AN ANALYSIS OF DETERMINANTS OF PRIVATE INVESTMENT IN ZIMBABWE FOR THE PERIOD 2009-2011.

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ABSTRACT

The study set out to analyse the determinants of private investment post the introduction of the multi-currency system in Zimbabwe (2009-2011). This was prompted by the sluggish growth in private investment thereby crippling the economy's growth on the large. Variables identified for the study include political risk, GDP, national savings, inflation, interest rates, public investment, trade terms and debt servicing. To enhance the analysis, the study assumed correlation analysis and multiple regression in an effort to examine how private investment related to each identified variable as well as the net effect of each variable on private investment. Though most results from correlation analysis are contrary to the research's expectations, treating the variables for co and multicollinearity gave theory aligned results in regression analysis. The study, though not out rightly disregarding correlation results identifies political risk, interest rate, GDP, debt servicing and trade terms as key determinants of private investment over the study period. Key though is the realisation that, statistical significance of results is independent of the practicality of economic principles. In a bid to foster economic growth and increase private investment, the study recommends the promotion of political stability, the attraction of FDI, enabling a structured public-private dialogue and promoting Government investment in infrastructure development among others.

1.0 INTRODUCTION

Haroon and Nasri (2011), concluded that, private investment is a major driver of economic growth in Pakinstan. The conclusion was reached at despite empirical growth models for developing countries typically making no distinction between the private and public components of investment, (Jecheche 2011).

This study seeks to uncover why private investment, despite its celebrated role in firing economic growth, has generally been sluggish in propelling economic recovery in Zimbabwe, especially post the introduction of the multi-currency system (2009-2011). The chapter is organised in a manner that captures the background information of the study, statement of the problem, objectives, research questions, and statement of hypotheses, significance of the study, scope and limitations of the study, assumptions as well as the organisation of the study.

1.1 Background to the study

Zimbabwe, once touted as the Jewel of Africa at Independence in 1980, has over the years acquired a reputation as the sick man of the Southern Africa region, with disastrous economic policies, political instability and a peculiar inability to get itself out of often self-inflicted difficulties.

Recent analysis of the sources of growth specifically in Zimbabwe found that the greatest contribution to a country's growth came from higher investment and an increase in Total Factor Productivity (TFP) that made more efficient use of factors of production (Serven, 2010). The improvements in factor efficiency in Zimbabwe stem from reforms in the early 1990s that improved the environment for private investment, giving the **private**

sector a more central role in economic activity. However, both private investment and its pace of growth appear to be constrained since the introduction of the multicurrency system in Zimbabwe (Jecheche, 2011).

TFP is a function of investment as supported by Kydland and Prescott (1982), who wrote that, 'shocks to TFP are propagated by pro-cyclical labour supply and **investment**, thereby generating fluctuations in output and productivity.' As shown in the landmark article by Solow (1956), long-run growth in income per capita in an economy with an aggregate neoclassical production function must be driven by growth in TFP. With this in mind, growth of the Zimbabwean Economy is solely vested in upping investment so that extra investment benefits would accrue to the nation.

IMF and World Bank estimates of 2011 show that, long term capital (private sector) has been nil in some years, confirming the sluggish economic growth

Considering all facets of investment, including public investment, the trend according to the IMF estimates of 2011 still depicts a country of very low Gross Capital Formation (GCF), despite huge advantages of natural resources and skilled labour. Generally, the higher the capital formation of an economy, the faster an economy can grow its aggregate income. Increasing an economy's capital stock also increases its capacity for production. Producing more goods and services leads to an increase in national income levels (Carson, 1990). GCF as quoted from the United Nations System of National Accounting (UNSNA) must account for 20% of the GDP (Vanoli; 2005). Considering the Zimbabwean case, GCF averaged 2,7% of GDP from 2009 -2011, which is too little when compared with the standard benchmark (IMF estimates, 2011).

The introduction of the multi-currency system in 2009, led to the cessation of hyperinflation as well as removal of price controls. The hyperinflation of the pre multicurrency period stalled budgetary projections as well as distorting the pricing system, thus defying the profit motive of the private sector (Seruvatu and Jayaraman; 2006). Coupled with reduced capacity utilisation and closure of factories, unemployment rose to figures above 80%. Loss of purchasing power owing to hyperinflation, high costs of labour and imported raw materials (caused by an unstable exchange rate) for industry led to the closure of most factories across the country with the operational ones utilising capacities below 30% (CZI, 2007).

It was every Zimbabwean's expectation that the economy would rebound and address all the ills the economy had plunged them into. However, since 2009, despite the easy accessibility of basic commodities and the easing of inflation among other key economic variables, employment creation through increased capacity utilisation has not yet responded to everyone's expectation. However, literature has it that, private investment still occupy a central position in solving economic problems such as poverty and unemployment especially for developing countries (Reinhart; 1989; Ghura and Hadjimichael, 1996).

Private investment has been the major economic driver in developing countries such as Fiji, Ghana and Pakistan as envisaged by Seruvatu et al (2001); Asante (2000) and Haroon et al (2011). Zimbabwe, despite enjoying a somewhat stable economy (post the introduction of the multi-currency system) compared to the pre-multi-currency era, and it being a developing economy, has seen little economic activity from private investment activity, pointing to a stagnant capacity utilisation, closure of industries and poor economic growth on the overall. Thus the much awaited role of the private sector as an engine of growth has not yet materialised.

1.2 Problem statement
Private investment has been a major economic powerhouse for developing countries (Seruvatu and Jayaraman 2001; Pablo and Andres n.d; Outtara n.d). Low economic growth from 2009 - 2011 is an indication that private investment in Zimbabwe is not in line with the pre- established trends in most developing countries. The development disregards the conducive conditions (certainty in macro-economic variables and flexibility in financial markets) proffered by the introduction of the multi-currency regime, Lee (2004).

This study thus seeks to analyse the determinants of private investment (post the introduction of the multi-currency system) in a bid to uncover why private investment has remained sluggish, contrary to pre-mentioned empirical evidence on private investment.

1.3 OBJECTIVES
1.3.1 Primary objective
This study seeks to analyse the determinants of private investment in Zimbabwe, post the introduction of the multi -currency period.

1.3.2 Secondary objectives
1. To determine the major variables that influence private investment in Zimbabwe.
2. To test the sensitivity of private investment to those variables that determine it in Zimbabwe.
3. To explore the relationship between private and public investment in Zimbabwe.

1.4 Research questions
In order to facilitate the achievement of the above research objectives, the following questions had to be answered:
1. What are the factors that influence private investment in Zimbabwe?
2. How sensitive is private investment to the factors that influence it?
3. Which factors is Private investment more sensitive to?
4. How are public and private investment related in Zimbabwe?
5. How important is Foreign Direct Investment (FDI) to economic growth in Zimbabwe?

1.5 Statement of Hypothesis
The study tested the following hypotheses in order to analyse the determinants of private investment.

Hypothesis 1
>   **H 1.0 :** Inflation rate has a negative impact on Private investment.

Hypothesis 2
>   **H 2.0 :** political risk has a negative impact on private investment.

Hypothesis 3
>   **H 3.0 :** Interest rate has a negative impact on Private investment.

Hypothesis 4
>   **H 4.0 :** Private investment is negatively affected by national debt servicing

Hypothesis 5
>   **H 5.0 :** Domestic savings have a positive impact on private investment.

Hypothesis 6
>   **H 6.0 :** Public investment positively influence private investment.

Hypothesis 7
>   **H 7.0 :** GDP has a positive impact on private investment.

Hypothesis 8
>   **H 8.0 :** Trade terms relate positively to private investment;

1.6 Significance of the study
The study seeks to accurately analyse the major variables that affect private investment. This is on the back of the major concern of any government to foster economic growth. To the extent that private investment is a determinant of long-run growth, a comprehensive assessment of what stimulates it is essential to identify and address related policy issues by the Zimbabwean Government.

The study also highlights key economic issues that affect private investment hence informed decisions can be made by potential investors as well as all concerned stakeholders.

1.7 Scope of the study
The study seeks to analyse the behaviour of key determinants of private investment post the introduction of the multi- currency system in Zimbabwe. The key period naturally becomes 2009 to 2011. The period chosen is key given it is post the hyperinflation period, thus it is assumed that major economic variables are somehow 'normal', thus can contribute positively to economic growth.

The analysis of determinants of private investment shall only premise on Zimbabwean data on GDP, interest rates, inflation, national savings, debt servicing, political risk, trade terms and public investment.

1.8 Limitations of the study
Data on major variables deemed necessary for the study such as GDP, political risk, and public investment is not readily available. Whilst it's the mandate of Government Institutions such as the Ministry of Finance and the Reserve Bank of Zimbabwe to provide such data, experience has it that, such information is not readily available. In such cases, other alternative sources such as the ZIMSTAT, WB, IMF and AfDB were used as they track and assess Zimbabwean economic variables as well as economic growth opportunities longitudinally. Also, the period on which the study is premised is too short to provide a good data set for sound conclusions to be drawn from the study. However, effort was made to get monthly data for the key variables, hence increasing the variability, validity and testability of the data.

1.9 Assumptions

The following axioms were assumed for the study to be a success:

- Zimbabwe pursues economic growth as a solution to economic problems such as unemployment and poverty.
- Private investment contributes immensely to economic growth.
- Government is keen to draft policies that promote investment.
- Macro-economic environment after the introduction of the multi- currency regime prop up investment.
- Private investment figures used reflect the total of domestic and foreign direct investment.

1.10 Organisation of the study

This section of the study set a foundation of the study. Key were the background of the study, the problem statement, statement of hypothesis, objectives, scope and limitations as well as the literature review. Chapter Two discusses, and reviews related private investment literature. The Methodology (Chapter Three) discusses the research framework assumed and justification of the methods to ascertain their suitability given the expectations of the study. Chapter Four focuses on research findings and the study ends with Conclusions and Recommendations (Chapter Five).

LITERATURE REVIEW

2.0 INTRODUCTION

A lot has been written on private investment, with different approaches being used on the subject. This section discusses the various propositions put forward by various authors on the determinants of private investment and the subsequent role private investment has on economic growth.

2.1 Discussion of the definition of investment.

According to Barton (2005), definitions of investment tend to be broad and open-ended, with a list of specific types of covered investments which are indicative rather than definitive. Mertonson (2010) noted that, the term 'Investment' is quintessentially ambiguous. The definitions also tend to vary with the geographical areas as different regions tend to assume a different meaning of what an investment is.

Legum (2005) noted in a symposium that, the UK defines investment as 'every kind of asset', and then introduces a list of specific forms of investment with the indicative phrase, '..and in particular, though not exclusively'. The list includes the following forms of investment: real estate or other property, tangible or intangible, acquired in the expectation or used for the purpose of economic benefit or other business purposes; interests arising from the commitment of capital or other resources put to economic activity; an enterprise; an equity security of an enterprise and a debt security of an enterprise. Inclusion of the phrase 'not exclusively' points to the definition of investment going even beyond the dictates of the listed examples of investment.

The French definition states that, 'all assets, such as property, rights and interest of every nature', whilst the US adopts, 'any asset that has the characteristics of an investment' as the definition of an investment. The characteristics therein accepted include risk, return and correlation with other investments.

These definitions include all types of investments, including investments by corporations in plant property and equipment and investments by individuals in stocks, bonds, commodities, or real estate. Broad definitions of investment reflect an effort to accommodate the endless creativity of the capital markets, thus reflecting a desire to encourage investment in all its forms, present and future.

However, Parker (2010) notes that, Economists usually reserve the term *investment* for transactions that increase the magnitude of *real aggregate wealth* in the economy. This includes mainly the purchase (or production) of new real durable assets such as factories and machines. Under the International Centre for Settlement of Investment Disputes (ICSID) Convention, investment encompasses any plausible activity or asset, that is any form of investment which adds to the existing capital formation of a country, thus have a positive effect on the gross output of a country.

Investment in this case is the act of acquiring income-producing assets, known as physical capital, either as additions to existing assets or to replace assets that have worn out (depreciated). These assets may be in the form of fixed non-residential plant and equipment, housing (fixed residential) or business inventories. Decisions about the appropriate quantity of assets or capital are often based on profit-maximizing behaviour of a private business firm producing goods and services or providing housing services (Seruvatu and Jayaraman, 2001).

2.2 Theories of Investment

The theories of investment date back to Keynes (1936), who first called attention to the existence of an independent investment function in the economy. A central feature of the Keynesian analysis is the observation that although savings and investment must be identical ex-post, savings and investment decisions are, in general, taken by different decision makers and there is no reason why ex-ante savings should equal ex-ante investment. The next phase in the evolution of investment theory gave rise to the accelerator theory, which makes investment a linear proportion of changes in output.

2.2.1 The Accelerator theory

In the accelerator model, expectations, profitability and capital costs play no role. A more general form of the accelerator model is the flexible accelerator model. The basic notion behind this model is that the larger the gap between the existing capital stock and the desired capital stock, the greater a firm's rate of investment (Parker, 2010). The hypothesis is that firms plan to close a fraction of the gap between the desired capital stock, K*, and the actual capital stock, K, in each period. This gives rise to a net investment equation of the form of:

$I = \delta (K^* - K_{-1})$

where I = net investment, K* = desired capital stock, K-1 = last period's capital stock, and δ = partial adjustment coefficient.

