UNIVERSITY OF ZIMBABWE

FACULTY OF SOCIAL STUDIES

DEPARTMENT OF ECONOMICS

"CAPITAL FLIGHT AND EXTERNAL DEBT: REVISITING THE REVOLVING DOOR HYPOTHESIS FOR ZIMBABWE (1980-2010)"

By

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A Dissertation Submitted in Partial Fulfillment of the Requirements of Master of Science Degree in Economics

June 2016

ABSTRACT

The relationship between capital flight and external debt has been described as two faces of the same coin and it has attracted a lot of attention from policy makers and academics. Due to the observed incidence of high capital flight and external debtin Zimbabwe, this study examined the relationship between capital flight and external debt in Zimbabwe. The main objective of the study is to establish the direction of causality between capital flight and external debt for the period 1980-2010 in the spirit of the revolving door hypothesis.The hypothesis of the study is that high levels external debt drive capital flight. The study employs the Granger causality test in order to investigate this relationship. The pair wise Granger causality test revealed the existence of a uni-directional relationship running from external debt to capital flight. This result indicates that for Zimbabwe, external debt has had an influence on capital flight, whilst capital flight has noinfluenceon external debt. The results obtained herein further shows that, if external debt remains unchecked, it will continue to lead to massive capital flight. There is need for the authorities to formulate and implement a holistic debt management strategy in order to deal decisively with high external indebtedness which is causing massive capital flight.

DECLARATION

I declare that this work is mine and has not been submitted for a degree at any other University

ACKNOWLEDGEMENT

I would like to take this opportunity to thank my supervisor Dr. H Zhou for his guidance throughout this research. Special thanks also go to Tapiwa Kelvin Mutambirwa, Mike Zuze and Dr. A Makochekanwa. My fellow class mates would not go unmentioned especially the likes of Kabaso, Michelo, Nyasha, Trust and Tavonga love you so much guys. I would also like to thank the Economics departmental teaching and non-teaching staff for their support thorough out my study period.

A special word of thanks goes to my family for their financial and emotional supportthroughout my studies.

I also wish to thank The African Economic Research Consortium (AERC) for hosting the Joint Facility for Electives (JFE) 2015 in Arusha (Tanzania).

Finally, to the Almighty God, “My God is able, he is mighty he is faithful, he never sleeps”.

DEDICATION

This dissertation is dedicated to Tinashe Ephraim Usai may your sole rest in harmony.

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LIST OF ACRONYMS

ADF	Augmented Dickey-Fuller
AfDB	African Development Bank
AIC	Akaike Information Criterion
CF	Capital Flight
DCF	Differenced Capital Flight
ESAP	Economic Structural Adjustment Programme
ELCC	External Loans Coordination Committee
GDP	Gross Domestic Product
HIPIC	Highly Indebted Poor Countries
IMF	International Monetary Fund
IVA	Instrumental Variables Approach
OLS	Ordinary Least Squares
RBZ	Reserve Bank of Zimbabwe
STERP	Short-Term Emergency Recovery Programme
VECM	Vector Error Correction Model
VAR	Vector Auto Regression
WB	World Bank
ZSE	Zimbabwe Stock Exchange
ZIMPREST	During this period the Zimbabwe Programme for Economic and Social Transformation

ZAADDS	Zimbabwe Accelerated Arrears Clearance Debt and Development Strategy
3SLS	Three Stage Least Square

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.0 Introduction

Beja (2006) defines capital flight as the movement of capital from a resource-scare developing country to avoid social control. Private capital may move out of the country in response to different types of risks such as hyperinflation, devaluation, or political havoc. The issue of capital flight remains one of the puzzling policy issues of the day. Although it is not a new issue, it has become of great importance due to the scarcity of capital in developing countries. It started long back as a European problem in the 1970s; it later became a Latin American, Mexican and African problem in the early 1980s.Capital flight from economies deserves serious attention due to the fact that it results in the loss of financial resources. In the long-term resources lost due to capital flight exacerbates the capital scarcity problem and also retards growth and development (Makochekanwa, 2007).

Most developing countries in Africa have relied much on external borrowing which has come in the form of loans and grants due to resource constraints in their respective domestic economies. However, lines of credit have been extended in the 1990s by the IMF as a pre-condition for implementing structural adjustment programs. However, some of these countries have failed to repay some of the monies owed to the international financial institutions such as the World Bank (WB) and the International Monetary Fund (IMF). Developing countries, particularly those in Africa, find themselves in debt crisis, a situation that has limited their ability to develop and meet the socio-economic needs of the masses. Developing countries that have been experiencing massive capital flight are those that have had problems in servicing their own debts during the 1980s.This phenomenon has also been well documented in literature by studies by Ajayi (1997) and Ndikumana (2008) where it has been found that capital flight is high in debt ridden countries. Capital flight and external debt, in developing countries particularly those in Sub-Saharan Africa, over the past decades have become a symbol of two faces of the same coin (Fofack, 2009).

Over the past three decades Zimbabwe has not been spared from all the challenges that capital flight and external indebtedness create. The size of capital flight has assumed a serious dimension which has also posed a serious threat to sustainable growth and development. For instance, Boyce and Ndikumana (2012) as in Kwaramba *et al.* (2015) fond capital flight in Zimbabwe to have reached a record high of US$3.1billion in 2006. Zimbabwe is one of those countries that are classified as being heavily-indebted where the issue of capital flight has been regarded to be equally important with regards to other challenges that the country is facing. Zimbabwe as a debtor country has over the years faced serious debt servicing problems. Zimbabwe`s debt position has also been found to be unsustainable according to the IMF (2010) debt sustainability analysis.

Resolving the external debt problem for Zimbabwe has been top of the government`s developmental agenda. In the 1980s Zimbabwe`s external debt stood at US$785 million and as of 2010 external debt was around US$8.934 billion an indication that the external debt has been increasing over time (ZimStat, 2014). This is why there has been re-engagement with the IMF, WB and the Paris Club to find ways in which the country can seek debt relief. It appears that capital flight and external debt could be closely linked for the case of Zimbabwe.

1.2 Problem statement

As discussed above, it is evident that the Zimbabwean economy has heavily accumulated external debt since 1980 and it has also experienced massive capital flight.As far as capital flight is concerned Zimbabwe has lost a cumulative US$12billion in the last three decades since independence through illicit financial flows ranging from secret financial deals, tax avoidance, trade mispricing and illegal commercial activities (African Development Bank (AfDB) and Global Financial Integrity (2013) as in Kwaramba *et al.*, 2015).

As the severity of external debt become more pronounced in Zimbabwe, so too is the capital flight problems. This trend observation prompts one to ask a question as to whether the external debt is the one fuelling or driving capital flight – that is, is capital flowing under the disguise of external borrowing fleeing the country? However, such mere trend observations of external debt and capital flight cannot be informatively used to draw conclusions on the impact of external debt on capital flight, unless an empirical investigation is carried out.

Following Ajilore (2005) and in line with International Economics reasoning which argues that the rate of return to capital should be higher in capital-scarce developing countries like Zimbabwe, than in wealthier countries. As such, capital should flow from wealthier to developing countries. Nevertheless, the net-risk adjusted returns may be lower because investment is riskier in developing countries, Zimbabwe being no exception. In this vein, Zimbabwe is ranked 155 out of 188 countries on the Ease of Doing Business Index, reflecting the risky investment environment. Perhaps, this explains why capital continues to flow in the opposite direction.

The study is motivated by the fact that Zimbabwe has experienced large magnitudes of external debt and massive capital flight over the years. On this score, empirical literature by Boyce and Ndikumana (2011) suggests that external debt can possibly drive or fuel capital flight. However, to the best of our knowledge, no study has been done in relation to the impact of external debt on capital flight in Zimbabwe. Capital flight studies in Zimbabwehave not specifically linked capital flight to external debt. For instance, Makochekanwa (2007) explored the role of macroeconomic factors on capital flight in Zimbabwe while Kwaramba *et al*. (2015) explored the link between capital flight, natural resources and institutions in Zimbabwe. Given the foregoing background of large magnitudes of external debt and massive capital flight over the years in Zimbabwe, this study provides an empirical understanding of the causal relationship between external debt on capital flight.

1.3 Objectives of the study

The overall objective of the study is to establish whether a causal association between capital flight and external debt exists. In particular, the study examines whether there is a revolving door mechanism in Zimbabwe. The specific objectives of the study are: causality

- To investigate whether huge external borrowing aggravates capital flight problems in Zimbabwe.
- To establish whether capital flight causes external debt problems in Zimbabwe.

1.4 Research questions

In addressing the research problem, this study shall be guided by the following questions:

- Does the revolving door mechanism exist in Zimbabwe?
- Does higher external borrowing cause capital flight problems in Zimbabwe?

1.5 Hypothesis of the study

The study seeks to test the following hypothesis that external debt fuel capital flight in Zimbabwe.

1.6 Significance of the study

The study explores the relationship between capital flight and external debt in Zimbabwe for the period 1980-2010. The study has been motivated by the noticeable higher incidence of external debt and capital flight in Zimbabwe. The relevance of this study lies upon the fact that very few studies have been done on the casual link between capital flight and external debt in Zimbabwe. Of the few studies, Makochekanwa (2007) focused more on the determinants of capital flight. To the best of the author`s knowledge no standalone studies have been done for Zimbabwe focusing on the casual relationship between capital flight and external debt. Zimbabwe has gone through some episodes of economic growth since independence and this study is expected to capture these changes.

Understanding the impact of external debt on capital flight in Zimbabwe will be of great significance to policy makers. Furthermore, exploration of this subject may have important policy implications especially as it affects the legitimacy of efforts to service external debt in the country. This study also contributes to the existing body of academic literature on capital flight and external debt.

