FACTORS THAT IMPEDE VIABLE BOND MARKET DEVELOPMENT IN ONE HYPERINFLATIONARY ECONOMY

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ABSTRACT

This study offers an assessment of the viability of the fixed income securities market for one hyper-inflationary economy since 1997 when its financial market took a volatile shape. The financial sector (banks) continues to grapple in trying to address inflationary pressures, while long term lending for capital development (bond market) including the secondary market is struggling to "take off the ground". The combined effects of short-term interest rate volatility, political instability and hyperinflation in the Zimbabwean economy led to great uncertainty in its securities market and consequently, to unstable bond market. Data were collected through secondary sources and additionally, surveys were carried out; shows that inflation is the main factor contributing to the uncontrollable volatility of short term interest rates. The subsequent effect of inflationary pressures increased uncertainty in pricing of long term securities such as bonds. Empirical findings, expert advice, facts and opinions were used, with recommendations on what needs to be done to salvage the securities market in Zimbabwe, and to create a viable and stable fixed income market (imperative for capital investment and infrastructure development).

JEL: E6

KEYWORDS: Rules versus Discretion, Stabilization, Treasury, Bond market, Hyper-inflation, Financial Markets, Market volatility, Interest rates, Zimbabwe

INTRODUCTION

The relationship between financial market development and economic growth has received considerable attention over the years. Increased availability of financial instruments reduces transaction and information costs and promotes growth in the economy by helping economic agents hedge, trade, and pool risks in attracting investments (Wachtel, 2001). Developing a viable bond market provides stable and predictable sources of funding for borrowers and reliable sources of income for investors (Aggrawal, Inclan & Leal, 1999). Participants are able to pursue investment activities with known costs of funds and returns (Hirotaka, 1997). Infrastructural development projects with marginal economic returns sensitive to the cost of funds can proceed on the basis of more certain funding costs (Arnold & Vrugt, 2006) obtained through access to the bond markets while providing investors with predictable cash flows (Bukley, 1998; German, 1977; Cagan, 1956). The vast majority of literature on finance and growth has largely ignored the bond markets despite their role as an essential source of external finance (Boyd, Levine & Smith, 2001). Financial markets and banks may provide complementary growth-enhancing financial services to the economy (Fink, Haiss & Hristoforova, 2003).

This study offers an assessment of the impact of money market rate volatility on the viability of the Zimbabwean fixed income security market (Brennan & Schwartz, 1979). The combined effects of political instability and hyperinflation in Zimbabwe have led to great uncertainty in the securities market and consequently, to unstable bond market (Bekaert & Harvey, 1997). The money market, which is an indicator of the short term interest rates (Bernanke, Gertler & Gilchrist, 1996), has been characterized by major fluctuations hitting all time high rate of 850% per annum in March 2006. More recently (Feb 2009, the rates have been depressed to as low as 0 to 100 % for investment periods ranging from 7 days to 365

days). Such interest rate fluctuations create significant uncertainty in the pricing of interest-bearing instruments (Beckers, Grinold & Khan, 1994). The intensity of these fluctuations, make it necessary to look at their effect on the bond market development in Zimbabwe.

This paper is organized as follows; next is a brief review of related literature, followed by some contemporary issues on Zimbabwe, which forms the basis for identification in this study. The empirical analysis together with the discussion of the results is provided in section three, followed by the concluding comments and implications for future research.

LITERATURE REVIEW

Price stability is a crucial prerequisite for developing viable longer term fixed interest financial markets (Bernanke et al, 1999; Bernanke et al, 1996, Dalla & Khatkhate, 1996; Fischer, 1975). For example, the continued high inflation impedes development of the market for fixed rate governments bonds (Burger & Warnock, 2006; Blake, 1991). Two cases in point can be sighted; (1) In Jamaica, a continued high inflation impeded the development of the market for fixed rate governments bonds (Arnold & Vrugt, 2006), (2) A report by the Regional Economic Monitoring Unit for the Asian Development Bank (2002) stated that a robust domestic bond market was unlikely to evolve in a volatile macroeconomic environment characterized by volatile inflation and interest rates, confirming the findings of Culberison (1957) and Arnold and Vrugt (2006).