Within the framework of the flexible accelerator model, output, internal funds, cost of external financing and other variables may be included as determinants of K*. The flexible accelerator mechanism may be transformed into a theory of investment behaviour by adding a specification of K* and a theory of replacement investment (Asante, 2000). Alternative econometric models of investment behaviour differ in the determinants of K*, the characterization of the time structure of the investment process and the treatment of replacement investment. In the flexible accelerator model, K* is proportional to output, but in alternative models, K* depends on capacity utilization, internal funds, the cost of external finance and other variables.

This model thus identifies GDP (output), interest (cost of external financing) and capital (internal funds) as the major determinants of investment. Most important is the availability of excess production capacity which would allow for the increase in production from the actual production level to the desired level.

2.2.2 Empirical evidence on the Acceleration model

This model is derived from an extremely simple assumption about the firm's desired amount of capital. It assumes that the firm desires a fixed capital/output ratio. If we denote this ratio by σ, then the optimal level of capital input is:

$K^* = \sigma Y$, where Y is the level of output.

Tinbergen (1938) notes that strict interpretation of the equation above with complete adjustment implies that, the elasticity of the proportional change in the capital stock with respect to the proportional change in output should be exactly one.

At the time of Tinbergen's work, there were no national-accounts data to use in estimating aggregate investment functions. Instead, empirical analysis was based on the few industries for which good-quality data on output and capital (or capacity) could be obtained—notably railroads. Tinbergen estimates the elasticity of railroad capacity (a weighted average of locomotives and railroad cars) to traffic to be closer to 0.5 than to 1.0 for the United States, United Kingdom, and Germany. Reconciling the accelerator principle to these data requires more flexibility than the crude proportionality model.

According to Jorgenson (1965), firms take time to invest to the desired capital stock owing to equipment that requires substantial planning, installation, and delivery time as well as time required to build structures. Such lags in the installation of new capital imply that actual investment spending may lag behind changes in the desired capital stock.

2.2.3 The Multiplier Investment Model

The Multiplier is the marginal effect of a change of one economic variable upon another economic variable, of which the first is a component (Lange; 1943). The Investment Multiplier, introduced by Keynes as an integral part of his General Theory, established a precise relationship between aggregate income and the rate of investment, given the marginal propensity to consume (Hasan, 1968). In economics, a **multiplier** is a factor of proportionality that measures how much an endogenous variable changes in response to a change in some exogenous variable (Hegeland; 1954).

The Multiplier Model indicates the total income creating effects of an autonomous increment of investment on the basis of certain highly simplifying assumptions which include: the absence of time lags, no induced investment, constant marginal propensity to consume, and a closed economy.

Multiplier effects can be seen when new investment and jobs are attracted into a particular town, city or region. The final increase in output and employment can be far greater than the initial injection of demand because of the inter-relationships within the circular flow. The Multiplier Model of investment is therefore based mainly on the feedback effect that output (production) has on investment. The basic notion is, aggregate income increases as the producers of the new investment goods enjoy higher sales and incomes. Thus an increase in investment sets off a never-ending sequence of ever-smaller increases in consumption demand that augment or 'multiply' the effect of investment on income.

2.2.3.1 Empirical testing of the multiplier model

The higher the propensity to consume domestically produced goods and services, the greater is the multiplier effect (Cata; 2000). Another factor affecting the size of the multiplier effect is the propensity to purchase imports. If, out of extra income, people spend money on imports, this demand is not passed on in the form of extra spending on domestically produced output. It leaks away from the circular flow of income and spending. This is a common feature with developing countries which tend to import most of the goods and services they require. This bursts the investment multiplier effect in most economies.

The multiplier process also requires that there is sufficient spare capacity in the economy for extra output to be produced. If short-run aggregate supply is inelastic, the full multiplier effect is unlikely to occur, because increases in Aggregate Demand will lead to higher prices rather than a full increase in real national output (John; 2011). Effectively, under-developed countries have lots of spare capacity for the multiplier to take effect.

2.2.3 Tobin's Q

James Tobin, another Nobel-prize winner, formulated an investment theory based on financial markets. Tobin argued that firms' investment level should depend on the ratio of the present value of installed capital to the replacement cost of capital. This ratio is ***Tobin's q***.

The q theory of investment argues that firms will want to increase their capital when $q > 1$ and decrease their capital stock when $q < 1$. If $q > 1$, a firm can buy one dollar's worth of capital (at replacement cost) and earn profits that have present value in excess of one dollar. Under those conditions, firms increase profits by investing in more capital, so we expect investment to be high. If $q < 1$, then the present value of the profits earned by installing new capital is less than the cost of the capital, so more investment lowers profit. We expect investment to be near zero if $q < 1$. When $q < 1$, someone seeking to enter a particular industry can acquire the necessary capital assets more cheaply by buying an existing firm than by building a new one with new capital. This is true because the value of installed capital (that is, the cost of buying an existing firm) is less than the replacement cost (the cost of building a new firm) (Hegeland 1954; Parker 1960).

Tobin's Q theory thus lays bare the fact that, investment is a function of the cost of capital (interest) as well as profitability. Investment makes sense only when the cost of replacing and or acquiring capital assets is low. Low cost of capital magnifies profitability hence the viability of an investment. Impliedly, risk is also a factor considered by Tobin's model as it seeks to limit losses by making sure the q ratio is greater than one.

2.2.3.1 Evidence of testing the Q theory

Tobin (1969) argued that "the rate of investment— the speed at which investors wish to increase the capital stock—should be related to q, the value of capital relative to its replacement cost." High share prices make it cheaper for firms to finance new investment by issuing new shares. Conversely, low share prices reduce the proceeds from share issue and make it cheaper for firms looking to expand to buy up additional capacity by taking over (undervalued) existing firms rather than investing in new capital.

Empirically, the q theory of investment is attractive because Tobin's q can be measured on a firm-by-firm or aggregate basis. A firm's q is the ratio of the stock-market value of the firm (share price times number of shares outstanding) to the replacement value of its installed capital stock. However, Dybvig and Warachka (2010) stated that, the relationship between firm performance and Tobin's Q is confounded by endogeneity, yet capital is an exogenous variable.

Philip et al (2010) thus proposed a revenue-based measure that assesses managerial decisions regarding a firm's level of output and a cost-based measure to assess its cost discipline. These measures are justified by the

maximization of firm value net of invested capital. Their estimation indicates that better governance improves firm performance, but better firm performance does not increase Tobin's Q.

2.3 Private Investment and Economic Growth

Chibber and Leechor (1993) define **Private Investment** as investment which is made by privately owned business firms on new buildings, plants and equipment that are used in the production of goods and services. Semenescu (2006) also describe private investment as spending on additions to a firm's capital such as buildings and machinery.

Haroon and Nasr (2011) asserted that, private investment is critical to economic growth, and that, many countries rely on private investment to solve their economic problems such as poverty and unemployment. Recent empirical studies (Hernandez-Cata 2000, Ndikumana 2000, Ben-David 1998, Chari, Kehoe and McGrattan 1997 and Barro and Lee 1994) conducted in Africa, Asia and Latin America have established beyond any doubt, the critical linkage between private investment and the rate of growth.

There is a growing consensus that private investment is more efficient and productive than public investment, yet the number of studies on the respective roles of private and public investment in *developing* economies is somewhat limited (Everhart and Sumlinski;2000). Using relatively small sample sizes and limited time series, a number of studies have concluded that private investment has a larger positive impact on growth than public investment, among them, Khan and Reinhart (1990), Coutinho and Gallo (1991), and Serven and Solimano (1990).

Khan and Kumar (1997) expanded the country coverage over previous works andexamined a relatively long time period, 1970-1990. The authors found private and public investment both have a statistically significant positive association with growth. The magnitude differs considerably, however, with private investment having an estimated coefficient, almost one-and-a half times as large as that of public investment.

Bouton and Sumlinski (2000) confirmed Khan and Kumar's results and found for a longer period an even larger coefficient on private investment and smaller coefficient on public investment. Thus, the degree of association of private investment with sustainable development and growth appears well established in the economics literature.

During a panel discussion on the Centre for Strategic and International and Studies of 2012, UNDP Assistant Administrator, Kaaag said, "Without private-sector investment in developing countries, there will be no meaningful growth. We need the private sector to share its expertise, give us access to knowledge, innovations, and tested business models, and share them with developing economies." This further augments the important role that private investment inculcates in the economic growth especially of developing countries.

2.3.1 Foreign Direct Investment

Private investment constitutes both Foreign Direct Investment (FDI) as well as investment by indigenous enterprises. In most economies however, domestic private investment has proven to be insufficient in giving the economy the required boost to enable it meet its growth target because of the mismatch between their capital requirements and saving capacity (Wade; 1982).

Foreign private investment, thus, augments domestic resources to enable the country carry out effectively her development programmes and raise the standard of living of her people. Though foreign private investment is made up of FDI and Foreign Portfolio Investment, FDI is often preferred as a means of boosting the economy (Ackerman; 1996). This is because FDI disseminates advanced technological and managerial practices through the host country and thereby exhibits greater positive externalities compared with Foreign Portfolio Investment which may not involve positive transfers, just being a change in ownership.

In addition, available data suggest that FDI flows tend to be more stable compared to Foreign Portfolio Investment (Lipsey, 1999). This is because of the liquidity of Foreign Portfolio Investment and the short time horizon associated with such investments. Also, FDI inflows can be less affected by change in national exchange rates as compared to Foreign Portfolio Investment. However, a balanced combination of the two, taking into consideration the unique characteristics of the recipient economy will bring about the required effects on the economy. The benefits of Foreign Private investment include transfer of technology, higher productivity, higher incomes, more revenue for government through taxes, enhancement of balance of payments ability, employment generation, diversification of the industrial base and expansion, modernization and development of related industries.

According to Feldstein (2000), first, international flows of capital reduce the risk faced by owners of capital by allowing them to diversify their lending and investment. Second, the global integration of capital markets can contribute to the spread of best practices in corporate governance, accounting rules, and legal traditions. Third, the global mobility of capital limits the ability of governments to pursue bad policies. Four, Foreign investment through FDI allows for the transfer of technology - particularly in the form of new varieties of capital inputs - that cannot be achieved through financial investments or trade in goods and services. Foreign investment through FDI can also promote competition in the domestic input market. Five, recipients of FDI often gain employee training in the course of operating the new businesses, which contributes to human development in the host country. Lastly, profits generated by Foreign Investments contribute to corporate tax revenues in the host country.

However, the arguments against foreign private investment are that it may cause capital flight which may lead to net capital outflow and thus create balance of payment difficulties. It also creates income distribution problems when it competes with home investment. Foreign Private investments may also actually be capital intensive, which may not fit in the factor proportions of the recipient country (Tokunbo; 2010).

2.3.2 History of FDI in Zimbabwe
From Independence in 1980 until 1991, the government was very defensive toward foreign investment, subjecting each proposal to careful scrutiny and requiring foreign investors to get permission from the Foreign Investment Center for the development of any new enterprise in Zimbabwe (Jecheche; 2011). Enterprises could be 100% foreign owned, especially in priority areas, but there was a strong preference for joint ventures with at least 30% local participation. In 1991 there was some revision of the regulations but the emphasis on indigenization remained at least as strong as the emphasis on the need to attract foreign investment.

There was a long list of reserved sectors, but priority areas were offered a schedule of tax and tariff exemptions and incentives. Incentives were aimed at encouraging capital investments, the transfer of technology, the utilization of local raw materials, the development of rural areas, the use of labor-intensive methods, and the hiring of local personnel. Industries geared toward exporting had to meet EPZ requirements, receive tax holidays and customs free trade.

In 1992, as part of a structural reform program under the IMF's Enhanced Structural Adjustment Facility (ESAF), the Zimbabwe Investment Centre (ZIC) was established as a one-stop shop for investment approval. In 1995, disbursements under the ESAF program were suspended for failure to meet IMF targets, and in 1996, the government substituted a second plan, the Zimbabwe Program for Economic and Social Transformation (ZIMPREST), whose operations investors have found much less satisfactory. By the late 1990s, political turbulence and the government's defiance of the IMF had greatly increased investor risk, and brought foreign direct investment flows to a standstill (Ayanwale, 2007).

Though FDI is central to economic growth according to literature, its effect on private investment in Zimbabwe still needs to be labelled given the trend described above.

2.3.3 Economic Growth
Investment is also linked to economic growth through the accelerator and multiplier effect (discussed earlier), which makes investment a linear proportion of changes in output. Economic growth is synonymous with the increase in real output, or an increase in real GNP per capita (Karl et al, 1989). It is through economic growth that living standards improve, that is, enhancing the quality of life of the general populace. Growth can be achieved through technological change, increases in human capital and increases in physical capital. Economic growth according to literature is a product of private investment.