1.7 Outline of the study

The rest of the study is organized as follows; Chapter two presents the background of the study. Chapter three outlinesand unpacksthe theoretical and empirical literature review. Chapter four outlines the study`s research methodology.Estimation, interpretation and discussion of the research findings are covered in chapter five. Chapter six provides conclusion and summary of

the research findings, policy recommendations as well as limitations of the study and the possible areas of further research.

CHAPTER TWO

BACKGROUND OF THE STUDY

2.0 Introduction

This chapter provides the background to this study. It covers a discussion of an overview of Zimbabwe`s macroeconomic performance since independence for the period 1980-2010, and how external debt and capital flight have fared over the period under study. The chapter is broken down into four sections: Post-Independence Period (1980-1990), Economic Reform Era (1990-1999), The Crisis Period (2000-2008) and The Period of Economic Recovery (2009-2010).

2.1 Post-Independence Period (1980-1990)

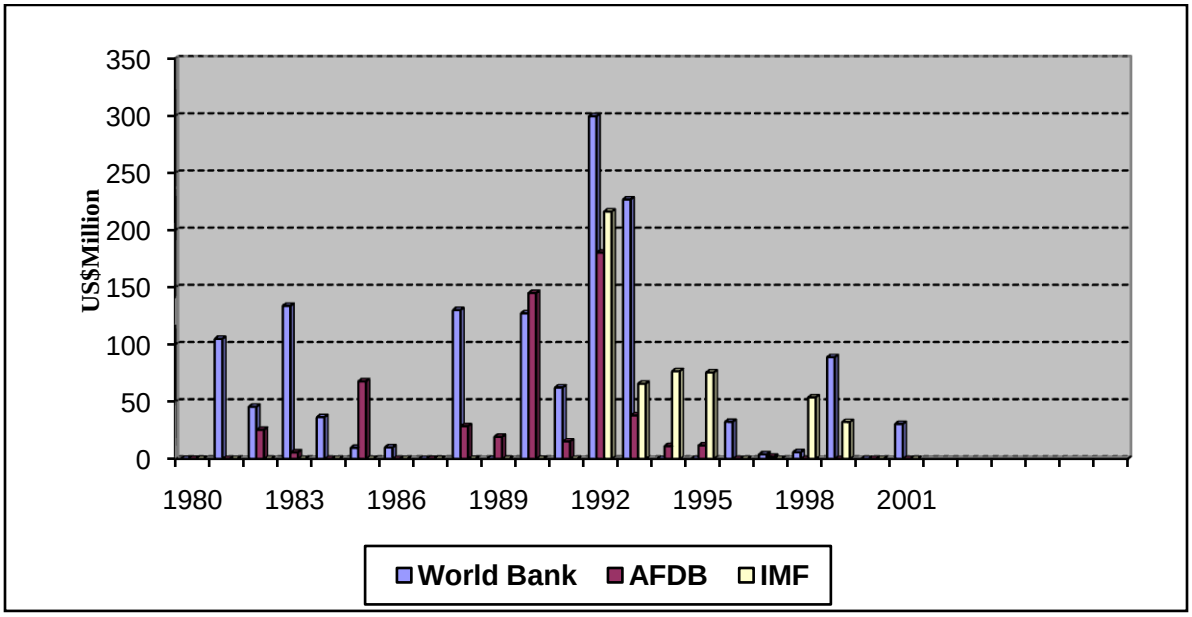
At independence, the newly elected government subscribed to the socialist ideology under the Growth with Equity economic blue-print. According to Jones (2011), at that point Zimbabwe was economically developed compared to other countries in the region and it was classified as a middle income country by the World Bank (WB). It is also interesting to note that during the first decade after independence, the growth in Gross Domestic Product (GDP) was impressive. As shown in figure 2 below growth rates in GDP followed episodes of upward and downward swings. The economy registered real GDP growth rates of 10.8% and 13.5% in 1980 and 1981, respectively. However, this growth trend was reversed due to external shocks and adverse weather patterns which affected many developing countries in Africa. Negative growth rates were experienced in 1983 and 1986 due to poor 1983/84 and 1986/87 agricultural seasons. In the second half of the 1980s, foreign exchange shortages, lack of investment and high unemployment rates are some of the challenges that confronted the government(Tralin, 1999). These challenges signaled the need for new policy changes since the Five Year National Development Plan for the period 1986-1990 policies had failed to achieve their intended objectives. Towards the end of the last decade of post-independence the government was faced with high inflation which was estimated to be around 20%, unemployment was estimated to be 30% as well as high budget deficits.

At independence, the newly elected government inherited US$700 million worth of debt from its former colonial masters (Jones, 2011). The bulk of this debt was from private creditors to the

tune of (US$594 million), multilateral (US$5 million) and bilateral creditors were owed (US$98 million). This external debt imposed a huge burden to the newly elected government since it was short-term in nature and attracted high interest payments. The External Loans Coordination Committee (ELCC) was established in 1980 by the cabinet to oversee borrowing by all sectors of the economy so as to better manage the external debt position (RBZ, 2009).

The external debt burden further worsened when the new government started borrowing in order to fund post war reconstruction and promises that it had made during the liberation struggle against a background of limited financial resources. These promises included the immediate establishment of a viable social welfare, education, health and job-generating programs (Lehman, 1992). The recession in the 1980s and the global oil crises lead to the fall in government revenues and export earnings. These developments coincided with increased import needs so as to cope with droughtneed which further increased the need for external financing. In response to these challenges, the government had to borrow. The government started borrowing from foreign governments and international lenders such as the International Monetary Fund (IMF) and the World Bank (WB), with an aim of investing these funds into productive projects (Jones, 2011).

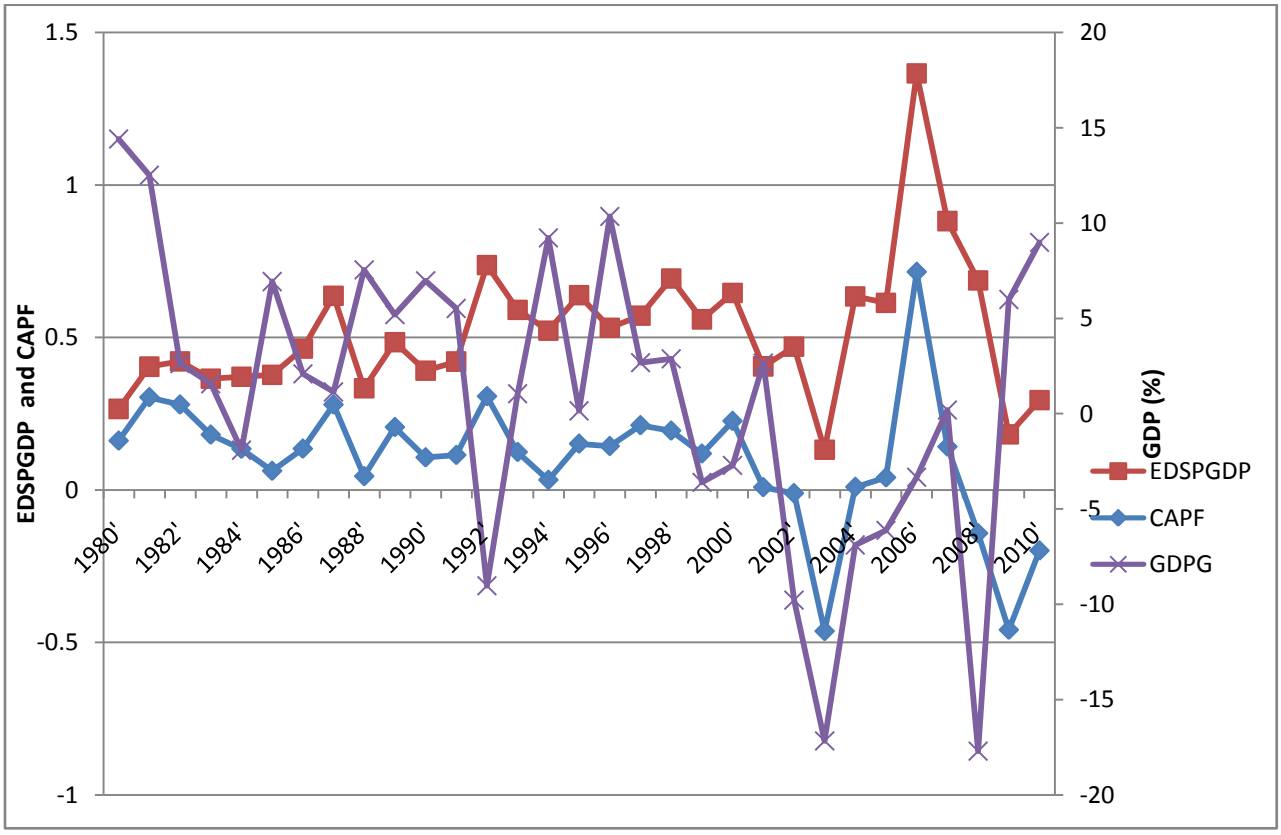
Figure 1 : Loan Disbursements from Multilateral Creditors, 1980-2001



Source: Reserve Bank of Zimbabwe (2009)

Figure 1 represents the loans received from the World Bank, the African Development Bank (AfDB) and the IMF. As shown in Figure 1, the bulk of loans came from the WB during the 1980s, with the exception of 1985 when a huge chunk of loans came from the AfDB.

Figure 2: GDP growth rates, External Debt and Capital Flight, 1980-2010



Source: World Bank (2014) and Author`s own computations

At independence, capital flight was lower than external debt a situation that persisted over the first decade after independence as graphically depicted in figure 2. A year after independence capital flight increased from US$589.9 million to US$1249.4 million, as a result of the perception of the holders of capital which then influenced them to move their capital into safe havens.Their perception was that since there was a new government they were likely to face lower returns on investment in the future. Between the period 1980 and 1987, real capital flight was estimated to be US$589.9 million reaching its peak of US$1299.7 million(Ndikumana, 2010). As the years progressed noticeable decline in capital flight were experienced from 1982 to 1985. However, capital flight and external debt tended to move together between 1985 and 1990.

