin, 2003). It is not clear, however, in the Zambian case, whether the relationship between the exchange rate and the interest rate is stable and strong enough to be managed with the interest rate instrument. Perhaps a bigger problem for the BOZ is what Eichengreen (2002) characterises as the 'Prebisch shock' (named after Raul Prebisch); the exchange rate reacts to terms of trade or export demand. The Zambian kwacha has the characteristics of a commodity currency and will tend to exhibit this behaviour. In the event of adverse commodity price shocks there may be two offsetting effects on the inflation rate; the resultant increase in import prices will be inflationary while the dampening of demand may be deflationary. In reality, however, the high import dependence in Zambia suggests that the offsetting effect will be quite low, resulting in an overall positive shock on the inflation rate, underlining the challenge that exchange rate fluctuations pose for IT in Zambia.

Commitment to inflation as the nominal anchor

The BOZ's mandate is 'the promotion of price and financial system stability for balanced macroeconomic development'. While the focus is on price stability, this mandate also highlights the need for economic growth and development. As discussed above, this can create problems in achieving inflation goals, particularly where the need to promote growth – albeit in the short to medium term – may override the

need to control inflation. Such goal conflict is more relevant for developing countries such as Zambia (Hammond *et al.*, 2009). Some countries build flexibility into the process, to allow the Central Bank to respond more to developmental needs if that is warranted. South Africa exercised this provisioned flexibility in 2007 (when increases in global food and energy prices were the main sources of inflation) by not raising interest rates (Heintz & Ndikumana, 2011).

Central bank independence: Political independence

According the BOZ Act of 1996, the board of directors consists of nine board members comprising the bank governor, two deputy governors and six other persons. The secretary to the treasury in the Ministry of Finance represents the government as an ex-officio member of the board without voting rights. This board is the authority responsible for formulating policy. The practical implementation of changes to the policy rate rests in the hands of the Monetary Policy Committee. The bank governor and his deputies are appointed by the president, while the other six members are appointed by the minister of finance. This exerts a significant level of political pressure in terms of policy implementation. The IMF (2014) asserts that in 2013 the BOZ was under political pressure to lower lending rates and strengthen the kwacha. In fact, section II article 5 of the BOZ Act (1996) indicates that directives from the minister of finance will supersede decisions made by the governor and the board in some policy matters. This is compounded by the fact that the terms and conditions under which the governor is appointed are determined by the same minister. Therefore, the legal framework as it is under the current law may compromise the independence of the bank. A draft of a new Bank of Zambia law shows no indications that this will change under the new law.

Fiscal pressure

Debt-to-GDP ratios have declined significantly over the past ten years, falling from 200 per cent of GDP in 2003 to 22 per cent in 2012. Although current debt levels are low, there is concern over the rate at which domestic debt has increased. Between 2006 and 2012, the debt stock grew at a rate of almost 20 per cent per year, fuelling concerns that the country may be headed into another debt crisis just a few years after a debt forgiveness of over \$6 billion. Moreover, despite economic growth rates of over 5 per cent per year since 2003, the country's tax revenues are not increasing in tandem. Failure to resolve royalty taxes in the mining sector has further limited government revenue sources. Increased external borrowing is also limiting the government's borrowing capacity. Between 2013 and early 2014, the government issued sovereign bonds worth \$1.7 billion, despite the country's Fitch ratings reduction from B+ to B in 2013. The reduction in the ratings increased interest payments. Along with other fiscal factors (as discussed), this further reduced

the government's fiscal space, consequently increasing pressure for inflationary finance. It is clear that unless debt management measures are put in place soon, the BOZ will be subject to significant pressure to fund the government budget and higher debt-to-GDP ratios may set in, which will reduce fiscal space and increase the risk of debt monetisation. Further, because of the challenges posed by fiscal policy (including recent large civil servant wage increases) which complicated the BOZ's task of controlling inflation, the BOZ implicitly increased its inflation target for end-2013 to 7.5 per cent (IMF, 2014).

A sound financial system

The soundness of a financial system can be assessed by looking at a set of macro prudential indicators. These indicators give a good idea of the health and stability of the financial system and hence the possibility of the challenges that can be faced, should the BOZ decide to adopt IT. The indicators discussed here are based on the set of quantitative indicators developed by the IMF (Evans *et al.*, 2000). A complete set of indicators (see Evans *et al.*, 2000) is not available, but those that are accessible give a very good idea of the state of the financial system. The Zambian financial system is dominated by banks (about 90% of all intermediation and lending), with a growing stock market. Money markets are still in their infancy, therefore, the discussion below focuses on the banking sector and stock market indicators.

Capital adequacy

Table 3 shows that regulatory capital to risk-weighted assets declined between 2002 and 2008. This trend may have prompted the revision of capital requirements in 2012, thus raising the minimum capital requirements and introducing a new tiered system which requires that foreign banks have a higher level of capital. The amount was raised from K12 million across the board to K104 million for local banks and K520 million for foreign-owned banks (BOZ, 2012). This seems to have introduced some robustness into the sector, with the total ratio rising to 21.3 in 2012 and 23.3 in 2013. The trend is also reflected in the Tier I ratio, indicating an improvement in the quality of the capital. It is still too soon to conclusively say whether this has had a significant effect.