The bond market fails to take off largely as a result of the unstable interest rate regime (Daher El Samir, 1997). Existing research (Cecchetti, Genberg, Lipsky & Wadhwani, 2000; Bernanke & Gertler, 1999; Fischer, 1975; Dieffenbach, 1975; Bierwag & Grove, 1967; Duesenberry, 1958) enlist about four key prerequisites for a successful bond market; the macroeconomic stability, fiscal discipline, improved legal, accounting and regulatory systems for the financial sector, and a sound tax system. Investors are unwilling to stretch their investments to more than a year because of the uncertainty in the macro-economic investment climate (Dornbush; 1996; Long, 1974; Hakansson, 1970). The money market takes a volatile shape as most of the money market participants (Banks) have the products tailor-made to address inflationary pressures while the long term lending for capital development (Bond market) including the secondary market is struggling to "take off the ground". According to Yam (1999), the existence of an efficient bond market lies in the hive of the primary bond market and the liquidity of the secondary bond market. In other words, the bond market ensures an adequate supply of new capital in the primary bond market. In support of this assertion, Mohanty (2001) cites the lack of liquidity as the major obstacle to the development of a viable bond market.

A banking sector that is free from political interference and operating on economic principles (Levine, 1997) can be an important ingredient to the development of a viable bond market. Burger and Warnock (2004) posit that countries with strong banking institutions have broader local currency bond markets. Efficient bond markets require an environment where there is a healthy interplay between demand and supply elements which facilitate the price discovery process and results in adequate market depth and liquidity (Briers, 1999). Ngiam Kee Jin (2002) identifies the 'original sin' problem as real. It states that 'any country hoping to build a viable bond market must understand the conditions' that lead to a successful economy. A country with sovereign risk, high inflation and an unstable currency will find it difficult to develop its domestic bond market. Such an economy is said to have the 'original sin' problem. Sovereign risk arises when repayments from domestic borrowers can easily be interrupted because of interference from the national government. According to Eichengreen and Hausmann (1999), **'**original sin' is the inability of developing economies to borrow from international financiers using local currencies. Investors become nervous about investing in domestic currency denominated assets; and hence perpetual depletion of Foreign Direct Investments.

In his earlier study, Dothan (1978) argues that a banking sector that is free from political interference and operating on market principles can be an important ingredient to the development of a viable bond market. His assertions were supported by Arnold and Vrugt (2006). Burger and Warnock (2004) also agreed with these arguments and contended that countries with strong banking institutions have broader local currency bond markets. Efficient bond markets require an environment where there is a healthy interplay between demand and supply elements (De Leeuw, 1965; Feller, 1951) which facilitates the price discovery. Researchers provide that the major barriers to the development of bond markets include: non-uniform issuing practices, antiquated trading infrastructure, non-existent benchmark yield curves, lack of credible domestic rating agencies, unfavorable regulatory and tax treatment, and a shortage of both supply and demand for bonds (Briers *et al,* 1999).

Description of the Zimbabwean Economy

Once the breadbasket of Southern Africa, Zimbabwe is now a fragile nation with a population of 12.5 million in 2010, and a gross national income per capita estimated in the same year to be less than US$160, compared to sub-Saharan Africa average of US$1,428 (Bekaert & Harvey, 1997), making it one of the poorest countries in the world. During the last decade (years 2000 to 2010), Zimbabwe's economic activity fell drastically (Reserve Bank of Zimbabwe, 2008). Real gross domestic product (GDP) growth recorded a cumulative contraction of about 48%, representing upward of 5% annual decline (Central Statistics Office, 2010). The decline cut across all key sectors, despite Zimbabwe's rich resource endowment (Reserve Bank of Zimbabwe, 2010). Agricultural value-addition contracted by 86% during the period 2002-2008 (Biti, 2009). A viable bond market is an alternative that deserves a priority in the financial sector development agenda (Arnold & Vrugt, 2006; Bernanke & Gertler, 1999; Blake, 1991; Beja, 1979). The country has been increasingly isolated from the international community and the financial sector continues to diminish greatly (Central Statistics Office, 2010). The Zimbabwean government relies heavily on debt financing contradicts fiscal prudence (Turner, 2003).