The graphical presentation given seem to suggest that for the period 1980 to 1990 there was a positive relationship between capital flight and external debt in Zimbabwe.

2.2 Economic Reform Era (1990-1999)

The Economic Structural Adjustment Programme (ESAP) was implemented with the support of the IMF for the period 1991-1995. When these reforms started Zimbabwe had paid back the IMF US$500 million which was two thirds more than the previous debt (Jones, 2011). The reform program was a way of stimulating growth and investment as well as responding to the challenges that confronted the government (Mpofu, 1997). During this period negative growth rates were experienced in some years, for instance in 1992 due to drought. This development caused GDP to contract by 4.8% in 1992. The poor performance of the economy resulted in capital flight reaching its all-time highest level of 32% of as private capital was moved into safe havens(Kadira, 2010).

The involvement of Zimbabwe, in the Democratic Republic of Congo war, drained foreign exchange earnings and worsened the external debt position of the country (Bonga *et al.*,2015). In 1997,the Zimbabwe dollar plummeted by 50%, from Z$11 per USD to Z$17 per USD further worsening the economic crisis. During this period the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST)was launched which was aimed at creating a stable macro-economic environment to support increased savings and investment in order to achieve higher growth and improvement in the standard of living for all Zimbabweans.

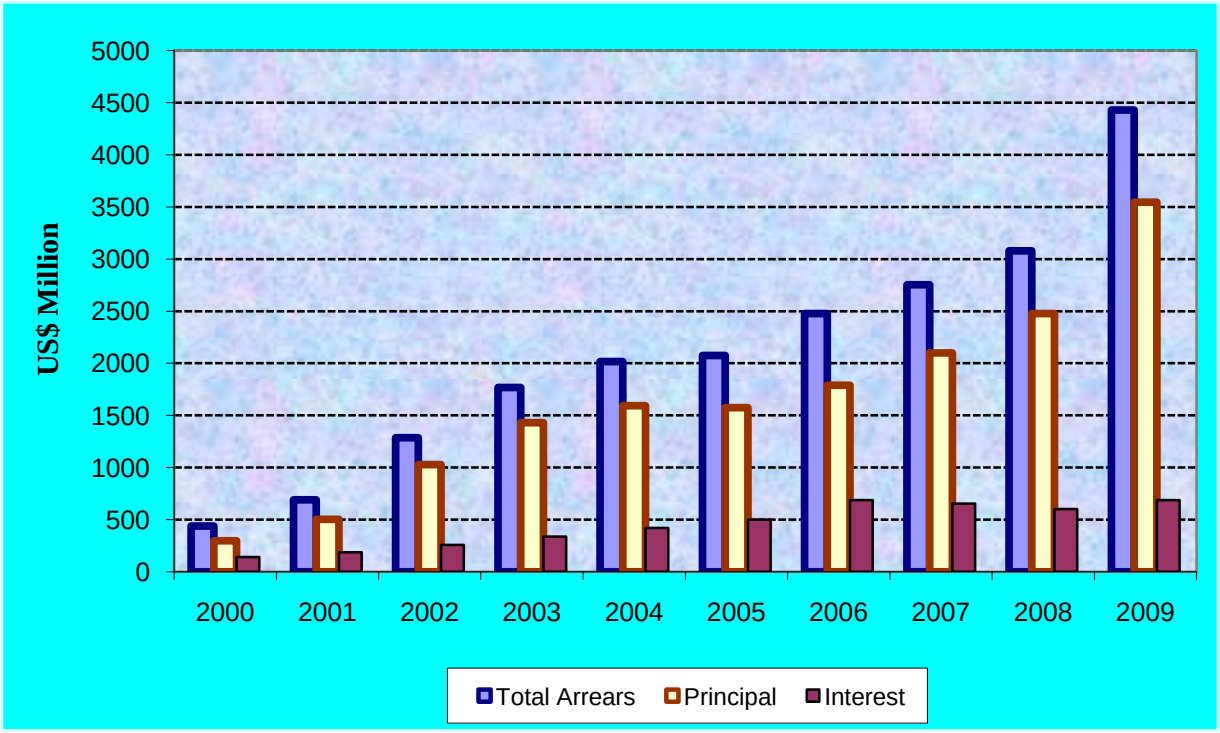
During this reform period it is estimated that US$750 million worth of external debt came directly in the form of structural adjustment loans from the IMF, the WB and AfDB (Jones, 2011). In 1998, debt worth US$255 million was granted which comprised 42% and 58% from bilateral and multilateral lenders, respectively. When traditional sources of finance dried up, there was balance of payment pressure leading to challenges in meeting the external obligations. This development caused the country`s creditworthiness being adversely affected.The adoption of ESAP during the early initial stage of economic reform also had a negative impact particularly on the Zimbabwe Stock Exchange (ZSE) as a destination for excess capital because it led to massive capital flight. This was due to the loss of investor confidence in the market as well as the liberalisation of the exchange controls. The negative publicity against Zimbabwe from the media

created perceptions of instability which then scared away investors leading to capital flight. For instance foreign direct investment slumped from a peak of US$426 million in 1998 to US$5.4 million in 2001 as investors fled the ZSE (Shire, 2003).

2.3 The Crisis Period (2000-2008)

The crisis period signaled a number of economic structural rigidities that were inherent in macroeconomic policies; especially the fiscal matters which undermined investor confidence and fuelled capital flight (Ibid, 2012). These challenges emanated from the failure by ZIMPREST and ESAP to address the economic challenges. During this period, GDP growth continued to be on a downward trend in 2003, the decline was estimated to be 4% owing to macroeconomic challenges, chief among them hyperinflation and foreign currency shortages as shown in figure 1 (RBZ, 2009). It is during this period that the country started accumulating arrears. This is shown graphically in figure 3 below.

Figure 3 : Accumulation of External Payment Arrears, 2000-2009



Source: RBZ (2009)

Figure 3 confirms that Government accumulated arrears with the largest portion of arrears, amounting to US$2 195 million as at end of 2009. However, there was an accumulation of arrears throughout the period starting 2000-2009. For the period between 2000 and 2005, annual debt to the tune of less than US$4 million was disbursed from small multilateral creditors[1] (RBZ, 2009).

Since 2000, the country started experiencing massive capital flight due to sanctions which deterred foreign investors from investing in the country.There was a comparable decline in foreign portfolio investment as reflected by the fall in net portfolio investments from US$63.3 million in 1995 to a minus US$27 million in 2007. It is during this period in 1997 when the indigenization Act was put in place leading to the country losing US$4billion due to capital flight which was further worsened by the difficult operating environment and foreign exchange shortages. These foreign exchange shortages cause the local currency to depreciate causing private capital to flee the country as domestic investment was no longer attractive. In response to capital flight challenges, the Reserve Bank of Zimbabwe (RBZ) responded by tightening regulations for foreign firms wishing to wound up their operations in Zimbabwe. Among these provisions were ensuring that such firms had proper documentation of the investment and well as ensuring the foreign funds come through normal banking channels. According to the IMF (2004) report concerns about economic and political governance discouraged productive investment and fuelled capital flight.

2.4 The Period of Economic Recovery (2009-2010)

When the inclusive government was formed this marked the introduction of the multicurrency system. This move brought about stability and propelled fiscal discipline due to the adoption of the cash budgeting system. The year 2010, was impressive in terms of growth in GDP, although the economy remained fragile due to political factors and the decline in the price of commodities. However, growth remained slowduring the period of economic recovery due to slow growth and the external debt distress which hindered efforts to attract fresh capital.

[1]The small multilateral creditors were Arab Bank for Economic Development in Africa (BADE), International Finance for Agriculture Development (EFAD) and European Investment Bank (EIB). There was no further disbursement from IMF and WB.

The IMF staff report (2010) described Zimbabwe to be under debt distress. The Debt Sustainability Analysis (DSA) carried out by the IMF, suggested that the overall debt remained very high due to continuous accumulation of external arrears. The IMF`s debt sustainability analysis predicted that the debt can only be sustainable in 2029 (RBZ, 2009). This is a clear indication that since the formation of the inclusive government, the country`s debt overhang did not improve. By the end of 2009, the RBZ estimated the external debt to be US$6.7 billion (RBZ, 2009).The economic blue print The Short-Term Emergency Recovery Programme (STERP) identified a resource gap of US$8.3 billion for economic recovery.The challenge to the government was on how to mobilise resources so as to fund productive projects. Due to economic contraction between 1998 and 2008, the country needed US$45 billion over the next ten years to regain GDP levels of 1997.

In 2010 the government approved the Zimbabwe Accelerated Arrears Clearance Debt and Development Strategy (ZAADDS). This initiative marked the start of negations with the IMF and WB for clearance of accumulated arrears and possible debt relief mechanism. The key canons under ZAADDS were: the establishment and operationalization of a Debt Management Office under the Ministry of Finance, validation and reconciliation of external debt and possible re-engagement with the international community. The Aid and Debt Management Office was established in December 2010 and at that time it was fully operational.

Since dollarisation there was need for Zimbabwe to re-alignment its macroeconomic policies in order to deal decisively with the problems of capital flight.The multi-currency system has been blamed for causing capital flight. The dollarized environment has become problematic since there is no monetary policy autonomy on part of the RBZ. The high incidence of capital flight during the period of economic recovery can be partly blamed on the limited ability of the central bank to re-balance the prices of financial assets through altering interest rates and exchanges rates. Other factors that have been attributed to capital flight have been the general poor performance of the economy due to weak aggregate demand.