Private investment is widely celebrated for championing economic growth in various countries as well as eradicating poverty. Neoclassical investment theory suggests that private investment is positively related to the growth of real GDP (Greene and Villanueva, 1991; Fielding, 1997). Econometric evidence (Beddies 1999, Ghura and Hadjimichael 1996, Ghura 1997) indicates that private investment has a stronger, more favourable effect on growth rather than government investment, probably because private investment is more efficient and less closely associated with corruption.

According to the UNDP workshop on Unleashing, Entrepreneurship: Making Business Work for the Poor of 2011, private investment has added to sustainable growth in various countries across the world. Worth noting are the following: Cemex, the Mexican cement firm, has become one of the world's leading producers and innovators in the industry, employing thousands; Casas Bahia in Brazil has developed a unique business model

providing efficient retail services aimed at poorer customers as well as Infosys, an Indian information technology services firm, grew from less than $10 million in sales in the early 1990s to become a leading global player with almost $800 million in sales today. Along the way, it has also been setting international standards for corporate governance and creating a new partnership for development with local and central government. Also of special mention is the fierce competition between private locally owned mobile phone companies in Somalia which has driven costs on international phone calls to less than $1 a minute, about a sixth that in many other African countries. This, in a country where there is no official banking or postal system and where many do not have regular running water or electricity.

These examples are not just success stories—they are tales about the successes of the private sector. Private investment is already central to the lives of the poor and has the power to make those lives better. It's about using the managerial, organisational and technological innovation that resides in the private sector to improve the lives of the poor (Feldstein; 2000).

Some of the advantages of private Investment include: increases in the level of employment in the country, increases the individual income. As a result their standard of living would improve. Also, private investment helps to reduce the poverty in the country and helps to increase the per capita income in the country. Notable is upping the growth rate of GDP and GNP.

With these beaming examples of private investment in numerous less developed countries in the world, Zimbabwe stand also to benefit from the accolades proffered by private investment. This is on the back of the relatively stable interest rates, inflation and use of the multi currency system which has buried the exchange rate distortions.

However, private investment has not been that active in pushing economic growth in Zimbabwe, adding to the faulting economy faced with firm closures, retrenchments, low capacity utilisation and use of obsolete technology in the industries stalling growth of the economy (Jecheche, 2011).

2.4 Discussion of Determinants of Private Investment

Key to the determination of the private investment function in Zimbabwe are variables that are perceived to influence private investment in a pre determined manner. As emphasised by the Monterrey Consensus of 2001, private investment is a powerful catalyst for innovation, economic growth and poverty reduction, thus more investment is required if many developing countries are to reach their Millennium Development Goals (MDGs) and Internationally Agreed Development Goals (IADGs). Selection of variables is thus aided by literature which tends to link the variables to private investment, in a manner that exposes all key variables given the Zimbabwean situation.

2.4.1 Interest rates and private investment

The perceived negative relationship between interest rates and private investment is a long debated issue which pulls in a number of prior studies. Pablo et al, (nd) notes that, the rate of return of an investment – approached by literature through a real interest rate as a representative of the cost of capital is a possible determinant of private investment. Here, it's worth to make two distinctions: the interest rate would have a negative impact in the level of private investment made by domestic agents if the investment is financed in the local credit market. However, an increment in interest rate could have a positive effect in the capital flow from abroad, like it usually happens in emergent markets. Hence, the sign of the final impact is not fully predictable, just as suggested by Agosin (1995). Shafik (1992) in his study of Egypt, found that it is difficult to obtain a significant coefficient for the cost of funds in most cases and said this is due to uncertainty about interest rates of return, unsophisticated investment decision procedures, the long time frame of investment decisions compared to short run fluctuations in interest rates and the possibility that changes in borrowing cost are overshadowed by variations in demand. This was in contrast with what was obtained by Jorgenson (1963) in a study undertaken in Tanzania in 1960 to 1973 where he obtained a negative relationship between interest rates and private investment.

Yaw Asante (2000), quoting Galbis (1979:423) stated that, in the neoliberal view, private investment is positively related to the real rate of interest in contrast with the neoclassical theory. The reason for this is that a rise in interest rates increases the volume of financial savings through financial intermediaries and thereby raises investible funds, a phenomenon that McKinnon (1973) calls the "conduit effect". Thus, while it may be true that demand for investment declines with the rise in the real rate of interest, *realized* investment actually increases because of the greater availability of funds. This conclusion applies only when the capital market is in disequilibrium with the demand for funds exceeding supply.

Whilst there seem to be no equi-finality from the quoted debate, the Zimbabwean case has limited capital flow from abroad hence investments are funded locally pointing to a negative relationship between private investment and interest rates. Pro the Zimbabwean case are Seruvatu and Jajaraman (2001), who wrote that, 'Neo-classical theory (Wai and Wong 1982, Greene and Vilanueva 1991, fielding 1997) also suggests that, as high interest rates discourage investment by raising user cost of capital, private investment is negatively related to interest rate. Since the real interest rate has become positive only very recently in Zimbabwe (post formulation of the GNU), the interest rate, in accordance with Mckinnon-Shaw (1973) hypothesis, can have a negative effect only on investment through the saving channel. Low or negative interest rates discourage saving, which would reduce the amount of savings for investment.

2.4.2 Inflation and private investment

Zefu (nd) in his study of the determinants of private investment in Ethiopia found out that, inflation rate had a strong negative effect on private investment. The co-efficient of inflation rate was negative and significant in both the long run model and the VECM (Vector Error Correction Model). This suggests that macroeconomic instability affects private investment negatively. According to Rossiter (2002), expected high inflation raises the cost of acquiring capital and thus lowers capital accumulation. Alternatively, Ghura and Goodwin (2000) highlighted that higher expected inflation lowers the real interest rate. The lower real interest rate discourages holding money to preference of real capital, thus raising real investment.

In this realm, a negative relationship is expected to exist between inflation and private investment in Zimbabwe given the experiences from the hyper-inflation era where all forms of investment came to a standstill or went into the negative due to high inflation. Valadkhani (2004), studied the determinants of private investment in Iran. Abbas found a negative relationship between inflation and private investment and that a 1 percent increase in inflation in the long run would result in 1 percent decline in investment in the short run.

The discussion sucks in Seruvatu et al (2001), who opined that, private investment behaviour is primarily influenced by the profit motive. There are a few factors such as wage and raw material costs that can be satisfactorily forecast and are within the control of investors. However, since many other factors in an open economy are beyond the control of investors, profit expectations centre on the future price level and export competitiveness (Serven and Solimano 1992, Duncan *et al*. 1999). Consequently, a low rate of inflation and appropriate pricing of capital, labour and land to maintain international competitiveness are two main macroeconomic challenges for decision makers to make the country investor friendly (World Bank 1995). A high rate of inflation will tend to discourage private savings and investment. The sources thus concur to say, a negative function relates inflation to private investment, hence is assumed in the Zimbabwean case. Greene and Villanueva (1991) conducted a study of 23 African developing countries including Zambia and Nigeria on the effect of inflation on private investment. Their study found that a higher inflation rate had a negative effect on private investment in these countries. This study confirms the situation Zimbabwe underwent during the hyperinflationary era when inflation rose to several hundred percent stifling investments, both public and private.

2.4.3 Trade terms and investment

Mlambo and Oshikoya (1999) using a sample of 18 African countries for the period 1970 to 1996 found that fiscal, financial and monetary policy, macroeconomic uncertainty and *trade variables* were significant determinants of private investment in Africa. Terms of trade from Ouattara's 2000 publication titled, 'Modelling Long run Determinants of Private Investment in Senegal' were suggested to be another important determinant of investment in developing countries. Bleaney (2001) in their study of how trade terms and exchange rates affect investment and growth concluded that, when the terms of trade are more favourable, the incentive to invest in the export sector is greater. In a way, both growth and investment are higher when the terms of trade are more favourable and the real exchange rate is less overvalued.

However, Assaf Razin et al (2002), concluding their study on trade openness, investment instability and terms of trade volatility put forward a divergent insight. They wrote, the presence of economies of scale in the investment technology, trade openness may have non-conventional effects on the level of investment and its cyclical behaviour. Trade openness may lead to a discrete "jump" in the level of investment, as it may trigger a discrete price change and specialization. In the presence of economies of scale, such a shift creates a sizeable boost in aggregate investment. But trade openness may also lead to boom-bust cycles of investment (namely, multiple equilibria) supported by self-fulfilling expectations. In this sense, globalization destabilizes the economy. The economy may oscillate between "optimistic" expectations, "good" terms of trade and investment boom to "pessimistic" expectations, "bad" terms of trade and investment bust. They also suggested that, the likelihood of such oscillations is higher for developing than for developed economies, because the former may typically incur

higher setup costs of investment. This phenomenon may help to explain the excessive volatility of the terms of trade of developing countries.

Bazoumana (2004) analysed the determinants of private investment in Senegal and he found a significant negative relationship between investment and terms of trade (Haroon and Nasri 2011). Whilst the debate on the essence of terms of trade is two directional, this variable is often used to proxy external shocks to the economy. Negative terms of trade imply that more units of exports are needed per unit of imports. This may worsen the current account deficit, which is an indicator for macroeconomic instability, and exert a negative effect on private investment. If the worsening terms of trade are generated by an increase in the price of imports this would tend to increase the consumer price index. If it is the effect of a reduction in export prices then export earnings will fall, which in turn will tend to reduce investment in that sector.

2.4.4 Public Investment

A considerable amount of work has been done on the relationship between private and public investment in terms of 'crowding in' and 'crowding out' being a major focus of the analysis. Writing on the macroeconomic determinants of domestic private investment in Africa, Oshikoya (1994) found a positive relationship between public investment and private investment. The study spanned 1970 to 1988 and covered seven African countries, namely, Cameroon, Mauritius, Morocco, Tunisia, Kenya, Malawi and Tanzania. Though public investment ratios had fallen in some of the countries, particularly in Mauritius and Morocco, a strong positive impact of public investment on private investment was observed. The results suggested that: "the productivity of these types of investment may be as important as their magnitude in influencing private investment" (Oshikoya, 1994, p. 589). Along the same theme, Abdul Rashid (2006) investigated the linkage between public and private investment in Pakistan. He found that public investment crowded in private investment and proved that both were complements to each other depending on the type of public investment. Findings suggested that private investment could be enhanced by increasing public investment in only infrastructure.

Public sector investment has also been suggested to affect private investment, though its impact remains ambiguous. Public investment can boost private investment by increasing private returns through the provision of infrastructures (communication, transports and energy). Evidence of a complementarity between public and private saving has been found by studies such as Blejar and Khan (1984), Aschauer (1989), and Greene and Villanueva (1991). Conversely, public investment may crowd out private investment if the additional investment is financed by a deficit, which leads to an increase in the interest rate, credit rationing, and a tax burden. Empirical studies by Chhiber and Wijnbergen (1988) and Rossiter (2002) report a negative effect of public investment on private investment (Ouattarra 2000).

Seruvatu and Jayaraman (2001) wrote that, the policy related variables have to take into account government consumption spending which affects availability of savings for the private sector. The "crowding out" effects of government expenditure are reflected in credit availability for the private sector. Zerfu's study on the determinants of private investment in Ethiopia suggests that, public investment on infrastructure projects has a positive externality on private investment. This implies the complementarity nature of private investment and the availability of infrastructure, at least in the long run. Thus, the government can stimulate private investment by investing on infrastructure projects.

Looney and Fredriken (1997) studied the possibility whether public investment induced or crowded out private investment. From the analysis of data it is seen that private investment showed a rapid positive trend. Pablo et al (n.d) quoting Everhart and Sumlinski (2000), wrote that, changes in the economic environment usually affect in a different way the investment decisions for both companies and workers that move in markets with different regulation types, or for several government levels whose decisions are taken in normative environments outside of the market mechanisms. Here, the public investment can also have differential impacts, and one of the following effects is expected to arise: the "crowding out" effect, where the state displaces the private sector when the public investment increases in a country, as competes for the appropriation of scarce (physical and financial) resources; and the "crowding in" effect that emphasizes the positive externalities (as investments in infrastructure, ant cyclical policies, public goods provision) and the complementarity that the public investment has by inducing more levels of private investment.

Zimbabwe, soon after the introduction of the multi-currency regime in 2009, announced through the minister of finance that government expenditure was to be aligned to the revenue realised in any given fiscal year. This meant a reduced appetite to borrow on the side of the government, thereby leaving the private sector to compete for the available resources in the market. Such a policy tend to crowd in private investment, hence public investment positively contributes to the growth of private investment especially where investment is channelled

towards infrastructure as supported by Jecheche (2011). Public investment had a negative relationship with private investment depending on the situation that there was public non-infrastructural investment in the country. Oshikoyo (1994) analyzed the determinants of domestic private investment in eight African countries during 1970-1988. Results found that infrastructure investment had a positive impact while non-infrastructural had negative impact on private investment (Patrick, 2006).