Fiscal prudence states that high government deficits and huge debts destroy credibility (Cecchetti, Genberg, Lipsky & Wadhwani, 2000; Dornbusch, 1996). In Zimbabwe, new debt is issued to acquire the necessary funds to pay off old debt falling due. According to an African Markets Research Article (August 2006), the half-year government revenue amounted to $76 Billion whilst the expenditure amounted to $90.8 Billion leaving a half year budget deficit of $17.8 Billion, financed through 91 day treasury bills. Over 96.5% of government debt was in fact in the form of 91 day treasury bills. The government alone became the largest borrower for 2007, thus crowded out other essential borrowers for productive sector (Reserve Bank of Zimbabwe, 2007).

The Central Bank routinely printed money to fund the budget deficit, causing the official annual inflation rate to rise at astronomical rates. The past ten years has seen inflation spiraling sharply from an annual rate of 20% in 1997, to 133% in 2004, 585% in 2005, over 1000% in 2006, through a peak of 5594% in 2007 to a staggering 231000% in 2008 (Reserve Bank of Zimbabwe, 2010). Meanwhile, the official exchange rate fell from approximately 1 (revalued) Zimbabwean dollar per US dollar in 2003 to more than 17,500 per US dollar in 2007 and in 2008 it got into billions.

Total government debt stood at $175.66 billion in 2008. Out of this total debt, outstanding government stock was $1.63 billion (representing only 1%), Treasury Bills at cost constituted $59.13 billion (34%) while the Treasury bill interest component was $114.90 billion (over 65%). This clearly shows that the role of the Treasury bond financing has consistently been reduced as a percentage of the total debt of the government. Government debt service can consume a significant part of government revenues, especially given that the interest cost of borrowing rises quickly along with increases in the outstanding stock of debt, especially in inflationary financial markets (Aggrarwal, Inclan & Leal, 1999). In Zimbabwe, given that financial resources are limited, expansions in government debt will more easily lead to higher debt

costs. Even after the fall of the decade in 2010, the government continues to struggle to clear government debt by borrowing to repay previously existing debt. The government domestic debt continues increasing rapidly against the background of increased expenditure demands by the government. This is mainly because of the need to finance the government budget deficit (Brennan & Schwartz, 1979), accumulate foreign and domestic assets, as well as repay other previously incurred debts (Biti, 2009).

The financial sector stopped function intensively in 2007. In 2008 the Central Bank stopped printing local currency as it became worthless (Africa Research Bulletin, 2010). The whole economy then relied on individuals employed in foreign countries) sending money home to support their relatives. These are popularly known as the 'Diaspora' inflows. At the beginning of 2009, the economy abandoned the local currency and adopted both the US dollar and the South African rand as the official currencies. This has apparently not added value to the currency flow in the economy. Although inflation stabilized between 3% and 10% in 2009, it has not ignited meaningful economic development.

The use of the US dollar and the SA rand as official currencies also called the 'dollarization' has militated against the economy. Salaries are at their lowest levels and this has not encouraged savings and investments (Raftopoulos, 2005). The coalition government that took over the reins of power in 2009 promulgated a more stable and liberalized economic environment. In response to this positive development, real GDP was estimated to have grown by 4.7% in 2009 (higher than earlier IMF projection of -2.8%), compared with a decline of about 14% in 2008 (Biti, 2009). This was underpinned by the restoration of business confidence as reflected by the gradual improvement of capacity utilization and anticipated recovery in agriculture and manufacturing (Central Statistics Office, 2009). The capacity utilization in manufacturing rose from less than 10% in 2008 to nearly 30% in 2010. Some mines have reopened, taking advantage of the removal of forced foreign exchange surrender requirements and full retention of market proceeds. The hyperinflation of the decade has been brought to a partial halt, reflecting the dollarization of the economy and the end of monetary injections. From January to October 2009, month-on-month inflation remained low and stable, fluctuating between 3% and 7%. Inflation is expected to remain stable in the short run, reflecting a continuation of these favorable developments.