2.5 Conclusion

This chapter has outlined the background of the study including an overview of the performance of the economy, external debt and capital flight developments. It has also covered the evolution of the external debt and how capital flight has been affecting the performance of the economy. The information presented in this chapter suggests the existence of a positive relationship between capital flight and external debt in Zimbabwe. However, there is still need for an empirical analysis to confirm if this relation exists between these two variables.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This chapter reviews and discusses the existing theoretical and empirical literature on capital flight and external debt. Under the theoretical review this chapter will discuss the theories that have been propounded in explaining the relationship between capital flight and external debt. A review of the empirical studies thus provides more information as to how the theoretical conjectures were tested which will lay more ground work for the research methodology.

3.1 Theoretical Literature

3.1.1 Morgan Guaranty Company View

One opinion about the indirect relationship between capital flight and external debt was propounded by Morgan Guaranty Company (1986). The indirect simultaneous occurrence of debt accumulation and capital flight in Third World countries "was no coincidence" since "the policies and track records that angered capital flight also generated demands for foreign credit" Morgan Guaranty Company (1986). According to her view the link between these two variables can be attributedto poor macroeconomic management, the country`s debt repayment profile which causes indebtedness. There are also other indirect factors such as slow growth, rent seeing behaviour, corruption, an overvalued exchanges rates and poor fiscal management in less developed countries that encourages the demand for external funds leading to capital flight. However, this kind of relationship has failed to be convincing enough in order to explain the year-to-year concurrent linkages between capital flight and debt in a country. Another different view of the indirect factors that link capital flight and debt is that lower inflows of debt mirror and contributes to deteriorating economic conditions that result in greater capital flight. Such views suggest a negative (lagged) correlation between external borrowing and capital flight.

3.1.2 Direct Linkages Theories

Boyce (1992) and (Ajayi, 1995) highlighted four possible linkages through which capital flight and external debt are directly related. These four distinctions are debt-driven capital flight, debt-fuelled capital flight, flight-driven external borrowing and flight-fuelled external borrowing.

These are direct linkages through which capital flight and external debt are related, and this happens through what is called a revolving door mechanism. Their main emphasis has been on issues to do with causality. Boyce (1992) used a regression model that took into account simultaneity between capital flight and external debt for the Philippines.

3.1.2.1 Debt-Driven Capital Flight

According to this view, as a result of external borrowing by the government private individuals are motivated to move their wealth across the border to other countries. Capital flees in response to economic circumstances that are closely linked to the external debt. These economic circumstances leading to capital fight may be due to expected exchange rate devaluation or a fiscal crisis. For instance, when analysing the impact of external borrowing on the exchange rate in the short-run, capital inflows increase the supply of foreign exchange, applying upward pressure on local currency. If, however, this debt is incurred for purposes which are unlikely to generate adequate foreign exchange for repaying it then in the long-run an opposite pressure on the local currency will result. When the difference between new borrowing and amortization turns to be negative, this then increase the demand for foreign currency which will depress the value of the local currency. For any asset holder, the rational response will be to dollarise when the local currency is artificially inflated. Since dollarisation further increases demand for foreign exchange, the pressure for devaluation gets an additional boost from self-fulfilling expectations.

According to Lessard (1987) inflows of external debt can signal an increase in the likelihood of an impending financial crisis which induces capital flight. This financial crisis causes the crowding out effect of domestic private capital. As a consequence of external borrowing, domestic investors may expect future tax increase in the future so as to enable the government to repay back the borrowed funds and also possibility of crowding out of private investment. The domestic residents may engage in capital flight so as to cushion themselves from confiscation risk and inflation tax.

3.1.2.2Debt Fuelled Capital Flight

Capital inflows in the form of borrowed funds incentivize and provide resources for private individuals to engage in capital flight. The view that foreign borrowing provides the necessary resources for capital flight is also shared by Cuddington (1986) and Henry (1999).The debt

itselfis transferred across the national countries, since it directly fuels capital flight. There are basically two mechanisms, through which inflows of capital can be transferred abroad. Firstly, the borrowed money by the public sector externally can be sold to the domestic residents who then transfer it to other countries thorough legal or illegal channels. Secondly, the borrowed funds can be loanedout by the government to the private sector through a national bank and part of it may be transferred abroad through legal or illegal channels. At times the money can be borrowed abroad and then instantaneously deposited into a foreign bank account without it moving acrossborders.

3.1.2.3 Flight-Driven Capital Flight

The casual linkage runs from capital flight to external borrowing. This form of capital flight acts in response to the gap created by capital that escapes from the domestic economy which may need to be filled. This creates the demand for external borrowing in order to fill this gap. However, the extent to which external financiers are willing and able to satisfy this demand depends on the risk-return profile that they face for capital within and outside a country. In the case of inflation tax, holders of fixed income securities suffer the most whereas those the hold foreign exchange claims denominated in foreign exchange do not suffer. As pointed out by Lessard (1986) foreign creditors may also enjoy a comparative advantage in the risk mitigation due to the indirect and direct sanctions they bring to bear upon the borrower.

3.1.2.4 Flight-Fueled External Borrowing

Under this scenario, the same domestic currency that leaves the country then reenters in form of foreign currency. Flight capitalists engaged in hedging so as to take advantage of different returns due to differences in risk and foreign capital. This will take the form of "round tripping" or "back to back loans". The domestic capital is dollarised and then deposited in an offshore bank account, and the depositor then takes a loan from the same bank with the deposit serving as collateral. Another motive for flight-fuelled external borrowing is the concealment of the sources of funds from the present government authorities. These forms of back-to-back loans have a motivational dimension beyond more general offshore financial intermediation.

3.2 Empirical Literature Review

Chipalkatti and Rishi (2001) investigated the relationship between capital flight and external debt for the period 1971 to 1997. They sought to establish whether the financial revolving door existed for the Indian economy. Simultaneous equation modeling was employed to take into account the possibility of simultaneity bias between external debt and capital flight. This entailed applying the Three Stage Least Square (3SLS) procedure using time series data. The variables of interest were external debt, interest rate differentials[2], budgetary deficits and overvalued exchange rates. The explanatory variables for external debt included capital flight, lagged external debt, lagged gross domestic product (GDP), budget deficit, interest rate differentials and a dummy variable for capturing liberalisation. These variables were considered to be common in theory on capital flight andwere used byCuddington (1986). The results from the 3SLS indicate the existence of a bi-directional causality between external debt and capital flight, which is also referred to as the financial revolving door relationship or round tripping. This means that both capital flight and external debt tend to fuel each other for India.

Another study for India was done by Saxema (2016) for the period 1991 to 2012. In this study Saxema (2016) used the Two Stage Least Square Estimation Technique[3](2SLS) in order to determine if simultaneity existed between capital flight and external debt. The external debt was the dependent variable whereas capital flights, foreign direct investment, current account deficit, foreign exchange reserves, changes in external debt are independent variables. One important result from this research was that capital flight and external debt followed a revolving door pattern a similar result to Chipalkatti and Rishi (2001). The other important result was that external debt and capital flight were found to be significantly determined by current account deficit, foreign exchange reserves and foreign direct investment.

Demir (2004) in addressing the debate on risks and benefits of financial liberalisation analysed the effect of correlation between external debt and capital flight. The research was done for Turkey which had undergone an economic collapse. The methodology employed was similar to

[2]The interest rate differential was taken to be the difference between India`s real interest rate and US Treasury bill rate.

[3] This is often referred to as a special case of the instrumental variables approach

that used by Boyce (1992) and Chipalkatti and Rishi (2001). The results indicate the existence of a bi-directional relationship between capital flight and external debt for the Turkish economy.

Ajilore (2005) examined the casual link between capital flight and external debt for Nigeria for the period 1970 to 2002. The methodology used was similar to the one employed by Chipalkatti and Rishi (2001). The only difference was that Ajilore (2005) used the Granger causality test in addition to 3SLS. The findings were in strong support of the financial revolving door relationship between capital flight and external debt. These results were in harmony with the findings of Boyce (1992) for the Philippines, and Chipalkatti and Rishi (2001)). This is a situation in which externally borrowed funds fled Nigeria in the form of private capital flight. The dummy variable for liberalisation was insignificant indicating that the liberalisation done in the 1980s did not alter the size of capital flight by private individuals.

Cerra *et al* (2005) used a panel data analysis approach to test the effects of unsound macroeconomic or weak institutions on capital flight. Furthermore, they tested the revolving door hypothesis which links debt and capital flight as well as the contribution of institutions to several channels of this relationship. The sample was more diverse in that it included developing, emerging market and transition countries. The panel included 134 developing and emerging countries over the period 1970 to 2001. The study employed the two stage least square (2SLS) estimation technique in the form of two equations. The first equation regressed capital flight as a function of institutional quality, macroeconomic policies[4] and conditions and foreign financing. The second equation regressed debt accumulation as a function of capital flight, institutional quality and other macroeconomic policies and conditions. The study supported the existence of the revolving door hypothesis.Countries with weak institutions had greater chances of accumulating large levels of debt due to weak institutions that incentivize capital flight which in turn creates a financial vacuum. Consistent with Ndikumana and Boyce (2003)`s indeed increases in external borrowing have a strong and significant relationship with capital flight. The coefficient on the change in total debt in the capital flight equation was positive and significant

[4]The macroeconomic variables that are also common in literature used are: interest rate differentials, inflation, growth rates, budget balances, investment, growth in domestic credit, level of foreign reserves, misaligned exchange rates, financial crises, trade openness, stock of debt and foreign financing inflows, aid and FDI

which supported the revolving door hypothesis. The reverse causality connecting capital flight to external debt suggested a positive association between capital flight and external debt.