2.4.5 Gross Domestic Product

Neo-classical investment theory suggests that the growth rate of real GDP influences private investment in a positive manner (Wai and Wong 1982, Greene and Villanueva 1991, Fielding 1997). This is also known as the "accelerator effect" (Ouattara, 2000). Samuelson stressed the reciprocal relationship between investment and production, proposing the hypothesis of the "accelerator". Moreover, in Jorgenson (1963), the value of the desired capital stock for a typical firm depends positively on the demand level. The output of the country (GDP) would be a reasonable proxy to the aggregate demand as determinant of the private investment in a country (Pablo, n.d). This point to a level of private investment that is congruent to the demand in the economy, thus a higher value of GDP is a positive push for more private investment in an economy. In the same vein, Patrick, L (2006) studied determinants of private investment in Botswana and found a positive and significant impact of GDP growth on private investment.

Further studies on private investment in Ethiopia using the VECM (vector error correction method), found out that, real GDP (in the long run mode) and its growth rate have positive impact on private investment. This result is in line with the prediction of the accelerator model. Zimbabwean GDP has been low or negative over the past decade, and private investment has responded according to theory: being low when GDP is low and vice versa. Thus assuming the accelerator hypothesis, and in line with existing and supportive theory, GDP is thought to contribute positively to the economy of Zimbabwe as a rapidly growing economy would be expected to boost expectations and hence investment (Duncan; 1999).

2.4.6 Political risk and investment

Lee (2004) states that, socio-political instability hinder private investment by negatively affecting the rate of return on investments, risk aversion, and several types of political and economic risk. Mlambo and Oshikoya (1999) using a sample of 18 African countries for the period 1970 to 1996 found that fiscal, financial and monetary policy, macroeconomic uncertainty and trade variables were significant determinants of private investment in Africa. The study also found political stability to be a major factor in the determination of private investment rates on the continent. Political scientists and economists have recognized that not only economic failures in developing countries lead to a decline in economic growth but also political and institutional failures adversely affect economic performance. Hence, if economic growth is sustained through investment we must jointly explain the economic political dynamics that drive private investment in developing countries (Barro;1997).

Political risk has an effect on the stability of the business environment. Socio-political instability characterized by nonviolent protests promotes private investment while violent uprisings hinder private investment. Regime change instability characterized by constitutional government change promotes private investment while unconstitutional government change hinders private investment; and policy uncertainty characterized by the variability of contract enforcement promotes private investment while the variability of government political capacity hinders private investment (De Long and Summers ;1993).

De Long's assertion on violent uprisings hindering private investment is in line with the Arab Spring which has seen long serving presidents of Arab States leaving office. Socio-Political Instability (SPI), according to Alesina and Perotti (1996) destroys physical capital and displaces human capital, thus reducing job opportunities and disrupting personal savings, hence, lowering investment. SPI also leads investors to shift their assets from fixed capital stocks to more liquid and speculative forms.

Violent and nonviolent actions are arguably a universal phenomenon, in a sense that they occur throughout history and across institutional structures. No form of government, neither repressive autocratic nor liberal democratic, appears to be immune to political instability. On the one hand, socio-political unrests caused by either violent or non-violent uprisings can lead to unconstitutional change in the executive power. On the other hand, the possibility of interactive effects between the government and individuals who engage in SPI activities may lead to further violence.

According to Ghate, Le, and Zak (2003), general strikes, riots, and antigovernment demonstrations, which represent collective protests have a small positive impact on private investment. However, purges, guerrilla

warfare, and assassinations which captures internal crackdowns and violent uprisings, has a large negative impact on private investment. Internal crackdowns would have a negative impact on private investment because they typically spiral outside of government control. A good example is the violent uprisings experience in Indonesia during the Asian financial crisis which made the adoption of economic reforms more difficult, despite the fact that radical political reform changed the political landscape of the country.

Businesses in Egypt, Libya, Syria, Tunisia, and Yemen have had to adjust to a harsh, new, and costly reality. The International Monetary Fund estimated in October 2011 that the Spring countries had collectively endured $56 billion in losses, with $21 billion having been eroded from gross domestic product (GDP) and $35 billion lost as a result evaporating income and rising costs.

Libya was the worst affected, with a staggering loss of 29 percent of GDP. The conflict in Libya had cost Tunisia up to $2 billion in lost trade and tourism revenues as of July of 2010, according to Tunisia's Central Bank Governor. Libyan trade and tourism accounted for an estimated 5.5 percent of GDP in 2009. Since January, Tunisia's overall tourism business has plummeted by more than 40 percent.

The effect of political risk on investment in Zimbabwe thus is expected to be negative, basing on the literature quoted above. The study however seeks to quantify the effect political risk has on private investment.

2.4.7 Debt servicing and investment
External debt level (as a share of GDP), is a variable that represents the restrictions of the external credit in the investment financing in emergent countries (an example is the decade of the eighties for most of Latin American countries). In turn, a higher level of external debt would be a strong indicator of the viability and sustainability of the current macroeconomic policies in the long term, impacting negatively in the investors expectatives due to the increment in the degree of uncertainty. For this reason, it is included in the analysis, just as in Chirinko and Schaller (1995). Debt, when used by the government to improve infrastructure motivates private investment by providing a platform for trade, communication and transport.

Debt can still be used by the private sector to finance their investments thereby upping the capacity utilisation and productivity and in turn, the GDP. However, if the stream of external debt dries up like the Zimbabwean case currently, on the back of huge un-serviced debt, it means endogenous growth income must be used to service that outstanding debt. Channelling funds for the servicing of external debt without reciprocity in getting more debt tend to deprive private investment of the funds that could have been used to finance new investments. Debt servicing thus negatively relates with private investment in Zimbabwe.

2.4.8 Domestic savings
It has been hypothesised by Ouattara (2000) that; private investment is affected positively by income level, as countries with higher income level would tend to dedicate more of their wealth to domestic savings which would then be used to finance investment (Greene and Villanueva, 1991). Given the low external debt levels that government and the private sector can acquire in the present moment given the debt servicing failure by government over the past decade, industry has to rely mostly on domestic savings.

A publication by Mckinnon and Shaw (1963) show that, savings are a function of interest rates in any economy. People are rewarded to save if interest rates are high hence a positive relationship between the variables. However, savings are a function of level of income of an economy. High income states are able to save more when compared to developing countries like Zimbabwe where income levels are still trailing behind the poverty datum line. This has greatly limited savings in the country to the extent that, there is little investment being supported by savings.

2.5 Conclusion
This chapter focused on the discussion of key determinants of private investment in Zimbabwe, linking it to the global perspectives of the capabilities of private investment. The discussion clearly spelt out the importance of private investment given the tangible evidence from various countries as provided by literature. The next chapter provides the methodology assumed to analyse the determinants of private investment in Zimbabwe, post the introduction of the multi-currency era.

RESEARCH METHODOLOGY

3.0 INTRODUCTION
This chapter outlines the framework for the analysis of determinants of private investment in Zimbabwe. Dawson (2002) wrote that, a research methodology provides a framework or a blueprint for conducting a research. Various techniques and methods were used in analysing the determinants of private investment in Zimbabwe. The aim of the chapter is therefore to provide arguments for the approaches that the researcher adopted in gathering and in the treatment of the data in order to answer the research questions and objectives. Key to this chapter also is the formulation of the private investment model for Zimbabwe, with the proper justification of the variables included therein.

3.1 Research Paradigm
A quantitative research paradigm was deemed the most appropriate for the analysis of the determinants of private investment for it allows quantifying the influence that each independent variable has on private investment (dependant variable). according to Weirsma (1995), qualitative research is best employed where the phenomenon under study is narrative and is observable. Analysis of several independent variables that affect private investment cannot be easily explained or observed without the use of quantitative methods such as partial regression coefficients and correlation coefficients.

Qualitative research is a system of inquiry which seeks to build a holistic, largely narrative, description to inform the researcher's understanding of a social or cultural phenomenon. Qualitative research takes place in natural settings employing a combination of observations, interviews, and document reviews (Weirsma; 1995).

Mamia (1992) asserted that, quantitative methods are ideal where a phenomenon can be quantified, measured and expressed numerically. This is the case with variables under study such as economic growth, interest rates and inflation among others which are quantifiable.

Also, where the information about a phenomenon can be expressed in numeric terms that can be analysed by statistical methods and softwares, quantitative research designs can be used.

Quantitative design thus enables research and description of economic problems and processes that are not directly observable. It is well-suited for quantitative description, comparisons between groups, areas or variables. Description of change, analysis and explanation of (causal) dependencies between social and economic phenomena and is also enhanced through quantitative research (David de Vaus, 2001). It is upon these arguments that a quantitative research design was adopted as the best method of accomplishing the research objectives.

3.2 Research Design
An experimental design was assumed for analysing the determinants of private investment in Zimbabwe. Experimental design allows for the explanation of how private investment relates with its determinants, through the use of quantitative methods (Rippy; 2004). Experimental design (applied in experimental economics) gives room for the manipulation of independent variables to determine their effect on a dependent variable (Box and Draper; 1987).

The research approach made use of correlation analysis and fitting of a regression model Thus after defining the relationship of private investment and its determinants through correlation coefficients, the perceived effect of each variable on private investment is quantified through partial regression coefficients as indicated by the fitted model.

3.3 Target Population and Sampling Design
The basic population considered for this study exclusively zeroed around all variables that determine private investment in an economy. Previous studies on private investment focused only on the economic determinants of private investment (Cuddington, 1987; Pfeffermann and Madarassy, 1991; and Serve ´n and Solimano, 1993).

However, later studies by Seruvatu et al (2001) attributes changes in private investment to both economic and non-economic factors. Recent research has focused on the interrelationship between institutions and private investment using various control variables that include both economic and political factors (Feng, 2001).

Against this background, political factors were incorporated amongst economic factors in the population of variables for inclusion in the study.

3.3.1 Sampling Design

The sampling procedure employed in the analysis of determinants of private investment aligned the study to prior studies which centred on private investment. Thus the sample was also drawn considering both economic and non-economic factors. Economic factors used include GDP, inflation, interest rates, debt servicing and trade terms, public investment and domestic savings. A referral study by Haroon and Nasri (2011) made use of the same variables. The only non – economic factor captured in this study was political risk. This study includes political risk because it is expected to adversely limit the growth of private investment given the political setup of Zimbabwe. Data for the economic and non-economic variables captured by the study covered the period January 2009 when the multi-currency system was adopted upto December 2011; allowing for full annual data on all the variables. The study covers three economic years, thereby providing 35 data sets.

Juselius (2006) explains that, the question of how big the sample should be has, unfortunately, no obvious answer—whether the sample is 'small' or 'big' is a function not only of the number of observations but also of the 'amount' of information in the data. She emphasizes that, when the data are very informative about a hypothetical long-run or co-integration relation, there might be good test properties even if the sample period is relatively short, citing the case where the equilibrium error crosses the mean line several times during the period.

3.4 Data Collection Methods

The data used in this research is primarily from Government of Zimbabwe Publications, the IMF, the World Bank and the ZIMSTAT. Data thus are purely secondary and is in line with prior studies on economic growth and private investment. Studies by Ahmad and Qayyum (n.d) in Pakistan; Tokunbo et al (2010) in Nigeria; Ghura (1997) in Cameroon; Jecheche (2011) in Zimbabwean; as well as Fatima's (2011) study in Pakistan all used secondary data from national and international statistical organisations, such as IMF and WB.

These sources are credible given that they make compilations of various economic data for Zimbabwe and publish them periodically. Data collected on all the variables under study formed the basis for all calculations of partial regression co-efficients (β), correlation co-efficient (R), coefficient of determination (R-squared) and the adjusted R-squared.

Data used in the study are specifically on a monthly basis. The decision is based on the need to increase the data set to suit the regression method which requires a greater number of observations versus the set of variables in order to satisfy multiple regression assumptions.

3.5 Private Investment Regression Model Specification

The Classical (Traditional) methodology, which dominates empirical research in economics observes statement of hypotheses, specification of the mathematical model and specification of the statistical model in econometric modelling to enhance the analysis of an econometric problem (Gujarati; 2004).

3.5.1 Statement of Hypotheses

The study tested the following hypotheses:

Hypothesis 1
H 1.0 : Inflation rate has a negative impact on Private investment.
Hypothesis 2
    H 2.0 : political risk has a negative impact on private investment.
Hypothesis 3
    H 3.0 : Interest rate has a negative impact on Private investment.
Hypothesis 4
    H 4.0 : Private investment is negatively affected by national debt servicing
Hypothesis 5
    H 5.0 : Domestic savings have a positive impact on private investment.
Hypothesis 6
    H 6.0 : Public investment positively influence private investment.
Hypothesis 7
    H 7.0 : GDP has a positive impact on private investment.
Hypothesis 8
    H 8.0 : Trade terms relate positively to private investment;

3.5.2 Mathematical and Statistical Model Specification

The following multiple private investment regression model which connects private investment and the aforementioned explanatory variables is assumed:

$$pvt\_inv = \beta_0 + \beta_1(infl) + \beta_2(polr) + \beta_3(ir) + \beta_4(gdp) + \beta_5(natsav) + \beta_6(plc\_inv) + \beta_7(debt\_serv) + \beta_8(trd\_terms) + \varepsilon$$

where:

pvt-inv	=	private investment
infl	=	inflation
polr	=	political risk
ir	=	interest rate
gdp	=	gross domestic product
nat_sav	=	domestic savings
plc_inv	=	public investment
debt_serv	=	national debt servicing
trd_terms	=	trade terms

ε   : error term or a vector of stochastic disturbance terms (independent variables are unrelated to this random disturbance ε)

In words, the model is expressed as DATA = FIT + RESIDUAL, where the "FIT" term represents the expression $\beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... \beta_p x_p$. The "RESIDUAL" term represents the deviations of the observed values of private investment from their means μ_y, which are normally distributed with mean 0 and variance δ. The notation for the model deviations is ε (Li, Qi; Racine, Jeffrey (2007). The multiple regression model allowed for the simultaneous testing and modelling of multiple independent variables (multiple regression is still not considered a "multivariate" test because there is only one dependent variable).