Notwithstanding these economic turn-around efforts by the coalition government, the country continues to face major challenges. Arrears of some US$3.2 billion on external public debt impose significant limits on the amount of support available from development partners. Moreover, the public debt overhang of about US$6 billion (about 170% of GDP) constrains access to international capital markets and discourages private investment (Mahony, 2001; Cagan, 1956).Deterioration in the basic infrastructure is a key impediment to economic recovery in both the short- and medium-term (Valle, 2006; Daher El Samir, 1997). Concerns about the security and the rule of law coupled with concerns about inadequate protection of property rights have led to sagging private sector confidence (Arnold & Vrugt, 2006).Food insecurity, the rising incidence of malnutrition, deterioration and poor access to clean water, medicines and other health services have eroded the quality of life for a majority of the population. There is a severe shortage of official and private external financing, there are very little foreign direct investment funds flowing in (RBZ, 2006).Erosion of human and institutional capacities (Malkiel, 1966) in the public and private sectors continues to impede the capacity for economic reform and delivery of basic services (Central Statistics Office, 2009).

METHODOLOGY

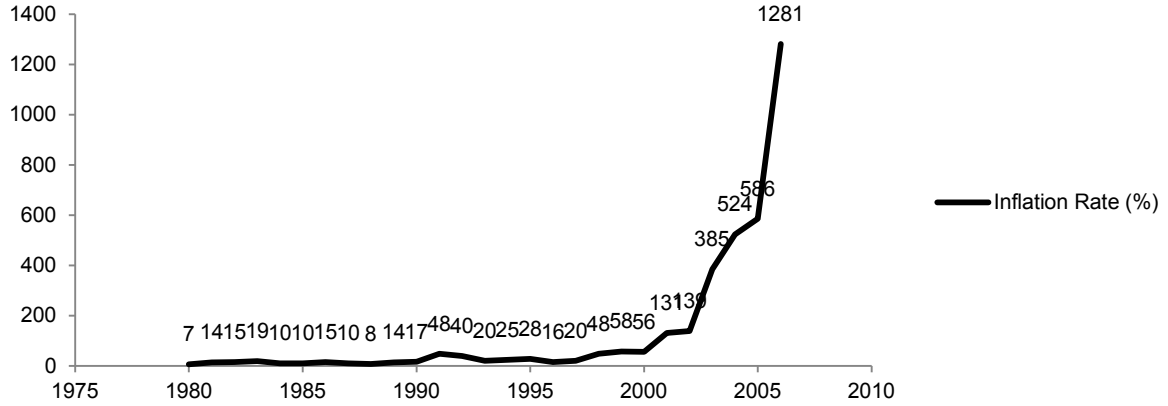
The study employs annualized data for Zimbabwe. The principal source for the data on interest rates, inflation rates and government debt is the Central Statistics Office (CSO) and the Reserve Bank of Zimbabwe (RBZ) websites. The study identifies factors that impede the development of a bond market in Zimbabwe. Although the interest rates were obtained as monthly data, they were annualized. Additionally

surveys were carried out to establish the activities and opinions of key players in the financial services market of the economic.

RESULTS

The money market, which is an indicator of the short term interest rates (Dalla & Khatkhate, 1996; Cox, Ingersoll & Ross, 1985 & 1981; Beja, 1979; Hicks, 1946) have been characterised by major fluctuations hitting the all times high rate of 850 % in 2006. The subsequent two years (2008) saw the interest rates depressed to as low as 200% for investment periods ranging from 7 days to 365 days against inflation of 231000%.

Figure 1: Inflation Rates (1980-2008)



Source: Reserve Bank of Zimbabwe (2009)-shows the inflation rates from 1980 to 2008. The trend indicates a phenomenal spiralling behaviour over the last decade starting in year 2000.