	Total ^a	Tier 1 ^b	Leverage ^c
2002	28	24.8	12.3
2003	23	21	11
2004	22.2	19.6	9.7
2005	28.4	26.2	11.6
2006	20.4	18	9.1
2007	18.6	15.9	9.2
2008	18.6	17.7	9.9
2009	22.3	18.9	11.2
2010	22.1	19.1	10.4
2011	19.2	16.8	10.2
2012	21.3	19.4	12

Table 3: Regulatory capital to risk weighted assets^dset quality

a Total regulatory capital to risk weighted assets

b Tier 1 regulatory capital to risk weighted assets

c Total regulatory capital to total assets

d Minimum capital requirement based on market credit and operational risk first articulated under Basel I (1988), revised under Basel II in 2003 and reviewed again in 2010 in response to risks unearthed by the financial crisis. For more see Bank for International Settlements (2011).

Source: World Bank financial development and structure dataset (2013)

Lending is well diversified across sectors in the country. However, the average of 20 per cent lending to agriculture is a concern, particularly because this sector is very sensitive to climatic shocks. A rapid growth in domestic foreign currency-denominated lending can signal future risks, especially when such lending is to firms which do not have a stable source of foreign exchange revenues. Figure 1 shows that the ratio of foreign currency loans to total loans has declined from 46.8 per cent in 2003 to 3.3 per cent in 2013. Foreign currency liabilities have also declined by almost half. Non-performing loans declined to 8.2 per cent of total loans in mid-2013 from 15 per cent in 2010, and have otherwise shown a stable quality of credit portfolios with the exception of 2009–2011, most likely reflecting the effect of the global financial crisis. Most banks have improved their credit-screening techniques, resulting in little change in loan loss provisioning aside from 2008, probably in anticipation of the impact of the global crisis.



Figure 1: Foreign currency loans and liabilities

Source: World Bank financial development and structure database (2013)

Earnings and profitability

Earnings and profitability indicators are measured using the return on assets and equity ratios. These ratios give an idea of the banking sector's capacity to strengthen its equity and return on investment. Bank profitability has been buoyant, although both the return on assets and return on equity ratios have been declining. This is reinforced by looking at the net interest margin which has shown similar trends. Both ratios have shown a recovery since 2010. While positive net interest margins are good, and show that the banking system is sound and that banks are making the right investment decisions, high margins can also be an indicator of inefficiency as the costs of the bank are passed on to the consumers, which can place a burden on economic growth. Furthermore, the size of the rate of return on equity must be interpreted with caution, as it is affected not only by profitability but also by the level of capitalisation.



Figure 2: Return on assets and equity

Source: World Bank financial development and structure dataset 2013

Liquidity indicators

The Zambian banking sector has been characterised by high levels of liquidity. Figure 3 shows that the liquid assets ratio has been declining, while the loans to deposits ratio doubled over the period. The BOZ increased the minimum reserve requirements to mop up the liquidity, but this was reduced in 2011 in a bid to lower persistently high lending rates. By early 2014 bank liquidity had become a major problem for the bank, and minimum reserve requirements and interest rates were increased to try and reduce excess liquidity (which can have adverse consequences for the ability of monetary policy to affect demand conditions and hence harm the effectiveness of IT).

Is Zambia ready for inflation targeting?



Figure 3: Liquidity indicators



Financial depth

Other than the soundness indicators discussed, a well-developed financial sector provides for a variety of financial instruments allowing for a diversity of funding sources. In addition, shallow financial markets limit monetary policy effectiveness (Kalyalya, 2009). Deeper markets have stronger interest rate and credit channels of monetary transmission, and reduce the relative role of exchange rate movements. Significant strides have been made in the development of financial markets in Zambia since the sectoral reforms of 1992. Gradual liberalisation has facilitated competition, and the entry of foreign banks as well as the development of non-bank financial institutions. As can be seen from Table 4, the total number of institutions almost doubled between 2003 and 2010.

	2003	2004	2005	2006	2007	2008	2009	2010
Microfinance	4	2	4	6	8	18	25	24
Leasing Companies	8	9	8	8	10	10	12	11
Bureau De Change	31	30	32	31	36	38	44	50
Financial Corporation	1	1	1	1	1	1	1	1
Total	44	42	45	46	55	67	82	86

 Table 4:
 Number of non-bank financial institutions, 2003–2010

Source: Bank of Zambia (2011)

The banking sector, however, remains undeveloped and concentrated with real lending rates which are among the highest in the region, combined with low levels of financial access. Traditional measures of depth show that the Zambian markets remain shallow relative to those of its peers. Credit to the private sector has shown a general upward trend from about 2003. However, the IMF (2014) notes that credit to the private sector was at 15 per cent of GDP in 2012 – well below the median for lower-middle-income countries which are in the region of 28 per cent of GDP. This follows its 2011 observation (IMF, 2011) that the financial sector development plan (FSDP) fostered stability, but that less progress was made on financial development.