Using a panel data analysis Ajayi (1997) examined the external debt and capital flight nexus by relating capital flight to some macroeconomic aggregates for twenty five twenty five[5]countries which were considered to be severely indebted low income countries. The study found no causal relationship between capital flight and external debt. Ajayi (1997) went further and selected five countries[6] from the sample which had the highest debt compared with the selected sample. Still, no causal link was found running in any direction between capital flight and external debt. This suggests that capital flight and external debt are independent of each other. The study suffered from some pitfalls since the methodology was simply a graphical analysis which was regarded to be backward in terms of its robustness in explaining the casual link between capital flight and external debt.

Ndikumana and Boyce (2011) explored the determinants of capital flight for 33 selected countries in the sub-Saharan Africa for the period covering 1970 to 2004. In measuring capital flight a modified approach to the World Bank (1985) was used through incorporating two major modifications[7]. To account for the two-way causality the Instrumental Variables Approach (IVA) and the Generalised Method of Moments (GMM) was used. The results supported two views that is, debt fuelled capital flight and the existence of the debt-overhang hypothesis. Debt-fuelled capital flight indicated that for every dollar of external-debt roughly 60 cents would flee the country in the form of capital flight. The debt overhang effect was supported by the fact that increases in foreign debt stock would spur capital flight in the subsequent periods.

Ndikumana *et al.* (2014) focused on the determinants of capital flight for a panel of selected African countries. Unlike the study by Ndikumana and Boyce (2011) they extended the sample size to 39 and the period covered was 1970-2010. Capital flight was expressed as a function of its own past values, change in debt stock and a set of control variables that included GDP growth, inflation, financial development, return on investment, governance and political

[5] These 25 countries are; Burundi, Central Africa Republic, Cote d`Ivoire, Equatorial Guinea, Ethiopia, Ghana, Guinea Bissau, Kenya, Liberia, Madagascar, Mali, Mauritania, Mozambique, Nigeria, Rwanda, Sa Tome and Principe, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Zaire and Zambia.
[6] These countries where Cote d`Ivoire, Kenya, Nigeria, Sudan and Zaire.
[7]These two major modifications include adjustment of the change in debt in order to account for debt-write offs and also adjustments for underreported remittances.

environment. Unbalanced panel data was used by utilizing the panel fixed-effects regression model and GMM in order to capture endogeneity of independent variables. The Iteratively Reweighted Least Square (IRLS) was used to account for the possibility of outliers. A positive relationship between annual flows suggested that external debt provided the necessary resources for capital flight to take place. The results also supported the strong evidence of the revolving door hypothesis.

Sunday (2014) explored empirically the causes of capital flight in Nigeria and South Africa. The study covered the period 1985 to 2007. Dooley`s debt-flight revolving door, which entails a situation whereby capital outflows in developing countries takes place simultaneously with external capital inflows that flow in the form of borrowing was found to be true for the two countries. Although the study tested the Dooley`s debt-flight model, the simultaneous relationship between capital flight and external debt support the result by Ajilore (2005) for Nigeria. This conclusion was reached by applying the fixed effects model using time series data from a balanced panel.

In Zimbabwe,Makochekanwa (2007) supported the revolving door hypotheses which concur with the findings by Chipalkatti and Rishi (2001); Boyce (1992) and Firat (2004). This study covered the period 1980 to 2005. The variables of interest were external debt, foreign direct investment inflows, foreign exchange reserves and GDP growth rates. A parsimonious dynamic model of determining the short-run relationship between capital flight and its determinants was employed. Although the study was in strong support of the financial revolving door hypothesis, Foreign Direct Investment (FDI), external debt and foreign currency reserves were found to be the major determinants of capital flight.

Edsel and Beja (2006) examined the relationship between capital flight and external debt for four selected Asian countries[8]. The capital flight for the Philippine was found to follow a revolving door process as a result of financial liberalisation of the 1990s. The study utilised the model by Boyce (1992) in analysing the Philippine data.

Fofack (2009) examined the issue of causality between capital flight and external debt for a group of selected countries in Sub-Saharan Africa (SSA). The aim was to explain the apparent

[8] The Asian countries covered are Indonesia, Malaysia, Philippines and Thailand

positive covariation of external debt and capital flight in SSA. The study employed the Granger-causality test, cointegration and the error correction model. Long-run cointegration relationship between capital flight and external debt was found to exist between capital flight and external debt. Dual causality was found to exist for Mauritius and Togo, which support the revolving door hypothesis. For the remaining countries the direction of causality was found to be uni-directional.

3.3 Conclusion

The literature review on the causal relationship between capital fight and external debt has noted the following points. Firstly, although Makochekanwa (2007) concluded the existence of the revolving door hypothesis for Zimbabwethe study did not cover the multicurrency era. Secondly, although the empirical results have been inconclusive, the bi-directional relationship between capital flight and external debt which is also referred to as the revolving door hypothesis seems to be a more common research finding. These results in support of the revolving door are consistent with findings by Beja and Edsel (2006); Ajayi (1995); Boyce (1992); and Chipalkatti and Rishi (2001). Furthermore, the residual method has been a common method for measuring capital flight in the studies that have been reviewed.

CHAPTER FOUR

METHODOLOGY OF THE STUDY

4.0 Introduction

Chapter two has presented both the theoretical and empirical literature underpinning the causal relationship between capital flight and external debt. This chapter outlines the methodology applied in this study which closely followsFofack (2009). Various diagnostic tests will be carried out in a bivariate model analysis using external debt and capital flight. These tests are unit root tests, cointegration analysis, Granger causality tests and variance decomposition tests.

4.1 Model specification

The hypothesised view that high levels of external debt fuel capital flight in Zimbabwe will be tested using the VAR/VECM model. Thisstudy closely followsthe methodology used by Fofack (2009).The model can be specified as:

$$CF_t = \sum_{i=1}^{n} \alpha_i ED_{t-i} + \sum_{i=1}^{n} \beta_j CF_{t-j} + u_{1t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

$$ED_t = \sum_{i=1}^{n} \gamma_i ED_{t-i} + \sum_{i=1}^{n} \sigma_j CF_{t-j} + u_{2t} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where:

CF_trepresents Capital Flight to GDP ratio

ED_trepresents External Debt Stock to GDP ratio

$\alpha_i, \gamma_i, \beta_jand\sigma_j$ are coefficients to be estimated

u_{1t}andu_{2t} –these are error terms which are assumed to be uncorrelated.

Estimation of two sets of equation (1) and (2) will be done. From literature it is assumed that there is simultaneity between ED and CF, if such simultaneity exists such set of variables should all be treated on an equal footing (Sims, 1972). The VAR model is appropriate for the study since there is no need to differentiate between exogenous and endogenous variables.

4.2 Definition and justification of variables

4.2.1 External debt, (ED)

External Debt stock is the total amount of a country`s foreign lending including international financial institutions, commercial banks and governments. Total External debt stock is the summation of public, publicly guaranteed and private nonguaranteed long term debt, use of IMF credit, and short-term debt. This study used external debt stock as a ratio of gross domestic product.It is expected that there is a positive relationship between capital flight and external debt, that is, higher levels of external borrowing are associated with higher capital flight. Empirical studies by Makochekanwa (2007) and Ndikumana and Boyce (2008) have used this variable.

4.2.2 Capital flight, (CF)

Capital flight refers to short-term illicit financial outflows whereby private capital responds to political and financial crises. These financial outflows may be recorded or unrecorded. Following The capital flight use figures used are those computed using the World Bank (1985) approach by Boyce and Ndikumana (2010). This is a broad measure of capital flight which computes capital flight by comparing the difference between sources and uses of these capital flows. The sources of these inflows include net increase in external debt and foreign direct investment. On the other hand, the uses will be taken as the current account deficit and any additions to foreign exchange reserves. The method is superior in that it incorporates reported and unreported build-up of foreign assets by both the public and private sector (World Bank 1985 and Erbe 1985). The variable on capital flight obtained using the World Bank (1985) method will be expressed as a ratio of GDP. We expect a positive relationship between capital fight and external debt*a priori*since higher levels of capital flight may lead to higher levels of debt. Empirical studies by Makochekanwa (2007) and Boyce and Ndikumana (2010) have used this variable as a measure of capital flight.

4.3 Estimation procedure

4.3.1 Stationarity tests

When dealing with time series data it is important to test for stationarity. If a non-stationary variable is regressed on another non-stationary variable, the results obtained might be attractive with very high R^2 and low Durbin-Watson (DW) statistic whilst in actual fact the results will be

spurious (Lutkenpohl, 1993). This may lead to inconsistent and inefficient parameters hence the results obtained will not have any meaning in terms of their economic interpretations. This renders the need to test for stationarity that is whether the mean and variance are constant over time (Gujarati, 2004).

In order to determine if the series are stationary or not, the Augmented Dickey Fuller (ADF) test or the Phillip-Perron test can be used. The procedure for testing for stationarity is very important in determining the order of integration of the variables which informs the use of either then VAR or the VECM model. The ADF test is employed in testing the presence of a unit root.If variables are found to be non-stationary in their levels, the process of differencing is applied.

4.3.2 Cointegration analysis

Cointegration analysis involves determining whether there is a tendency of variables to move in the same direction. For non-stationary variables, the concept of cointegration analysis is employed which allows the estimation of models with non-stationary variables. In order to test for the presence of cointegration the Autoregressive Distributed Lag approach, Engle-Granger(1987) approach[9], Maximum likelihood (1991) and the Johansen tests (1988) can be employed. The presence of cointegration[10] relationship allows the estimation of a long-run relationship between capital flight and external debt. The Johansen test is performed in order to test the presence of cointegration. If the variables are found to be co-integrated the Vector Error Correction Model (VECM) is used to determine the short-run dynamics.