In 1980, when the country got its independence, the inflation rate was 7%, it slightly rose over a 10-year period to 17%. By the year 2000 the inflation had gone up 8 times over to 56% and by the year 2007 it had reached phenomenal 5-digit levels above 2400%. In October of 2008, the inflation was going up every day, reaching highs of 231051%. This had an adverse impact on the economy. Repeated attempts to support the currency by raising interest rates harms the financial position of firms as a result of the rise in the short term interest rate, given the absence of long term, fixed rate debt (Bordo, Meissner & Redish, 2003). Deep and liquid bond markets offer a way to cushion the impact of banking crises when they arise (Mohanty, 2001; Valle, 2000). In other words, bond markets play a pivotal role in the development of stable and efficient financial markets (Cecchetti et al, 2000; Bernanke et al, 1996).

The usefulness of domestic debt markets can also be seen in the context of countries that are dependent on aid flows (Copeland & Weston, 2001; Aggrawal et al 1999), like Zimbabwe in this case. International aid is often linked to project financing and can therefore not finance capital projects not supported by the donors. Furthermore, the supply of foreign financing is uncertain, and dependent on the aid agencies' budgets and assessment of economic performance in the recipient country. What the economy needs is capital injection through foreign direct investments and a viable capital market. The debt market in Zimbabwe is largely a captive market (German, 1977); a high proportion of the government securities are held by commercial banks and finance companies. These organizations hold stock mainly to fulfill the minimum liquid asset requirement. The subsequent table (Table 1) provides an iteration of the investor base over a 13year period to 2005.

While commercial banks enjoy a relatively high income from government debt, their large holdings of government stocks (Table 1 above) reflect some fundamental shortcomings in the commercial banking

operations. These shortcomings include institutional weaknesses that undermine lending to the private sector, given ineffective screening and monitoring capabilities of loans, little reliable information on creditworthy borrowers, and weak legal systems (World Bank: IMF, 2001). The remainder of the government securities are also held (usually to maturity) by insurance companies as prescribed asset requirements, therefore there is little trading of these securities in the secondary market.

Table 1: Investor Base at a Glance

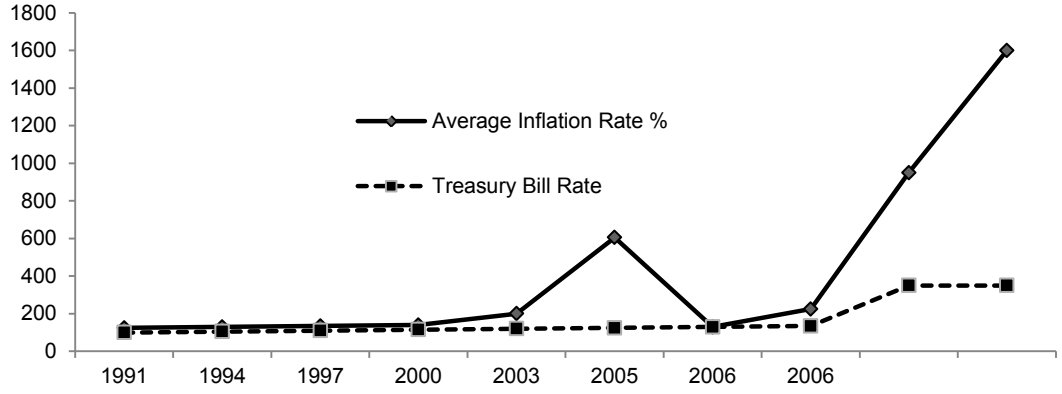
Investor Base of Government Securities (US$million)							
Years	Commercial Banks			% held by Commercial Banks	Others*		Total Government Securities
	Investment in T-bills	*Investment in T-bonds*	*Total Investment*		*Others**	*% held by Others*	
1993	2161	3251	5412	87.72%	757	12.28%	6170
1994	1773	5053	6826	90.66%	703	9.34%	7530
1995	1998	5934	7932	91.39%	747	8.61%	8680
1996	3362	6403	9765	87.34%	1414	12.66%	11180
1997	4660	6945	11605	84.71%	2094	15.29%	13700
1998	4798	7975	12773	82.68%	2676	17.32%	15450
1999	4888	8681	13569	84.23%	2540	15.77%	16110
2000	3661	10092	15753	84.88%	2806	15.12%	18560
2001	5939	11599	17538	85.55%	2962	14.45%	20500
2002	6738	12145	18883	86.26%	3006	13.74%	21890
2003	8103	18398	26502	92.57%	2128	7.43%	28630
2004	11264	19684	30948	87.67%	4351	12.33%	35300
2005	11023	22694	33718	77.98%	9521	22.02%	43240