The stock market plays a critical role in the provision of capital for real activity in the economy, making it an important aspect of financial sector development. The Lusaka Stock exchange was established in 1993. Since then, the number of companies listed on the exchange has increased from two in 1995 to 20 (by the close of 2012). Capitalisation increased from 7.13 per cent of GDP to 17.74 between 2000 and 2012. However, traded volumes and turnover were low at only 5.58 per cent and 0.52 per cent respectively in 2012 (Lusaka Stock Exchange, 2012; Marone, 2003).



Figure 4: Indicators of stock market development in Zambia *Source: World Bank financial development and structure dataset (2013)*

The ratio of broad money to GDP has been relatively constant over the same period (see Figure 5). Slight declines are observed and in 2012 the M2:GDP ratio was at a decade low of 14.2 per cent. A cautious interpretation of the decline is that it indicates the growing maturity of the financial sector as more instruments become available. Although the financial sector remains bank dominated, the banks have introduced a number of new instruments leading to a banking system that is more sophisticated than it was in 2004, when the financial sector development plan was started.

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Figure 5: Indicators of financial depth

Source: World Bank financial development and structure dataset (2013)

Transparency and accountability

In April 2012, the BOZ introduced the Bank of Zambia policy rate in an effort to better anchor inflationary expectations and signal its monetary policy stance. The rate was also to be used in improving the BOZ's influence on the commercial bank pricing of credit, which had hitherto been plagued by large spreads. Accompanying this was the advent of increased transparency by the bank. It issues a monthly communiqué explaining policy rate decisions made by the Monetary Policy Committee. With the introduction of the policy rate, the operational target was changed from reserve money to the overnight interbank rate (BOZ, 2012). These changes have been implemented with the view that the BOZ will eventually adopt full IT.

IS ZAMBIA READY? A SUMMARY OF PRECONDITIONS

This section presents a summary of the seven preconditions identified (see Table 5). A score is assigned to each condition, such that 1 is assigned if the condition is met, and 0 if not. Partial fulfilment corresponds with a score of 0.5. The BOZ does not have the technical capacity to forecast inflation. Here the main problem is inadequate high-frequency data series with respect to economic activity. Studies attempting to explain the transmission mechanism have resorted to using unconventional measures, such as electricity production, to measure economic activity (e.g., Chileshe *et al.*, 2014).

Transparency is in place. While the monthly communiqué explains policy rate decisions, an attempt is also made to announce any contingent decisions made by the BOZ. The importance of transparency and accountability is only relevant in the context of central bank independence, which we argue is not the case in Zambia. Therefore we assign a score of 0.5 to this item. The financial system – which is

bank dominated – is sound. A score of 1 is assigned to financial sector soundness. However, financial markets are underdeveloped which hampers the implementation of monetary policy. The exchange rate dominates most of the discussions around the effectiveness of the BOZ. BOZ credibility and commitment to inflation as a nominal policy target therefore is partial and is assigned a score of 0.5. Both central bank independence and understanding of the financial transmission mechanism are given a score of 0. Current legislation and practice still leave a lot of room for both political and fiscal interference in BOZ operations.

Precondition	Score
1. Technical capacity to forecast inflation	0
2. Transparency	1
3. Accountability	0.5
4. A sound financial system	1
5. An understanding of the transmission mechanism	0
6. Central bank independence	0
7. Commitment to inflation as the nominal policy target	0.5

Table 5: IT in Zambia: Preconditions

CONCLUSIONS

In April 2012, the BOZ introduced the policy rate and moved away from monetary targeting as a step in the direction of possible full-fledged formal IT. This article looked at some preconditions that need to be fulfilled in order for IT to be successful.

The transmission mechanism in Zambia is not very clear. Empirical evidence indicates that inflation dynamics in the country are dominated by exchange rate and supply-side shocks. In terms of central bank independence, there is a substantial amount of political pressure in policy implementation and fiscal dominance. Unless debt management measures are put in place soon, the BOZ will be subject to significant pressure to fund the government budget and the possibility of higher debt to GDP ratios, which reduces fiscal space and increases the risk of debt monetisation, which will have ramifications for domestic price stability.

The BOZ's mandate is 'the promotion of price and financial system stability for balanced macroeconomic development'. While the focus is on price stability, this mandate also highlights the need for economic growth and development. The exchange rate is seen as an important variable by the BOZ, particularly due to the high import content of both intermediate inputs and consumer goods. As a result, the bank cannot afford to ignore large depreciations if it is to successfully implement policy under IT. Consequently, although the exchange rate regime is afloat, it is an important intermediate target in monetary policy setting. Our overall assessment is that only two out of the seven preconditions are being fully met, and two are being partially met. Consequently, it is too early for Zambia to move to a system of full-fledged formal IT. Thus, while the idea itself is sound, IT in an unprepared environment may produce perverse incentives, and complicate both fiscal and monetary policy. It is thus imperative that policy makers in Zambia and elsewhere in the developing world address the preconditions highlighted in this article, before adopting fully-fledged IT.

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