4.3.3 Lag length selection

From equation (1) and (2) it is assumed that each equation contains lag values of capital flight and external debt, and the two equations will be estimated using the Ordinary Least Squares (OLS) approach. Before estimating thesetwo equations the optimal lag length can be determined using the Akaike Information criterion (AIC) or the Schwarz criterion. Determining the lag length will be done so as to avoid including too many lagged terms which consume degrees of freedom (Gujarati, 2004). The AIC which is used in this study can be expressed as follows;

[9] In some books it is referred to as the Augmented Engle-Granger (AEG) test

[10] Cointegration means that although individually nonstationary, a linear combination of two or more time can be stationary.

$$ln^{11}AIC = 2kn + lnRSSn \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .3$$

where$lnAIC$ is the natural log of AIC, $[2k/n]$ is the penalty factor. The SIC was also developed in the same spirit with the AIC. The SIC can be defined as follows

$$lnSIC = \left(\frac{k}{n}\right) lnn + ln\left(\frac{RSS}{n}\right) \ldots\ldots\ldots\ldots .\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .4$$

where$\left(\frac{k}{n}\right) lnn$ is the penalty factor. Equations (3) and (4) are used in determining the optimal lag length.

The decision rule when using any of the two methods is that of choosing the model that gives the lowest values of the criterion. However, this study will employ AIC.

4.3.4 Granger causality tests

The Granger causality test will be used to analyze bivariate weakly stationary stochastic process to the joint distribution of capital flight and external debt. This approach is deemed more appropriate as it is a robust test in a two-dimensional setting when the underlying data follows a bivariate distribution (Fofack, 2009). Since the objective of the study is to determine the casual relationship between capital flight and external debt it is important to determine whether CF causes ED ($CF \rightarrow ED$)or it is external debt that causes capital flight($ED \rightarrow CF$). The arrow points out the direction of causality between the two series. The Granger causality tests will be used to determine if the causal relationship is unidirectional, that is if itruns from ED to CF ($ED \rightarrow CF$) or vice-versa.If the direction of causality runs in both directions then bilateral causality exists.If there is no causality running in any direction then an independence relationship exists between the two variables.

4.3.5 Variance decomposition

According to this approach, the emphasis is on measuring the variation in a variable that is attributable to its own innovations and to shocks due to other variables. This involves identifying the extent to which one variable influences the other. Variance decomposition analysis is used to determine the variance of the forecast error in one variable that can be attributed to innovations in another after some periods. Enders (2003) proposed that the forecast error variance

[11] Some textbooks and software packages define AIC only in terms of its log transformation so there is no need to put the ln before the AIC

decomposition permits inferences to be made concerning the proportion of the movements in a particular time-series due to its own earlier shocks vis-à-vis shocks arising from other variables in a VAR model.

4.3.6 Impulse response

Impulse response is used to investigate the interrelationships between the variables and assess adjustments to long-run equilibrium. The impulse response function traces over time the effects on a variable of an exogenous shock to another variable. Impulse response functions trace the time path of effects of one variable on another, for instance how external debt responds over time to a shock capital flight and comparing this shock from other variables. They help in tracing the time path of effects of one variable on another.

4.4 Data sources

The study utilizes time series data for both capital flight and external debt covering the period 1980 to 2010. The time domain has been chosen based on the availability of data, especially on capital flight. The data on external debt was obtained from the World Bank World Development Indicators(2011) and that on capital flight was retrieved from the Political Economy Institute (PERI)[12] database.

4.5 Conclusion

The chapter has outlined the methodology of the study, definition and justification of the variables, the estimation procedures,and data sources.It has laid out much of the groundwork to be covered in Chapter five.

[12]Available:http://www.peri.umas.edu/300

CHAPTER FIVE

DISCUSION OF RESULTS

5.0 Introduction

The focus of the previous chapter was on exploring the methodology of the study. This chapter presents and discusses the results of the study. Before presenting the results the descriptive statistics and all the diagnostic test results are presented. All the estimations will be done using E-Views 7 statistical package.

5.1 Descriptive statistics

Table 1shows the descriptive statistics for the series being used for Capital Flight (CF) and External Debt (ED) for 31 time series observations. Descriptive statistics help in reflecting the measures of central tendency and dispersion. They area useful tool for providing a first glance impression as to whether the selected variables are suitable for the subsequent tests to follow.

Table 1: Summary of statistical measures of central tendency and dispersion

	CF	ED
Mean	0.063798	0.469729
Median	0.081220	0.373383
Maximum	0.515475	3.995492
Minimum	-0.354184	0.095152
Std. Dev.	0.139723	0.671273
Skewness	-0.024184	4.880508
Kurtosis	7.182275	26.22866
Jarque-Bera	22.59611	820.0122
Probability	0.000012	0.000000
Observations	31	31

The maximum and minimum values for the variables for both ED and CF indicate that there are no outliers. The data series is normally distributed sincethe difference between the mean and

median is very small. In terms of skewness, CF is negatively skewed whereas ED is positively skewed. The standard deviation for CF is relatively smaller as compared to that on ED.

5.2 Stationaritytest results

As already alluded to in Chapter 4, the Augmented Dickey Fuller (ADF) tests was used for undertaking stationarity tests.The null hypothesis that a unit root exist was tested against the alternative hypothesis that there is no unit root, of which the presence implies that the variables are non-stationary. The results of the ADF tests are presentedin table 2.

Table 2: Unit root tests of the variables in levels

Variable	ADF Probability	Decision on H_0	Remarks
CF	0.2245	Fail to reject	Non stationary
ED	0.0006	Reject	Stationary

The ADF tests results for stationarityfrom table 2 found that ED was stationary at 5% level. The same testing procedure was then conducted by undertaking the same tests after differencing the series on CF for the first time. The results in table 3 confirm CF to be stationary after first differencing. The full unit root tests are given in appendix 1.

Table 3: Unit root tests results after first differencing

Variable	ADF Probability	Decision on H_0	Remarks
CF	0.0000	Reject	Stationary

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5.3 Cointegration tests

Cointegration tests are normally undertaken if variable are integrated of the same order. As shown in table 2 and 3, the variables on CF and ED achieved stationarity at different levels hence one cannot justify the use of cointegration tests.The variable on CF is integrated of order one, I(1), and that of ED is integrated of order zero, I(0). This then renders the need to use Vector Auto regression (VAR) tests (Kassim, 2014).

5.4 Lag length selection criterion for VAR

Before estimating the VAR equation and carrying out the Granger causality tests it is important to determine the optimal lag length in order to ensure accurate results.The involvement of too many lagged terms will consume degrees of freedom and too few lags may lead to specification errors Gujarati (2004). The Akaike Information Criterion (AIC) was used and the results are represented in Table 4. The optimal lag length was chosen to be the one that minimises the AIC. The optimal lag length is four (4)since the AIC is at its minimum at 1.414652[13].

Table 4: The Akaike Information Criteria

Lag Length	0	1	2	3	4
AIC	1.768558	1.971654	2.238980	2.032548	1.414652*

5.4 The Granger causality testresults

The Granger causality test was used to determine which variable take precedence over the other. The information in 6 abovewas used in carrying out the Granger causality test.The results from the pair wise Granger causality test results are shown in table 5.

Table 5: Granger causality test results

Null hypothesis	Observations	F-Statistic	Probability
ED does not Granger Cause DCF	26	3.42348	0.0316
DCF does not Granger Cause ED		0.27834	0.8879

From table 5[14]the null hypothesis of no causality fromexternal debt tocapital flight is rejected since the probability value of 0.0316 is less than the critical value of 0.05. However, the results show no reverse causality from capital flight to external debt since the probability value of 0.8879 is greater than 0.05. This result suggests that for the period under consideration, external debt accumulation influenced capital flight. The relationship can be depicted as follows:

[13] See Appendix 3
[14] See Appendix 4

$$External\ Debt \rightarrow Capital\ Flight$$

The above results suggest a phenomenon known as debt-driven capital flight. This is a form of direct linkage between CF and ED.The results are similarto Fofack (2009).For the case of Zimbabwe, the accumulation of external borrowing has incentivized individuals to engage in capital flight.This result shows no support of the revolving door hypothesissince there exists a uni-directional causality from external debt to capital flight.

5.5 VAR model results

According to Gujarati (1995) and Blanchard (1987) parameters estimated from the VAR Model suffer from multi-collinearity problems which may lead to inaccurate inferences. It is not necessary to give detailed explanations of the individual coefficients of the VAR equation,their signs and significance. The estimated VAR equation which yielded the results is shown in appendix 4. Thereforethe variance decomposition and impulse response are used in making inferences about the variables.(Kassim, 2014).Blanchard (1987) emphasized that the strength of the VAR models lies in the impulse response functions and the variance decomposition.

5.5.1 Variance decomposition analysis

The variance decomposition results are presented for each variable over a ten period horizon in tables 6 and 7. The variance decomposition is for Differenced Capital Flight (DCF) and External Debt (ED).

Table 6: Variance decomposition of DCF

Period	SE	DCF	ED
1	0.103407	100.0000	0.000000
2	0.126076	95.98378	4.016220
3	0.130834	90.91377	9.086233
4	0.161692	93.33651	6.663487
5	0.184972	73.58439	26.41561
6	0.202139	64.67938	35.32062
7	0.206052	65.59921	34.40079
8	0.214679	60.68147	39.31853
9	0.231939	62.31376	37.68624
10	0.236562	59.90232	40.09768

Table 6shows that in period one, 100% of changes in DCF are attributed to its own changes. This indicates that DCFin period one is wholly exogenous. In period two, 96% of changes in DCF are due to its own shocks, while 4.02% are due to changes in ED. However, as time pass by shocks to CF are a combination of its own shocks and shocks to external debt. More precisely, at period 10 59.9%of shocks to DCF are due to its own shocks while 40.1% of shocks in capital flight are attributable to shocks in external debt. With passage of time, shocks to external debt increasingly contribute to capital flight shocks. These results are in line with the Granger causality test results which have shown that external debt causally affects capital flight. Column two shows the Standard Error (SE) of the forecast horizon resulting from variations in current and future values of the innovation to each endogenous variable in the VAR. SE started as low as 0.103in period one but gradually rising to 0.237 indicating increasing uncertainty over the subsequent forecasting horizons.