Source: Central Statistics Office (2006) - shows that the majority of government securities are held by commercial banks;. There is a sizeable increase in the total government securities over the indicated period in the table. Others include corporations, insurance companies, asset managers, discount houses, merchant banks and other investors*

Inflationary pressures prevailing in the economy have eroded the purchasing power of the nominal returns earned (Arnold & Vrugt, 2006). The bond market is slowly dying a natural death as few and few bonds are issued due to the hyperinflationary environment which has seen inflation hitting hundreds of thousands as illustrated in figure 2 (below). A bond market cannot exist in such a hyperinflationary environment (Fischer, 1975).Most investors in Zimbabwe prefer equities and property investments over bonds because of the yields on bonds, particularly government bonds, are low and unattractive. Most of the previous bond issues by the Government of Zimbabwe were 'plain vanilla' bonds and as such they are vulnerable to inflation. In terms of improving the features on the bonds in an inflationary environment, bonds should be linked (indexed) to inflation (Valle, 2000; Fischer, 1975). In general, when inflation is above the nominal amounts required to give monetary freedom and investing incentive, it is regarded as negative, particularly because in current economic theory, inflation begets further inflationary expectations (Beja, 1979).

The Fisher equation predicts a close relationship between inflation and the rate of return on Treasury Bills (Fischer, 1975). This is clearly shown in the graph above (figure 2), which plots both the TB rate and the inflation time series on the same set of axes. Both series tend to move together, which is consistent with the statement that inflation is a significant force determining the nominal rate of interest (Feller, 1951). The surveys carried out also confirmed that the main factor contributing to the volatility of short term interest rates was inflation. Inflationary pressures also increase uncertainty in the pricing of long term securities (Obi, Dubihlela & Choi, 2011). The nominal interest rates on government issued bonds were less than the rate of inflation (as illustrated in figure 2 above), leading to a wealth loss to the bond investors. Interest rates volatility and bond prices have an inverse relationship, such that the prices of existing bonds move up as market interest rate move down.

Figure 2: Inflation Rate and the TB Rate (1991-2006)

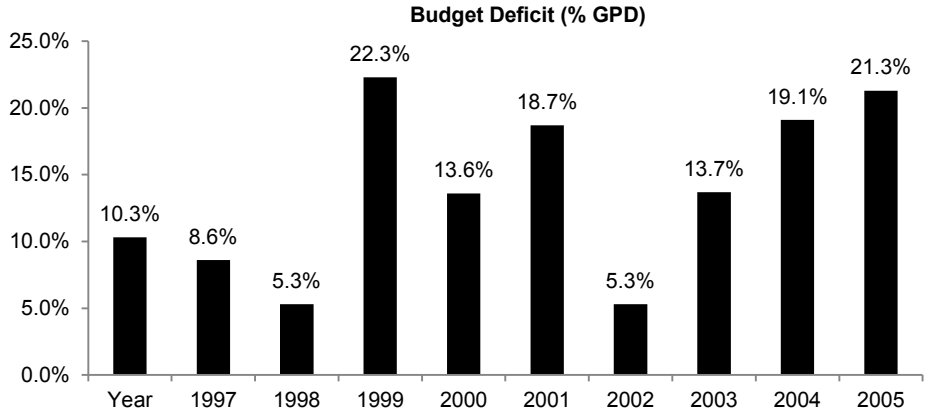


Source: Reserve Bank of Zimbabwe 2007 – illustrates the comparative trends of the average inflation rate and the Treasury bill rate over a 15 year period to 2006. Inflation rate is shown to be consistently above fixed term investment rates; a trend that discourages savings and erodes treasury bills.