Private investment thus can be expressed as a function of the independent variables as follows:
Pvt_inv = f (infl, polr, ir, gdp, debt_serv, plc_inv, natsav, trd terms, ε**)**

3.5.2.1 Dependent Variable

Private Investment is the dependent variable in the model. It is the variable that require to be explained by the independent variables. As written by LaFountain and Bartos (2002), in experiments, the dependent variable (DV) is not manipulated, instead the DV is observed or measured for variation as a presumed result of the variation in the independent variable (IV). Private investment was measured as the totality of domestic private investment and foreign direct investment and expressed as a percentage of GDP over the study period. Changes in private investment levels thus should be explained by the independent variables by way of a fitted model.

3.5.2.2 Independent Variables and their Estimation

The independent variables used in this study and the mode of measurement or source are stated below:
1. Inflation rate in the country (stated as an annual rate as at a particular month).
2. Political risk (extracted from WB political index, stated as an annual index)
3. GDP (stated as an annual rate as at a given date)
4. Interest rate (expressed as an annual effective rate, but on a monthly basis).
5. Trade terms (Current Account balance- stated as a percentage of the GDP, adjusted for   monthly variations).
6. Domestic savings (expressed as a percentage of the GDP, adjusted for monthly movements).
7. Public sector development program (PSDP) showing government development expenditures (Public investment- stated as a percentage of the GDP and adjusted for monthly changes).
8. Total amount of Debt servicing (expressed as a percentage of the GDP, stated on a monthly basis).

These variables are expected to have some influence on private investment which need to be quantified by way of fitting a model.

Private investment, is represented by the model in order to explain it, to predict it, and to control it (Bridge; 1971, Goldberger and Duncan;1973, Maddala;1977). Purposes of econometrics, namely structural analysis, forecasting, and policy evaluation remain central to the analysis of determinants of private investment in Zimbabwe. Thus the objective of analysing determinants of private investment is enhanced by the use of the model.

3.5.3 Form of Regression Model

Values taken by predictors or explanatory variables are derived from the data set, making the model non parametric. Thirty five data points per variable provided the basis for the estimation of the values of the predictors. McCune (2006) stated that, non parametric regression is a form of regression analysis in which the predictor does not take a predetermined form but is constructed according to information derived from the data. This is in line with non parametric regression which require large sample sizes than regression based on parametric models because the data must supply the model structure as well as the model estimates. Juselius (2006) asserted that, even though more explanatory variables can be added to the list of determinants of private investment, only variables expected to have some influence on private investment as indicated by literature and the economic situation obtaining in the country were considered fit.

3.5.4 Model Interpretation

β_0 is the intercept term. It gives the mean or average effect on private investment of all the variables excluded from the model, although its mechanical interpretation is the average value of private investment when the values of all explanatory variables are set equal to zero.

The beta values ($\beta_1; \beta_2 ...... \beta_8$) are a measure of how strong each predictor variable influences the criterion variable (private investment). The beta is measured in units of standard deviation. For example, a β value of 2.5 indicates that, a change of one standard deviation in the predictor variable will result in a change of 2.5 standard deviations in the criterion variable. β coefficients thus give the 'direct' or 'net' effect of a unit change in one explanatory variable on the mean value of private investment, net of any effect that other explanatory variables may have on the private investment. Thus, the higher the beta value, the greater the impact of the predictor variable on the criterion variable.

3.6 Empirical Analysis

SPSS software was used to calculate the Pearson's Correlation Coefficient (r), between private investment and the independent variables and between explanatory variables, as well as fitting a private investment regression model. R between independent variables is vital for determining variables with collinearity and multicollinearity, hence the elimination of the variables in the fitted model.

The Pearson's correlation coefficient was used to analyse the degree of association between private investment and each explanatory variable. The sign of r represents the strength and direction respectively of the association between the private investment and the explanatory variables (Zeltkevic;1998). The fitting of the regression model allowed for the quantification of the effect of each independent variable on private investment.

Pearson's coefficient of correlation can have a value anywhere between -1 and 1. The larger the r, ignoring the sign, the stronger the association between the private investment and any independent variable, and the more accurately the prediction of private investment from the knowledge of explanatory variables. At its extreme, a correlation of 1 or -1 means that the two variables are perfectly correlated, meaning that you can predict the values of private investment from the values of the other variable with perfect accuracy.

At the other extreme, an r of zero implies an absence of a correlation, that is, there is no relationship between the two variables. This implies that knowledge of one variable gives you absolutely no information about what the value of private investment is likely to be. The sign of the correlation implies the "direction" of the association. A positive correlation means that relatively high scores on one variable are paired with relatively high scores on the other variable, and low scores are paired with relatively low scores. On the other hand, a negative correlation means that relatively high scores on one variable are paired with relatively low scores on the other variable (Gujarati; 2004).

The SPSS fitted regression model allowed for the provision of model statistics such as partial regression co-efficients (β), correlation analysis (R), co-efficient of determination (R^2) as well as the adjusted R^2. The suitability of the model in predicting private investment is also quantified. Multiple regression is regarded the most suitable analysis tool because it is able to evaluate the effects of two or more independent variables on a single dependent variable (Nicola and Brace; 2006). Haroon and Nasri (2011) made use of the same regression coefficients in their study in Pakistan.

R^2, (multiple coefficient of determination) is a statistical term saying how good one term is at predicting another. If R^2 is 1.0 then given the value of one term, one can perfectly predict the value of another term. If R^2 is zero, then knowing one term does not help you know the other term at all. More generally, a higher value of

R^2 means that you can better predict one term from another. Thus, the explanatory power of the model in predicting the level of private investment shall be measured by a higher R^2(Gujarati; 2004).

The Adjusted R^2 serves the same purpose as the R^2 except that, Adjusted R^2 caters for the number of explanatory variables included in the model. Generally, R^2 is a non decreasing function of the number of explanatory variables in the model. However, Adjusted R^2 , as much as it also increases as explanatory variables increase, it is not a 'fast' increasing function of explanatory variables as is R^2 .

3.7 Methodological Constraints and Mitigation
Express statistical assumptions and how they were addressed in the study are captured hereunder:

3.7.1 Pearson's Correlation Analysis
Use of Pearson's correlation require data sets to follow a normal distribution. The Shapiro –Wilk test statistics for normality provides a platform for checking the normality of data. SPSS was used to test for normality of data. The Shapiro –Wilk test statistics are the most appropriate considering the data set which is less than 50 (C. Dougherty, 2011).

Where the sig. value of the Shapiro-Wilk Test is greater 0.05 then the data is normal. Statistics below 0.05 show that data significantly deviate from a normal distribution.

3.7.2 Multiple Regression Assumptions
Regression assumptions and the manner the study handled them are discussed hereunder:
* The regression model should be linear in the parameters, that is, it should satisfy the following form: Y $= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \varepsilon_i$. This assumption was fulfilled given the nature of the private investment regression model which does not include any polynomial form of parameters.
* X values are fixed in repeated sampling, that is, X is non-stochastic, meaning, values taken by X are fixed in repeated samples. Regression analysis is conditional on the given values of the regressors. Again this assumption was met by the study as the determinants of private investment assumed fixed values which did not follow any pre-meditated pattern
* Zero mean value of the disturbance term ε_i that is, given the value of X, the mean, or expected value of the random disturbance term ε_i is zero. Normality tests typically are done on the variables using the Shapiro-Wilk test statistics to ensure the fitted model meets the produce made-to- measure estimates.
* Homoscedasticity or equal variance of ε_i that is, given the value of X, the variance of ε_i is the same for all observations. Conditional variances of ε_i are identical. Thursby (1982) propounded that, heteroscedasticity does not affect the parameter estimates, thus the coefficients would be unbiased. Considering the motive of this study, which is centred mainly on relationship issues between private investment and private investment, heteroscedasticity was not diagnosed, neither was it treated. This decision is also on the back of the unavailability of the STATA software which can easily diagnose heteroscedasticity through the White's statistic.
* The number of observations must be greater than the number of parameters to be estimated, that is, the number of observations must be greater than the number of explanatory variables. The thirty five data sets for each determinant of private invest well exceeded the eight variables considered in the regression model, thereby satisfying the assumption.
* Variability in X variables, that is X values in a given sample must not all be the same. This assumption again was met as data sets for each explanatory variable did not maintain the same value, though political risk tended to assume a single index per year.
* There is no perfect multicollinearity, that is, no perfect relationship among the explanatory variables. To address collinearity and multicollinearity in the modelling of private investment in Zimbabwe, the SPSS software was used to fit the model, given the data. The software automatically eliminated other variables which were highly connected, and provided test statistics in the name of VIF (variance inflation factor) and the Tolerance statistic, where

$$\text{tolerance} = 1 - R_j^2, \quad \text{VIF} = \frac{1}{\text{tolerance}},$$

  and R_j^2 is the coefficient of determination of a regression of explanator j on all the other explanators. A tolerance of less than 0.20 or 0.10 and or a VIF of 5 or 10 and above indicates a multicollinearity problem (O'Brien 2007). A tolerance close to 1 means there is little multicollinearity, whereas a value close to 0 suggests that multicollinearity may be a threat. Multicollinearity tests and remedying

(removal of highly correlated variables in the SPSS fitted model) are done to reduce discordant results so that variables with notable effects on private investment are left.

Also, for auto-correlation, the Durbin Watson statistic, d, was used for the diagnosis of serial correlation. A d closer to 0 means positive autocorrelation; and a d closer to 4 means negative autocorrelation (Thursby; 1982). The acceptance region for the Durbin Watson test is any statistic which is near 2. SPSS computes this statistic for especially for the best fitted model.

3.8 Validation of Results

SPSS software was used to fit the multiple private investment regression models, using the forward method. The method allows for the formulation of a number of models which attempt to model private investment. In essence, the best model, with the best 'goodness of fit' is assumed. Forward stepwise regression tests the significance of each explanatory variable individually and then adding in all that passes the test. Doing this by testing and immediately adding factors significantly improve the fit, thus the final model becomes the best fitted model to be considered.

Fitting a regression model after analyzing the Pearson's correlation matrix allows for the picking of points of congruency and diversion especially the change in the sign for any given variable. Thus partial regression coefficients serve the purpose of confirming the Pearson's correlation coefficient.

3.9 Conclusion

This chapter outlined the research methodology assumed in analyzing the determinants of private investment in Zimbabwe post the multi-currency period. Key among the sections was: the research paradigm, target population and sampling design, model specification, the hypotheses to be tested and justification of the analysis methods. The following chapter presents the research findings and the related interpretation thereof.

DATA PRESENTATION AND ANALYSIS

4.0 INTRODUCTION

The study sought to analyse the determinants of private investment, post the introduction of the multi-currency system in Zimbabwe. This chapter presents the results of the analysis as well as the interpretation of the results. For analysis of data, two methods were used: regression and correlation. Initially, a correlation matrix was used to test the relationship of private investment and the various independent determinants. The correlation matrix was also used to check for multicollinearity between independent variables, hence the remedying of multicollinearity and the reformulation of the regression model.

4.1 Quantitative Analysis

The SPSS Pearson's correlation and multiple regression analysis results are presented below:

4.1.1 Correlation Analysis

Normality tests using the Shapiro-Wilk statistics as computed by the SPSS software proved that, all the variables were normal. The Shapiro-Wilk statistic (shown in the table 4.1 below) for the variables all exceed 0.05, thereby confirming normality.

Table 4.1: Shapiro-Wilk Normality Tests

Variable	Sig. value
pvt_inv	0.068
infl	0.066
polr	0.259
ir	0.174
gdp	0.231
natsav	0.079
plc_inv	0.067
debt_serv	0.126
trd_terms	0.363

The normality confirmation thus justifies the computation of Pearson's Correlation Coefficient, r, between private investment and each explanatory variable, as well as between the individual explanatory variables, as shown in table 4.2 below.