Table 7: Variance decomposition of ED

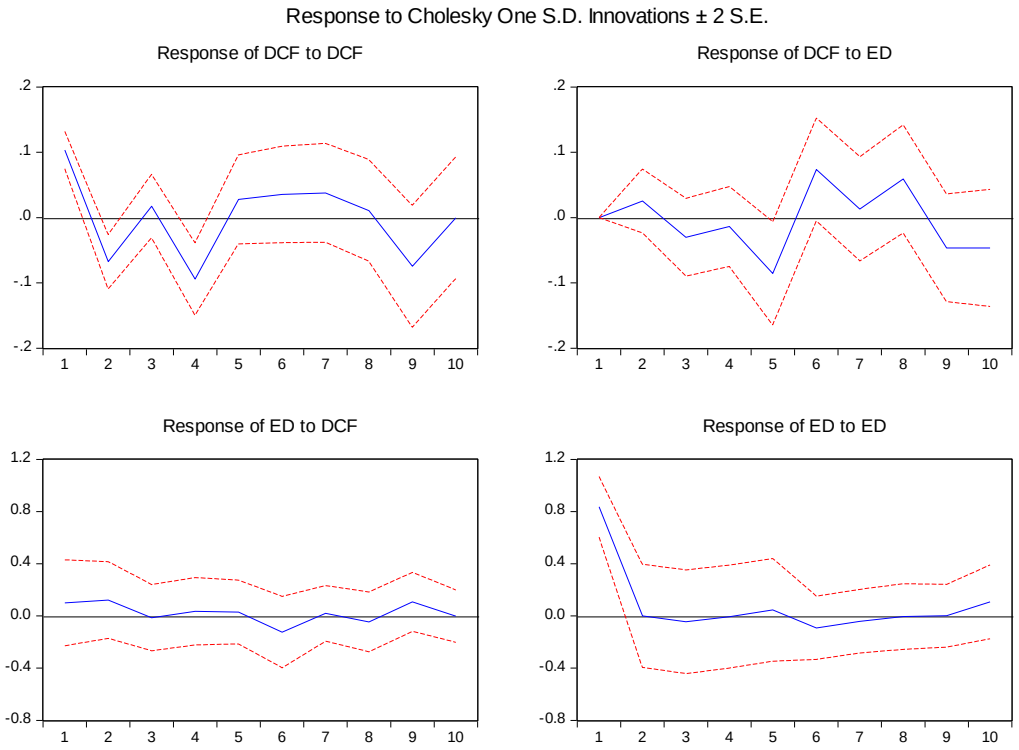
Period	SE	DCF	ED
1	0.842197	1.426940	98.57306
2	0.850975	3.449997	96.55000
3	0.852286	3.466249	96.53375
4	0.853042	3.633360	96.36664
5	0.854815	3.736293	96.26371
6	0.868707	5.673329	94.32667
7	0.869885	5.710362	94.28964
8	0.871108	5.971570	94.02843
9	0.877747	7.388424	92.61158
10	0.884296	7.279886	92.72011

The variance decomposition analysis shows that external debt is not wholly exogenous. For instance in period one, 1.43% of shocks to external debt are due to capital flight. The variance decomposition in table 7 shows that less than 8% of variation in external debt is attributed to variation in capital flight. Thus the predominant source of variation in external debt is external debt itself. In particular, at period 10, 7.28% of variation in external debt is due to capital flight whilst 92% is due to own shocks. This result attests to the fact that capital flight does not Granger cause external debt.

5.5.2 Impulse response

Impulse response functions allow the identification of the dynamic relationships of the variables over time, and to analyse the impact of movements in exogenous variables on the endogenous ones. Fig 4 shows the impulse response test results.

Figure 4: Impulse Response Tests Results



The first row in figure 1 shows that the response of capital flight to itself is highly influential in the initial period, which however declined in the second period as external debt started to gain influence. Shocks in external debt have an influence on capital flight as time pass by. In particular, one standard error shock to DCFleads to a decline in DCF by 0.1% in period 1, which gradually falls to -0.07% and -0.09% in period two and four respectively gradually falls , bust steadily increases in period five upto seven and gradually starts to fall from period seven up to period nine. However, the response of DCF to DCF has been fluctuating over the ten periods.The response of ED to DCFand the response of ED to ED is very close to zero over the ten periods.The second row shows that external debt does not significantly respond to shocks in capital flight throughout the ten year period. This is in support of the Granger causality results that capital flight does not Granger cause external debt. Thus shocks in capital flight do not have a significant effect on external debt.

5.6 Conclusion

This chapter`s main focus was the presentation and interpretation of the results from the econometric analysis. The Granger causality test suggests that there exists a uni-directional relationship running from external debt to capital flight.The variance decomposition analysis and impulse response results have shown that shocks to capital flight are due to shocks in external debt while the reverse was found to be insignificant. The policy recommendations and some suggestions for further studies are presented in the next chapter.

CHAPTER SIX

CONCLUSION AND POLICY RECOMMENDATIONS

6.0 Introduction

The aim of this chapter is to give some policy recommendations based on key findings from the previous chapter. A brief recap of the objectives and the empirical findings are given as well conclusions and policy recommendations. Lastly, probable areas of future research are spelt out.

6.1 Summary and conclusion of main findings

This study focused on the determination of the causal relationship between capital flight and external debt in Zimbabwe,using time series data for the period 1980-2010. External debtand capital flight werecomputed as ratiosof GDP.The data on capital flight was computed using the World Bank (1985) approach and it was retrieved from the Political Economy Institute (PERI) database.The data on external debt stock was obtained from the World Bank World Development Indicators (2011). The Augmented Dickey Fuller Tests were employed in order to test for the presence of unit root. After diagnostic tests the study employed the VAR Model as opposed to cointegration analysis. The pair wise Granger causality tests revealed the existence of a uni-directional relationship running from external debt to capital flight. This result indicates that for Zimbabwe, external debt has had an influence on capital flight, whilst capital flight has not influenced external borrowing.Meanwhile, variance decomposition analysis established that shocks in external debt significantly drive capital flight while shocks in capital flight have no significant effect on external debt. Thus, there is debt-driven capital flight in Zimbabwe implying that there is no support of the revolving door hypothesis.

6.2 Policy implications and recommendations

The results have shown that external debt-capital flight relationship is one way in Zimbabwe for the period under review. These results show that, if unchecked, external debt will continue to cause massive capital flight hence leaving the country with a resource deficit. These results are important to the government as far as policy issues and implications are concerned.These findings can also help the government to make a case for debt relief since the continous accumulation of external debt may signal increased risks, to which private capital owners may

respond by pulling out their capital. The government needs to negotiate with International Financial Institutions, the Paris Club and other bilateral loan providers for the possible debt rescheduling or debt forgiveness. If the government drafts a debt relief strategy and its accepted such an initiative will go a long way in reducing the country`s external indebtedness.

Apart from negotiating for debt forgiveness, there is need for the responsible authorities to formulate and implement a holistic debt management strategy as a matter of priority. The following measures could be put in place to ensure that the country manages its external debt in a prudent way.The government needs to guarantee that any external loans are invested into productive projects that give higher returns on investment.If these loans are invested into such productive projects it enhances the country`s debt serving capacity thereby reducing the incidence of falling into a debt crisis. Furthermore, the government also needs to timely pay its outstanding obligations in order to avoid a debt trap which can also spill over into a debt crisis. These measures can thus reduce capital flight since debt-driven capital flight is exacerbated when conditions for debt crises exists.

In order to reduce the huge external debt overhang the government needs to move in and normalize its relations with the World Bank and the International Monetary Fund. If the relations are normalized, such a move will go a long way in improving the country`s credit ratings. An improvement in the credit ratings will help the country to secure external finance more cheaply.

The government needs to ensure that a stable macroeconomic condition exists in order to reduce external indebtedness. This is because increased foreign borrowing increases the demand for foreign currency for debt servicing. When international reserves reach a point when they are no longer inadequate the government may thus resort to solving this problem by increasing taxes. Capital owners may transfer their private capital abroad which then propels more capital flight. In addition, a stable macroeconomic environment will ensure the economy performs well which will reduce the demand for external borrowing.

6.3 Suggestions for further studies

Future studies can focus on other measures of capital flight such as the Asset Method or the Hot Money Method in order to make rich conclusions. Further studies can also use other econometric techniques such as the Autoregressive Distribute Lag Method (ARDL) or Simultaneous Equation Modeling in orderto explore further the causal relationship between capital flight and external debt.