Government budget deficits represent the excess of government expenditures over revenue collections. While the size of the budget deficit may not matter, its quality and financing mechanism, however, have important implications for inflation, interest rates and other macroeconomic variables (Obi, Dubihlela & Choi, 2011). The following graph (Figure 3, below) shows the extreme deficit that was experienced in the year 2000; indicating the start of the ominous economic collapse. From then onwards, the budget deficit continued to increase as the economy also continued to hit its bottom levels. The farming sector together with the manufacturing sector continued to be depressed hitting their lowest levels in the year 2008.

The maturity structure of government debt can affect both the costs and risks of using financial instruments, prompting the central bank to issue bonds whose maturity mirrors the maturity structure of short-term current and long-term capital expenditures. The absence of a contractual savings sector and mutual funds with sufficiently long investment horizons may also limit the ability of the government to extend the maturity structure. To some extent, the length of the maturity structure can be viewed as a measure of the degree of market development

Figure 3: Budget Deficit (1997-2006)



Source: Reserve Bank of Zimbabwe (2007) - The above figure represents Zimbabwe's fiscal deficits that shot beyond 10% of GDP over the last decade, peaking at 22% in 2000

CONCLUDING COMMENTS

The goal of the paper was to present an assessment of the viability of the securities market development for an economy whose financial sector continues to grapple under inflationary pressure. The study confirmed that the securities markets in Zimbabwe are below what can be expected, given the economic and institutional fundamentals. In particular, the shortfall in domestic stock market activity (market capitalization, trading, and capital raising) and other factors including per capita income, macroeconomic policies, the size of the economy, and measures of the legal and institutional environment.

The findings confirm that a country with sovereign risk, high inflation and an unstable currency will find it difficult to develop its domestic bond market. Increasing uncertainty discourages investment and saving; reducing drastically all forms of investment, and particularly foreign direct investment (FDI). The study also found that savings constraint is a key impediment to domestic bond market development. Poor liquidity is causing financial market deepening, resulting in a low level of financial intermediation by the banks. The increasing of rates by the central bank is just an attempt to control inflation which has a strong bearing on bond prices. It is follows that a rise in the short-term interest rates prompts a subsequent increase in the long-term bond interest rates too.

The results show that a confluence of factors is critical for the development of domestic bond markets in such inflationary markets. The structure of the economy, investment profile, legal environment, size of the banking sector, and the level of economic development are pre-requisites for a viable capital market. Because commercial banks hold more than half of the outstanding domestic debt, expansion has had a significant negative impact on private sector lending. The nonbank sector plays a limited role, given a relatively underdeveloped institutional investment sector in Zimbabwe. Specifically, a robust financial services sector that is free from political interference and operating on market principles is important for the development of a viable bond market. This is not the case with the Zimbabwean political economy. Ravaging or runaway inflation decrees the level of prevailing interest rates. The paper provides some policy implications as enlisted in the following section.

It is imperative to emphasize the key steps in designing country-specific financial market reforms going forward, and there should be a determination from the monetary authorities to sustain an active domestic bond market for private sector securities as well. Policy implications include increased efforts to strengthen the investment environment and the need for a regional integrative approach to bond market development. Monetary authorities need to take into account the intrinsic characteristics of Zimbabwe (such as small market size, governance dilemmas, lack of risk diversification opportunities, presence of weak currencies, and the prevalence of systemic risk), and how these features limit the scope for developing deep domestic capital markets. The reforms must be couched within a broader vision of financial development in the context of international financial integration, with the view of holding inflation at sustainable levels. This view therefore calls for a more varied reform agenda that promotes market development and an investor friend environment. A one-size-fits-all political approach is destined to fail.

The findings in this study should of course be taken with circumspection. The limitations of bond market data, as well as their aggregate nature, do not allow for a more elaborate empirical approach. It would be useful to use firm-level debt data on the source of domestic external finance of firms, to see how firms with greater reliance on securitized debt fare better after. Firm-level data would also help to account for firm size, particularly since larger firms tend to rely on debt finance. It is possible that the variables used are too general and fail to capture specific aspects of the institutional and regulatory framework that are particularly relevant for bond market development. While we discussed different factors that may explain our results, we kept the discussion at a general level and have not evaluated our hypotheses empirically. Thus, we believe that our conclusions should remain tentative and that further empirical research is needed to further interrogate the various impediments of capital market development in Zimbabwe.

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