Table 4.2: Pearson's Correlation Matrix

		pvt_inv	Ir	Infl	Gdp	natsav	Polr	plc_inv	trd_terms	ebt_serv
pvt_inv	Pearson Correlation	1	-.739(**)	-.808(**)	-.906(**)	.909(**)	.921(**)	-.713(**)	-.235	.820(**)
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.175	.000
	N	35	35	35	35	35	35	35	35	35
ir	Pearson Correlation	-.739(**)	1	.787(**)	.779(**)	-.772(**)	.661(**)	.199	-.258	-.352(*)
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.252	.135	.038
	N	35	35	35	35	35	35	35	35	35
infl	Pearson Correlation	-.808(**)	.787(**)	1	.978(**)	-.975(**)	.650(**)	.362(*)	-.325	-.360(*)
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.032	.057	.034
	N	35	35	35	35	35	35	35	35	35
gdp	Pearson Correlation	-.906(**)	.779(**)	.978(**)	1	-1.000(**)	-.778(**)	.537(**)	-.122	-.546(**)
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.001	.485	.001
	N	35	35	35	35	35	35	35	35	35
natsav	Pearson Correlation	.909(**)	-.772(**)	-.975(**)	-1.000(**)	1	.786(**)	-.553(**)	.105	.558(**)
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.001	.548	.000
	N	35	35	35	35	35	35	35	35	35
polr	Pearson Correlation	.921(**)	-.661(**)	-.650(**)	-.778(**)	.786(**)	1	-.808(**)	-.423(*)	.877(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.011	.000
	N	35	35	35	35	35	35	35	35	35
plc_inv	Pearson Correlation	-.713(**)	.199	.362(*)	.537(**)	-.553(**)	-.808(**)	1	.739(**)	-.922(**)
	Sig. (2-tailed)	.000	.252	.032	.001	.001	.000		.000	.000
	N	35	35	35	35	35	35	35	35	35
trd_terms	Pearson Correlation	-.235	-.258	-.325	-.122	.105	-.423(*)	.739(**)	1	-.749(**)
	Sig. (2-tailed)	.175	.135	.057	.485	.548	.011	.000		.000
	N	35	35	35	35	35	35	35	35	35
debt_serv	Pearson Correlation	.820(**)	-.352(*)	-.360(*)	-.546(**)	.558(**)	.877(**)	-.922(**)	-.749(**)	1
	Sig. (2-tailed)	.000	.038	.034	.001	.000	.000	.000	.000	
	N	35	35	35	35	35	35	35	35	35

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The correlation results between private investment and interest rate (ir) shows that there is a negative correlation coefficient of -0.739 as expected. The results are statistically significant at the .01 level, thus H 3.0 is accepted. The results still depict a strong negative relation between private investment and interest rates.

These findings are in line with the study's expectations as well as literature. Loan rates in Zimbabwe since the introduction of the multicurrency system have been high, thereby limiting private investors from accessing them. As asserted by McKinnon and Shaw (1963), as interest rates increase, the cost of accessing loans to

investors increase, thereby constraining the growth in investment, especially private investment. Only highly rewarding investments which can attract returns that can enable the servicing of loans may be financed even at high interest rates, though the general trend would point to a declining private investment function.

The study also found a high degree of association and a significant (at the .01 level) negative relationship between private investment and the inflation level. This is very consistent with the study's expectations as outlined in Chapter Two. A coefficient of -0.808 depicts a strong negative association between private investment and the inflation level. Thus as inflation falls, private investment would increase and vice-versa. However, it is worth noting that, it is only hyperinflation which counters private investment, otherwise normal inflation does not have an equally adverse effect on the private investment levels. The findings (-0.808 inflation slope co efficient) thus cements arguments put forward by Zefu (n.d); Rossiter (2002) and Ghura (2000). The authors concurred that, rising inflation raises the cost of acquiring capital thus lowering the country's capital formation, hence negatively affecting investment (private). These findings are statistically significant thus are pro H 1.0, as expected in theory.

Table 4.2 also show that, there is a high negative relationship between private investment and the country's GDP with a correlation coefficient of -0.906 and is significant at 1% level. This result nullifies hypothesis H. 7.0 This is contrary to the expectations of theory which proposed a positive relationship between private investment and the GDP level (Wai and Wong 1982, Greene and Villanueva 1991, Fielding 1997). The output of the country (GDP) is generally a reasonable proxy to the aggregate demand, hence a determinant of private investment (Pablo; n.d). GDP thus 'accelerates' investment theory-wise, but statistics from the study points to a significant negative association.

The divergence of the results from theory can be attributed to the time frame the study focused on. The period 2009-2011 is too short especially considering Duncan (1999)'s assertion that, real GDP in the long run mode has a positive relationship to private investment. The period 2009-2011 thus is too short to allow for variability of GDP, whence the variation in the study's findings. Thus given more time, the required positive relationship could have materialised. Also, Duncan's assertion is thus in line with the prediction of the Accelerator Model. Zimbabwean GDP has been low and even negative over the past decade. Private investment has responded accordingly, being low when GDP is low and vice versa. In any case, ceteris paribus, if GDP was surging over time, then private investment could have increased (Patrick; 2006). As much as GDP growth took a snail's pace growth pattern from 2009-2011, private investment levels took a dip, contributing to the negative relationship.

Correlation results also depict a strong positive relationship between private investment and national savings with a value of coefficient 0.909 showing at the .01 level of significance. The findings are aligned to theory which point to there being a positive relationship between private investment and national savings (Outtara; 2000). Net national savings of course have been negative, and still, private investment has taken a deep over the period under study (see appendix for the data on the private investment and national savings), pointing to a positive association between national savings and private investment. Ideally, as national savings increase, more resources could be channelled towards investment, thereby causing a surge in capital formation and private investment (Greene and Villanueva; 1991). The study thus is statistically significantly, hence supports H 5.0, thus is pro the literature on economic development which label national savings as a propellant of investment.

The correlation between private investment and political risk recorded a strong positive correlation, with a coefficient of 0.921, but against the study hypothesis since a negative relationship between private investment and political risk was expected. Lee, (2004) and Mlambo and Oshikonya, (1999) concurred that, socio-political instability hinders private investment by negatively affecting the rate of return on investments, risk aversion, and destroys physical capital and displaces human capital, thus disrupting personal savings as well as private investment.

This is also contrary to the 2011 Economic Freedom Index, where Zimbabwe's score was 22.1, leaving the economy 178th in the global rankings. The country ranked last out of 46 countries in Sub-Saharan Africa and is the second least free country in the 2011 *Index.*

 Also of importance is the freedom of doing business index. Zimbabwe's institutions, regulatory system, and financial sector situation probably deter private investment. The World Bank's 2009 *Doing Business* report ranked Zimbabwe 157 of 175 countries in terms of ease of doing business (see diagram below).

Figure 4.1 Economic Freedom Indices
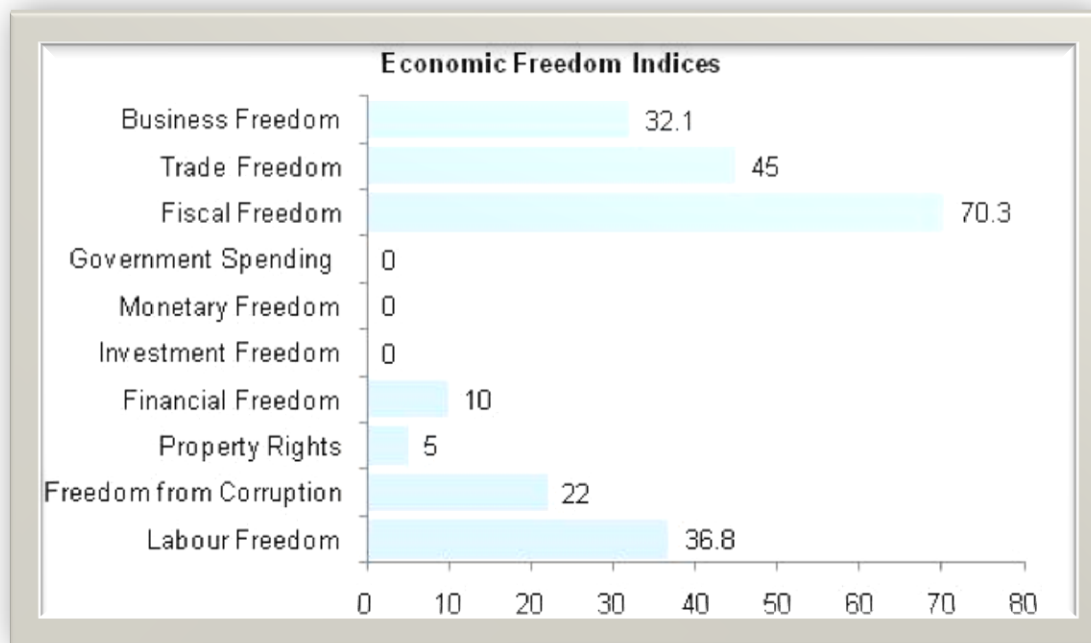
Source: Euro Money Country Risk 2011

This lacklustre performance derives partly from cumbersome licensing requirements, difficult labour market conditions, scarcity of credit, and high factor costs. The lower the index, the higher the political interference in the private sector.

The current political situation is one of impending elections and the formulation of a national constitution which has caused a lot of political havoc and economic uncertainty for major investments in the country. Election talk and the pre-supposed policies for the various political parties has led many private investors to assume a 'wait and see' attitude as their investments may be later affected by election outcomes.

The positive relationship between private investment and political risk could therefore be explained basing on the fact that, the FDI component of private investment in Zimbabwe has been virtually nil over the period under study. The private investment figures recorded from 2009-2011 thus comprise domestic private investment, which again fell over the period under study. Over the same period, political risk improved (the index fell), pointing to a positive relationship between the country's political risk and private investment. Thus technically, political risk improved whilst private investment deteriorated. Effectively, a negative relationship existed between political risk and private investment though, results significantly supports H 2.1 (see the index for the time series data on Zimbabwean political risk and private investment).

Public investment also showed a negative relationship with private investment, contrary to the expectations of the study. A correlation coefficient of -0.713 (significant at the 0.01 level) points to public investment crowding (negative relationship) out private investment over the study period. The initial proposition outlined in the study labelled public investment as a catalyst of private investment through government's expenditure on infrastructure (Oshikoya; 1994). However, as asserted by Blejar and Khan (1984), public investment may crowd out private investment if the additional investment is financed by debt or there is an insignificant level of public investment. From 2009 - 2011, Zimbabwean government spending has been aligned more to employment costs, leaving less funds for improving infrastructure. This is evident on the perpetual power outages, poor road states and road networks as well a failing railway network. Thus the effect of public investment on private investment over the period under study has been negative, hence the statistical insignificance of the findings to support H 6.0.

Of interest in the Zimbabwean case is that, public investment has been growing slowly over time, with much being gobbled by recurrent expenditure which by their nature do not support economic development. Much is spend on civil servants' salaries, hence little is devoted to maintenance and development of key infrastructure

such as generation of electricity and upgrading of roads and rail network. Quoting Haroon and Nasri (2011), public investment is only good to private investment if and only if it's directed towards development spending.

A correlation coefficient of -0.235 was found between private investment and the country's trade terms. This finding is not in line with the expectations of the study. Bleaney (2001) wrote that, investment is higher when the terms of trade are more favourable. Zimbabwean trade terms have been on the worst side for quite long now, with the balance on the current account pointing to perpetual deficits as shown in the table below:

Table 4.3 Zimbabwe's Current Account (%) 2005-2010

2005	2006	2007	2008	2009	2010
-10.9	-8.6	-7.2	-23.2	-24.4	-23.2

Source: Government of Zimbabwe and IMF Estimates

Table 4.3 depicts that, Zimbabwe imported more than it exported, and this has tended to increase over time. Ultimately, it points to the inability of the local industries to meet local demand, or incompetency of the private investors as imports remain cheaper than locally produced goods. Use of outdated manufacturing technology increases cost of production adding to the locals preference for imports, thereby limiting demand for locally produced goods. The wave ends with reduced production given low demand, leading to a fall in the level of private investment. Given such reasoning, private investment in the Zimbabwean context is assumed to be negatively related to trade terms. The influx of imported goods thus suppressed private investment over the study period as the realised profits or return on private investment would be minimal (Bazoumana; 2004). The results significantly supports H 8.1. The coefficient of -0.235 still shows a weak negative relation, thereby limiting the impact of trade terms on private investment.

Correlation analysis also proves a higher degree of positive relationship between private investment and debt servicing, with a correlation coefficient of 0.820, significant at 1% level. This result is against the study hypothesis since a negative relationship between private investment and debt servicing was expected. These results are however in line with Haroon and Nasri' s finding on their study in Pakistan in 2011. Debt servicing, though they opined it having a negative effect on private investment, the results of the correlation analysis showed a highly significant positive relationship. Theory asserts that, debt servicing reduces capital formation, thus negatively affecting private investment. The results thus nullify H 4.0.

The basic rationale behind this relationship is also a trend-wise effect of private investment and debt servicing which all followed a downward movement over the period under study.