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APPENDICES

Appendix 1: Unit root tests

CF in levels

Null Hypothesis: CF has a unit root
Exogenous: None
Lag Length: 4 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.140287	0.2245
Test critical values:	1% level	-2.656915	
	5% level	-1.954414	
	10% level	-1.609329	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CF)
Method: Least Squares
Date: 05/12/16 Time: 16:59
Sample (adjusted): 1985 2010
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CF(-1)	-0.338192	0.296585	-1.140287	0.2670
D(CF(-1))	-0.344350	0.299983	-1.147899	0.2639
D(CF(-2))	-0.018290	0.225212	-0.081213	0.9360
D(CF(-3))	-0.745408	0.241440	-3.087343	0.0056
D(CF(-4))	-0.627531	0.266782	-2.352224	0.0285

R-squared	0.632512	Mean dependent var	-0.006468
Adjusted R-squared	0.562514	S.D. dependent var	0.183553
S.E. of regression	0.121407	Akaike info criterion	-1.208293
Sum squared resid	0.309534	Schwarz criterion	-0.966351
Log likelihood	20.70781	Hannan-Quinn criter.	-1.138622
Durbin-Watson stat	2.052071		

ED in levels

Null Hypothesis: ED has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.671545	0.0006
Test critical values:	1% level	-2.644302	
	5% level	-1.952473	
	10% level	-1.610211	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ED)
Method: Least Squares
Date: 05/12/16 Time: 17:02
Sample (adjusted): 1981 2010
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ED(-1)	-0.639458	0.174166	-3.671545	0.0010

R-squared	0.317219	Mean dependent var	0.011825
Adjusted R-squared	0.317219	S.D. dependent var	0.946241
S.E. of regression	0.781884	Akaike info criterion	2.378544
Sum squared resid	17.72893	Schwarz criterion	2.425251
Log likelihood	-34.67816	Hannan-Quinn criter.	2.393486
Durbin-Watson stat	2.161216		

CF after 1st Differencing

Null Hypothesis: D(CF) has a unit root
Exogenous: None
Lag Length: 3 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.107981	0.0000
Test critical values:	1% level	-2.656915	
	5% level	-1.954414	
	10% level	-1.609329	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CF,2)
Method: Least Squares
Date: 05/12/16 Time: 17:00
Sample (adjusted): 1985 2010
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CF(-1))	-3.511411	0.574889	-6.107981	0.0000
D(CF(-1),2)	1.900533	0.442783	4.292242	0.0003
D(CF(-2),2)	1.692769	0.368888	4.588837	0.0001
D(CF(-3),2)	0.757853	0.242701	3.122585	0.0050

R-squared	0.851114	Mean dependent var	0.005115
Adjusted R-squared	0.830811	S.D. dependent var	0.297168
S.E. of regression	0.122233	Akaike info criterion	-1.225140
Sum squared resid	0.328699	Schwarz criterion	-1.031587
Log likelihood	19.92682	Hannan-Quinn criter.	-1.169404
Durbin-Watson stat	2.085007		

Appendix 2: Lag length selection

Endogenous variables: DS DCF
Exogenous variables: C
Date: 04/23/16 Time: 15:28
Sample: 1980 2010
Included observations: 25

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-20.10698	NA	0.020098	1.768558	1.866068*	1.795603
1	-18.64567	2.571896	0.024680	1.971654	2.264184	2.052789
2	-17.98725	1.053478	0.032522	2.238980	2.726530	2.374206
3	-11.40686	9.475765	0.026985	2.032548	2.715119	2.221865
4	0.316851	15.00634*	0.015092*	1.414652*	2.292243	1.658058*
5	2.591857	2.548007	0.018423	1.552651	2.625262	1.850148

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Appendix 3: The VAR equation

Vector Autoregression Estimates
Date: 05/12/16 Time: 17:12
Sample (adjusted): 1985 2010
Included observations: 26 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	DCF	ED
DCF(-1)	-0.682709	1.178457
	(0.16867)	(1.37377)
	[-4.04752]	[0.85783]
DCF(-2)	-0.297500	0.721401
	(0.13243)	(1.07854)
	[-2.24656]	[0.66887]
DCF(-3)	-0.936161	0.706975
	(0.15130)	(1.23230)

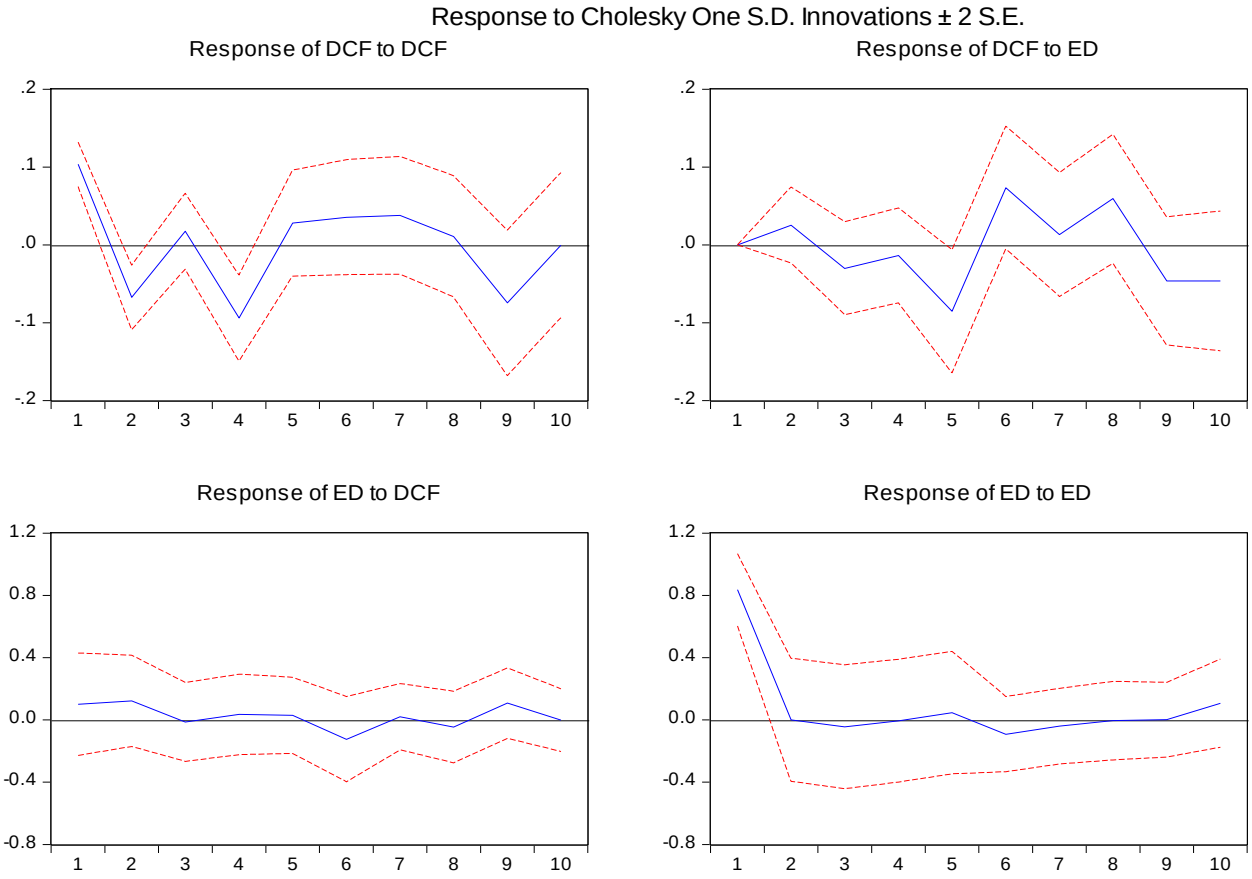
	[-6.18729]	[0.57370]
DCF(-4)	-0.795756	1.593053
	(0.21322)	(1.73657)
	[-3.73209]	[0.91735]
ED(-1)	0.030217	0.000502
	(0.02901)	(0.23628)
	[1.04156]	[0.00212]
ED(-2)	-0.015600	-0.089599
	(0.02955)	(0.24065)
	[-0.52796]	[-0.37231]
ED(-3)	-0.030440	0.014666
	(0.02931)	(0.23875)
	[-1.03841]	[0.06143]
ED(-4)	-0.096434	0.074856
	(0.02917)	(0.23759)
	[-3.30574]	[0.31507]
C	0.047246	0.529166
	(0.03531)	(0.28755)
	[1.33817]	[1.84024]
R-squared	0.784186	0.064442
Adj. R-squared	0.682626	-0.375820
Sum sq. resids	0.181779	12.05803
S.E. equation	0.103407	0.842197
F-statistic	7.721426	0.146372
Log likelihood	27.62735	-26.90365
Akaike AIC	-1.432873	2.761819
Schwarz SC	-0.997378	3.197314
Mean dependent	-0.006468	0.531546
S.D. dependent	0.183553	0.718014
Determinant resid covariance (dof adj.)		0.007476
Determinant resid covariance		0.003196
Log likelihood		0.910534
Akaike information criterion		1.314574
Schwarz criterion		2.185564

Appendix 4: Granger causality tests results

Pairwise Granger Causality Tests
Date: 05/12/16 Time: 17:11
Sample: 1980 2010
Lags: 4

Null Hypothesis:	Obs	F-Statistic	Prob.
ED does not Granger Cause DCF	26	3.42348	0.0316
DCF does not Granger Cause ED		0.27834	0.8879

Appendix 5: Impulse response functions



Appendix 6: Data used in this study

Obs	CF	ED
1980	0.082533	0.097321
1981	0.145288	0.095152
1982	0.12889	0.136104
1983	0.093205	0.181184
1984	0.083093	0.231631
1985	0.037296	0.243926
1986	0.074647	0.251853
1987	0.144011	0.273168
1988	0.021468	0.222137
1989	0.097904	0.215104
1990	0.051102	0.228377
1991	0.062021	0.265911
1992	0.183534	0.354616
1993	0.077248	0.383842
1994	0.021285	0.391699
1995	0.094843	0.402739
1996	0.08122	0.32017
1997	0.119617	0.292381
1998	0.160943	0.405817
1999	0.102993	3.995492
2000	0.200333	0.393462
2001	0.008099	0.373383

2002	-0.0092	0.436476
2003	-0.35418	0.510955
2004	0.007506	0.558988
2005	0.030013	0.515652
2006	0.515475	0.556469
2007	0.099859	0.625587
2008	-0.09024	0.681187
2009	-0.20797	0.468757
2010	-0.08508	0.452057