One of the variables which 'misbehaved' was the national debt servicing. It showed a correlation coefficient of 0.820 with private investment, opposing H 4.0 which predicted a negative association. The hypothesis was backed by the fact that, funds used for servicing debt could instead be used for capital formation, thus upping private investment. However, the results are not statistically significant, hence H 4.2 is accepted. Worth noting is, Zimbabwe has a bad debt servicing history, thus it failed to attract new investments, leading to a fall in private investment over the past decade. The ability of servicing its debt thus is a positive to private investment, as it shows the country has the capacity of re-paying its debts. In such a scenario, instead of a negative relationship to ensue, a positive one is thus expected. The World Bank has commended Zimbabwe's new strategy to retire its foreign debt, hinting that the Bretton Woods institution may reconsider funding some programme. The bank's country manager, Mr Mungai, said this at a conference organised by the CZI in 2012. Such indications thus generally points to a positive contribution to private investment, contrary to theory though.

4.2 Regression Analysis
The initial private investment model as outlined in Chapter 3 had eight explanatory variables as shown below:
$$pvt\_inv = \beta0 + \beta1(inf) + \beta2(polr) + \beta3(ir) + \beta4(gdp) + \beta5(natsav) + \beta6(plc\_inv) + \beta7(debt\_serv) + \beta8(trd\_terms) + \varepsilon$$

However, after using the SPSS software to fit the private investment model, the best fitted model (Model 5) had the coefficients shown in the table below (see appendix for details of the five models):

Table 4.4: Coefficients: Model 5

Variable	Coefficient
polr	-64.98
gdp	0.01
debt_serv	4.42
trd_terms	0.495
ir	-0.000135

The model coefficients thus justify the fitting of the following model:

pvt_inv = 2.406 – 0.006498polr +.001gdp + 4.42debt_serv + .495 trd_terms – 0.000135ir

The SPSS forward stepwise model fitting method fitted the private investment model shown above. A total of five models were fitted, with each variable being added into the private investment model at each interval after passing significance and linearity tests. The following table shows how the five private investment models were fitted.

Table 4.5: Variables Entered/Removed (a)

Model	Variables Entered	Variables Removed	Method
2	polr	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
3	gdp	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
4	debt_serv	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
5	trd_terms	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
	ir	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

a Dependent Variable: pvt_inv

The models are ordered in their relative ability to explain private investment. Thus the descriptive statistics: R, R Square, Adjusted R Square and the standard error of the estimate tend to improve from model 1 to model 5 as shown in table 4.3 below.

Table 4.6: Model Summary (f)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.921(a)	.848	.844	.39152	
2	.969(b)	.939	.935	.25259	
3	.986(c)	.972	.969	.17512	
4	1.000(d)	1.000	1.000	.00000	
5	1.000(e)	1.000	1.000	.00000	2.241

a Predictors: (Constant), polr
b Predictors: (Constant), polr, gdp
c Predictors: (Constant), polr, gdp, debt_serv
d Predictors: (Constant), polr, gdp, debt_serv, trd_terms
e Predictors: (Constant), polr, gdp, debt_serv, trd_terms, ir
f Dependent Variable: pvt_inv

Though models 4 and 5 have the same model statistics, model 5 emerges the best on the back of it having the highest number of variables incorporated in it and a favourable Durbin Watson statistic. The Durbin Watson statistic is within the preferred range which assures homoscedasticity and no auto-correlation between the explanatory variables.

A Durbin Watson statistic of 2.241 confirms that, all the variables incorporated in model 5 are non collinear. A zero standard error of estimation and a unit R square and Adjusted R Square imply perfect estimation of private investment by the model. The ANOVA table below summarises the five model statistics, justifying the selection of Model 5.

Table 4.7: ANOVA (f)

a Predictors: (Constant), polr,

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	28.327	1	28.327	184.796	.047(a)
	Residual	5.058	33	.153		
	Total	33.385	34			
2	Regression	31.344	2	15.672	245.631	.026(b)
	Residual	2.042	32	.064		
	Total	33.385	34			
3	Regression	32.435	3	10.812	352.531	.002(c)
	Residual	.951	31	.031		
	Total	33.385	34			
4	Regression	33.385	4	8.346	362.870	.0001(d)
	Residual	.000	30	.023		
	Total	33.385	34			
5	Regression	33.385	5	6.677	370.944	.00(e)
	Residual	.000	29	.018		
	Total	33.385	34			

b Predictors: (Constant), polr, gdp
c Predictors: (Constant), polr, gdp, debt_serv
d Predictors: (Constant), polr, gdp, debt_serv, trd_terms
e Predictors: (Constant), polr, gdp, debt_serv, trd_terms, ir
f Dependent Variable: pvt_inv

The ANOVA table above also supports model 5 as the best as it has nil residuals as well as the highest number of degrees of freedom, which measure the number of variables included in a model. Model 5 is the most statistically significant, thus is able to predict in excess of 99% in the variation of private investment, leaving insignificant chances for errors.

Pearson's correlation analysis shows conflicting results due to multi-collinearity and auto-correlation between some explanatory variables. To avoid this problem and to enable objective analysis of the determinants of private investment, multicolinearity tests were carried out and provided the following statistics:

Table 4.8: Multicollinnearity Test

Variable	Tolerance	VIF
infl	**0.01**	**100**
polr	0.69	1.44
i.r	0.78	1.282
debt_serv	0.645	1.55
natsav	**0.03**	**33.33**
plc_inv	**0.028**	**35.71**
gdp	0.804	1.243
trd_terms	0.761	1.31

The Tolerance and VIF statistics for bolden variables confirm multicollearity, hence their elimination in the best SPSS fitted model. VIF for inflation, national savings and public investment exceed 10, whilst their Tolerance values are very close to zero thereby confirming their elimination in the final model.

The exclusion can be accounted for using the correlation matrix. The inflation rate is highly correlated to the GDP level, with a correlation coefficient of 0.978. On the other hand, GDP correlates better with private investment, with a coefficient of -0.906 compared to -0.808 for inflation and private investment. In this case, inflation level was dropped and GDP incorporated in the fitted model. In the same vein, political risk was fitted in the model against the exclusion of public investment and national savings. Essentially, political risk, public investment and national savings were highly correlated, thus a single variable, political risk, which was in turn significantly correlated to private investment, was chosen for inclusion in the model.

4.2.1 Interpretation of the fitted model.

Having treated breaches of multiple regression and fitted the following model:

pvt_inv = 2.406 – 0.006498polr +.001gdp + 4.42debt_serv + .495 trd_terms – 0.000135ir

It is now easy to detect the variables which had the greatest influence on private investment over the study period. The autonomous private investment level was 2.406% of GDP over the study period. Essentially, when the values of partial regression coefficients are equated to zero, private investment would be 2.206% of the GDP. Private investment also was expected to decrease by 0.006498% of GDP per one per cent increase in political risk. This result is in line with the study's expectations.

A percentage increase in the GDP was expected to cause .001 increase in private investment, confirming the study's hypothesis. This effect can be allude to minimal GCF the study period as depicted in the Table 4.9 below.

Table 4.9 Zimbabwe's Investment Expenditure (as percentage of GDP)

Years	2005	2006	2007	2008	2009	2010
Gross Capital Formation	1.5%	1.6%	7.1%	5.1%	2.2%	0.5%

Source: Government of Zimbabwe and IMF estimates (2011)

The ability of GCF to prop up the economy is thus limited as the Zimbabwean GCF statistics fall well below the stipulated benchmark of 20% of the GDP.

A 1% increase in debt servicing had an effect of increasing private investment by 4.42%. Though this relationship was not expected, logic follows that, the ability of Zimbabwe to service its debt, given the bad debt servicing history, painted a better picture to investors who shunned the country. In some way, the positivity of a debt clearance strategy outlined by the Ministry of Finance outweighed the negativity of a decrease in capital formation owing to funds being channelled to the servicing of debt.

Zimbabwe's trade terms, as suggested by the model, accounts for 0.495% of GDP increase in private investment for every 1% improvement of the terms. This finding relates well to theory though its influence is on the lesser side. Though the influence of interest rates in the model is almost insignificant, the relationship is still within the dictates of theory. This is because; a negative relation was attained, though the coefficient shows a weak degree of association.

4.2.2 Discussion of Findings

The study sought to lay bare the relationship between private investment and its determinants, as well as detecting the variables that had the greatest impact on private investment. The Pearson's correlation matrix provided the relationship information, though distorted when tallied to literature. The regression model specifies the effects of the variables on private investment after treating for co and multicollinearity tests. Table 4.10 provides a full comparison of the two methods (basing on five variables incorporated in the regression mode).

Table 4.10: Comparison of Results

Variable	Correlation	Regression	Theory Expectation
polr	+	-	-
gdp	-	+	+
debt_serv	+	+	-
trd_terms	-	+	+
ir	-	-	–

According to theory, political risk negatively affects private investment, regression results are in line with this expectation, though correlation results are contrary to expectations. Regression results for GDP; trade terms and interest rates are in line with the study's hypothesis, except for debt servicing. Most of the results from correlation analysis do not support the study expectations except for interest rate results.

Initially the study proposed eight variables to be critical in the determination of private investment but, after treating the variables for collinearity and mulicollinearity, inflation, national savings and public investment were eliminated in the best SPSS fitted model.

The elimination was on the basis of their correlation with other regressors not on practical insignificance. National savings, as proposed by Ouattara (2000), is critical in propelling investment. Public investment as envisaged by Patrick (2006), when directed to infrastructure contributes immensely to private investment. Inflation levels have been on the low side thus contributes sluggishly to private investment. Serven et al (1992) wrote that, a low rate of inflation and appropriate pricing of capital, labour and land maintain international competitiveness. As such, under the study period, inflation related positively to private investment. It is only under hyper inflationary conditions that inflation become negatively related to private investment as supported by Green et al (1991).

Disregarding the differences that correlation results have with theory, the coefficients provide important relationship information of each variable versus private investment. Most of the relationships are very significant at the .01 level, except for trade terms which are neither significant at .01 nor .05 level (refer to correlation matrix). Whereas regression analysis attempts to fit a predictive model of private investment in Zimbabwe, correlation is into defining the relationship of private investment against each variable. The differences in the results thus can be alluded to the area of focus of each analysis method.

Basing on economic theory and difficulty with explaining the results of correlation analysis given knowledge of what has been happening in Zimbabwe, further sections of this study shall consider regression results for related commenting. This does not point to total discarding of correlation results.

4.3 Conclusion

The chapter laid bare all the findings of the study, including the analysis of the results. Of importance was the relationship of the explanatory variables to private investment as well as the fitting of a private investment model using SPSS. Interesting was the exclusion of highly related variables in the final model, thereby distorting the study's results. The next chapter marks the end of the study by stating conclusions of the study as well as the recommendations to stakeholders.

CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter brings to light the conclusions and recommendations with respect to the research objectives and the findings of Chapter Four. The chapter presents the conclusions drawn from the research findings and also give recommendations on private investment and economic growth in Zimbabwe.

5.1 Summary of Findings

Multiple Regression analysis had five variables (political risk, GDP, debt servicing, trade terms and interest rates) as the determinants of private investment. The effect of each variable as shown are:

5.1.1 GDP has a positive contribution to private investment as expected by theory.

5.1.2 Debt servicing showed a significant positive relationship with private investment though contrary to the study's expectations.

5.1.3 Trade terms also contribute positively to private investment.

5.1.4 Political risk relates negatively to private investment though its coefficient is insignificant.

5.1.5 Interest rates, though their effect is insignificant, relates negatively to private investment.

5.1.6 Multiple regression provided results that were fairly in line with the expectations of the study and the literature.

5.2 Research Conclusions

5.2.1 Political risk; GDP; debt servicing, trade terms and interest rates are the major determinants of private investment at the .05 level as per the SPSS fitted model.

5.2.2 Political risk has a statistically insignificant negative impact on private investment in Zimbabwe. High levels of political risk over the study period limited growth in FDI levels. Private investment thus comprised mainly of domestic private investment which generally is not more affected by high political risk. The effect of political risk on private though negative, has thus been sluggish.

5.2.3 GDP has a positive contribution to private investment though at a an insignificant level. GDP is a proxy for demand level in a country, thus, low levels of GDP in Zimbabwe penalize private investment.

5.2.4   There is a significant positive impact of debt servicing on private investment. Adoption of a debt servicing strategy has helped to attract FDI though at insignificant levels.

5.2.5   Private investment responds significantly to trade terms, with a positive coefficient. Maintaining favorable trade terms is critical to the growth of private investment.

5.2.6   Interest rates have a statistically insignificant negative influence on private investment in Zimbabwe. Liquidity constraints proffered an inelastic demand for investment funds even at exorbitant rates.

5.2.7   There is a significant negative relationship between public investment and private investment. Government investment and expenditure must develop infrastructure to promote private investment.

5.3 Recommendations

Given the above mentioned conclusions, the following recommendations are made:

5.3.1   Political players in Zimbabwe need to promote political stability in order to spur growth in private investment**.** Economic prosperity requires stable socio-political institutions, Le (2004).

5.3.2   Attraction of FDI, not only for the extra capital it brings, but because it can lead to technological transfers, better human capital formation, deeper international integration and a more competitive business environment. FDI policies must be transparent as far as the Indigenization Policy is concerned.

5.3.3   Enable a structured public-private dialogue – bringing together different stakeholders to identify policies and institutional reforms that promote entrepreneurship and help mobilize private investment. It also helps reduce information asymmetries between the public and private sectors on investment-related policies. This addresses the need to move towards more market-based and sustainable approaches to providing support to private firms.

5.3.4   Establishment of a well-developed financial sector, including a more integrated micro-credit sector. This can help expand access to an array of financial services (credit and insurance; saving facilities and payment instruments). This helps to finance small private firms at rates that do not cripple their operations.

5.3.5   Promoting government investment in infrastructure. It works as a compliment to the private sector as inadequate and insufficient infrastructure is a major obstacle to growth, trade and investment. Investment in transport, energy, water and ICT services are essential to bring improve private investment.

5.3.6   Formulation of a domestic and external debt reduction strategy. External debt repayments may take so much of a country' export earnings but, its vital for Zimbabwe to rekindle multilateral and bilateral relations with critical international partners. Ability to service debt indicates a growing economy with the capability of servicing further loans, thereby attracting more capital towards investment and economic growth.

5.3.7   Incentivizing investment in critical industries. Zimbabwe must also provide special incentives for private investment in specific sectors where Zimbabwe still need to improve such as electronics, engineering and information technology. Also, export processing Zones should be revived in order to lessen the burden to private investors who face intense competition from international manufacturers. This would help private investment to grow and get established, hence self-sustaining.

5.4 Suggestions for Further Research

The period considered for this study was too short, that is 2009- 2011. This generally affected the variability in the data which is actually a feature of data collected over a number of years. This could have affected the association of private investment and some variables thereby distorting the research results. That is why analysis of the determinants of private investment is not comprehensive enough as data for other variables like FDI was not available.

Further studies should focus on unpacking private investment into FDI and Domestic Private Investment. The respective contribution of each component to economic growth must be explained, hence compliment policy formulation.

5.4   Conclusion

This study analysed the Zimbabwean determinants of private investment for the period 2009-2011. Captured were the background of the study and statement of the problem among other keys issues in Chapter One. Chapter Two discussed literature linked to private investment thereby shaping the study into addressing the key issues relating to private investment. The methodology stream-lined the course of action undertaken to analyse the determinants of private investment.

Conclusions and recommendations outlined in Chapter Five were based on the findings of the study provided and discussed in Chapter Four. Critical among the recommendations are the attraction of FDI, infrastructural development, cultivating a stable political environment as well as private-public partnerships.

REFERENCES

1. Abba Learner (1953), The Marginal Efficiency of capital and the Marginal efficiency of investment, *Journal of political economy*, vol 4, October, pg 66-78.
2. Agenor P.R, McDermott C.J. and Prasad E.S. (2000),Macroeconomic Fluctuations in Developing Countries, *The World Bank Economic Review*,Vol 14, November, pg 251-285.
3. Agrawal P. (2001), Interest Rates and Investment in Asia: an Empirical Evaluation of Various Financial Liberalization Hypotheses, *Journal of political economy,* vol 3, May pg 1-31.
4. Aschauer D. A. (1989), 'Does public capital crowds out private capital?' *Journal of Monetary Economic*s, vol 24, June, pg 171-188.

5. Basu P., Chakraborty C. and Reagle D. (2003), 'Liberalization, FDI, and Growth in Developing Countries: A Panel Co integration Approach', *Economic Inquiry*, vol 1, February p 510-516.
6. Blejer M. and Khan M. (1984), Government policy and private investment in developing countries. *IMF Staff Papers*, vol 31, July, pg 379-403.
7. Blomstrom M., Lipsey R.E, and Zejan M. (1992), 'What Explains Developing Country Growth?' *National Bureau of Economic Research Working Paper*, vol 9, February, pg 4132.
8. Borensztein E., De Gregorio J. and Lee J.W. (1995), 'How does Foreign Direct Investment Affect Economic Growth?' *National Bureau of Economic Research Working Paper*, vol 2, March, pg5057.
9. Bouton and Sumlinki (2000),"Public investment", Cambridge University Press
10. Carkovic M. and Levine R. (2002), Does Foreign Direct Investment Accelerate Economic Growth? Department of Business Finance, University of Minessota, *Working paper Series.*
11. Central Statistical Office. (2009). Monthly Inflation Figures. CSO: Harare.

12. Chibber A. and Leechor C. (1994), 'From Adjustment to Growth in Sub-Saharan Africa: the Lessons of East Asia Applied to Ghana', *Journal of African Economies* ,Vol 4,February,pg 54
13. Chirinko R.S. (1993), 'Business Fixed Investment Spending: Modeling Strategy, Empirical Results and Policy Implications', *Journal of Econometric Literature*, Vol. 31, October, p1875-1911.
14. De Mello L.R.J. (1999), 'Foreign direct investment- led growth: evidence from time series and panel data', *Oxford Economic Papers*, vol 51,June, p 133-51.
15. DeOlivera Cruz and Texeira(1999),'The Impact of Public investment on Private investment in Brazil',*CEPAL Review*, vol 67,February,pg 56
16. Encarnation D. J. and Wells L. T. (1986),'Evaluating foreign investment', Investing in development: new roles for foreign capital?' *IFC Discussion Paper*, vol 44, June, pg 34.
17. Everhart S., and Sumlinski M. A. (2000), Trends in private investment in developing countries. Prentice hall
18. Fazzari S. and Athey M. (1987), 'Asymmetric Information, Financing Constraints, and Investment', *Review of Economics and Statistics, vol* 69, March, pg 481-87.
19. Fielding D. (1997), 'Adjustment Trade Policy and Investment Slumps: Evidence form Africa', Journal of Development Economics, vol 52, June, p121-137.
20. Galal W.van Domburg R.T and Schouten O(1994),"Privatization in Mexico", Journal of development economics,vol 99,October,pg 1485-90
21. Ghura D and Goodwin B. (2000), 'Determinants of private investment: a cross-regional empirical investigation', *Applied Economics*, vol 32, pg 1819-1829.
22. Greene J. and Villanueva D. (1991), Private investment in developing countries: an empirical Analysis, *IMF Staff Papers*, vol 38, May, pg 33-58.
23. Greenwald B., Stiglitz J. and Weiss. A (1984), 'Informational Imperfections in the Capital Market and Macroeconomic Fluctuations', *American Economic Review Papers and Proceedings, vol 74*, March, pg194-199.
24. Janckowicz (1995),"*Research methods"* MacMillan Press.
25. Jayaraman T.K and Evan L. (2008) 'Does external debt lead to economic growth in Pacific Island countries', *Journal of Policy Modeling*, vol 31,June, pg 272–288
26. Khan M. S. & Reinhart C.M. (1990), 'Private Investment and Economic Growth in Developing Countries', *World Development,* Vole 18, Febrary,pg 19-27.
27. Khan M.and Kumar (1997), 'Private investment and the growth process in Developing Countries', Transitional Corporations.
    a. Leedy (1980),"*Basic research method for Librarians,* MacMillan Press

28. Mlambo K.and Oshikoya W. (2001), "Macroeconomic Factors and Investment in Africa", *Journal of African Economics*, Vol 10, November, pg 12-47.
29. Mwaba A. (1997), "Fiscal Consolidation and Adjustment-Lessons from Zambia and Uganda", *African Development Bank Economic Research Series*, vol 30, June, pg 56.
30. Myers S. and Majluf N. (1984), "Corporate Financing and Investment Decisions When Firms Have Information those Investors do not have", *Journal of Financial Economics, Vol* 13, June, pg 187-221.
31. Naude W. (1995),'Financial Liberalisation and Interest Rate Risk Management in Sub-Saharan Africa', *Working Paper Series, Centre for the Study of African Economie*s.
32. Ndikumana L. (2000), "Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from Panel data", *World Development*, vol 28, June, pg 381-400.
33. Oshikoya T. (1994), 'Macroeconomic Determinants of Domestic Private Investment in Africa: an Empirical Analysis', *Economic Development and Cultural Change,* vole 42, June, p573-96.
34. Oshikoya T. W. (1994),'' Macroeconomic Determinants of Domestic Private Investment in Africa: An Empirical analysis", *Economic Development and Cultural Change,* Vol 3, August, pg573-596.
35. Ouattara B. (2005), "Modelling the Long Run Determinants of Private Investment in Senegal", *CREDIT Research Paper No 04/05, Centre for Research in economic Development and International Trade, University of Nottingham.*
36. Pindyck R. (1991),'Irreversibility, Uncertainty, and Investment', *Journal of Economic Literature,* vol 39, November, pg 1110-11148.
37. Pineda J.and Rodriguez F.(2006),"Public investment in infrastructure and Productivity Growth",Pineda consulting,June,pg 23
38. Prebisch (1968),"Importance of FDI" MacMillan Press
39. Ragazzi G, (1973)*,'* Theories of the Determinants of Direct Foreign Investment', *IMF Staff Papers*, vol 20, January, 471-498.
40. Roache S. (2007), 'Public Investment and Growth in the Eastern Caribbean'*, IMF Working Paper no 124.*
41. Rugman A. M. (1976), 'Risk Reduction by International Diversification', *Journal of International Business Studies, vol* 7, June, pg 75-80.
42. Sader F (1994), *"Privatization Techniques and Foreign Investment in Developing Countries",* International Finance Corporation, Washington, D.C., pp. 26-33.
43. Saltz S. (1992), The Negative Correlation Between Foreign Direct Investment and Economic Growth in the Third World: Theory and Evidence, *Rivista Internazionale di Scienze Economiche e Commerciali*, vol 39, October, pg 617-633.
44. Scheiler P.and Frey P. (1985),*"Determinants of FDI"* MacMillan Press
45. Schmidt S.C. (1995), 'Comparison of privatization of economies of Eastern Africa and Eastern Europe', *African Development Review.*
46. Shafik N. (1992), "Modelling Private Investment in Egypt", *Journal of Development Economics,* Vol.39,June, pg 263-27
47. Singer I.(1950), "FDI and economic growth", MacMillan Press
48. Steinfeld E. S. (1998), "*Forging Reform in China*", Cambridge University Press.
49. Stewart F. (1984),'' *Facilitating Indigenous technical Change in Third World Countries, in Technological Capability in the Third World''*, MacMillan Press.
50. Tan, Bee Wah. T, Chor F (2011),"Private investment and economic growth in Malaysia", *Journal of economic development,* vol1, February, pg 34-67.
51. Trevino Len J. and Upadhyaya K. P. (2003),'Foreign aid, FDI and economic growth: Evidence from Asian countries', *Transnational Corporations,* vol 12, October, pg 119-135.
52. Veugelers R. (1991), 'Locational determinants and rankings of host countries: An empirical assessment', *Kyklos*, vol 44, June, p 363-382.
53. Wai T. U. and Wong C. H (1982), Determinants of Private Investment in Developing Countries. Journal of Development Studies, Vol 19, October, pg 19-36.
54. Warner A. M. (1992),'Did the Debt Crisis Cause the Investment Crisis', *Quarterly Journal of Economics*, vol 107, June, pg 1161- 1186.
55. Were M. (2001),'The Impact of External Debt on Economic Growth in Kenya: An Empirical Assessment', *UNU-WIDER Research Paper*, vol 116, June, pg 103-117.
56. Zhang K.H. and Ram R, (2002), 'Foreign direct investment and economic growth: evidence from cross-country data for the 1990s', *Economic Development and Cultural Change*, vol 51, August, pg 205-215.

APPENDIX A: Collinearity Diagnostics(a)

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
		(Constant)	polr	gdp	debt_serv	trd_terms	ir	(Constant)	polr
1	1	2.000	1.000	.00	.00				
	2	9.23E-006	465.601	1.00	1.00				
2	1	2.306	1.000	.00	.00	.03			
	2	.694	1.823	.00	.00	.37			
	3	3.63E-006	796.573	1.00	1.00	.61			
3	1	3.239	1.000	.00	.00	.01	.00		
	2	.756	2.070	.00	.00	.30	.00		
	3	.005	24.750	.00	.00	.14	.27		
	4	9.72E-007	1825.810	1.00	1.00	.56	.73		
4	1	4.226	1.000	.00	.00	.00	.00	.00	
	2	.768	2.346	.00	.00	.06	.00	.00	
	3	.006	26.997	.00	.00	.02	.02	.00	
	4	9.02E-005	216.443	.00	.00	.89	.79	.98	
	5	9.52E-007	2107.347	1.00	1.00	.04	.19	.02	
5	1	5.127	1.000	.00	.00	.00	.00	.00	.00
	2	.815	2.509	.00	.00	.03	.00	.00	.00
	3	.053	9.861	.00	.00	.08	.00	.00	.39
	4	.006	29.809	.00	.00	.02	.02	.00	.00
	5	5.25E-005	312.481	.00	.00	.69	.98	.91	.29
	6	6.53E-007	2802.683	1.00	1.00	.18	.00	.09	.32

a Dependent Variable: pvt_inv

APPENDIX B: RAW DATA

pvt inv	ir	infl	gdp	natsav	polrisk	plc inv	trd terms	debt se
2.853988	4.7	-2.34	-15.5501	18.4587	13.27	0.36122	27.0334	-3.125
2.74571	5.3	-1.66364	-13.6002	18.8051	13.27	0.398795	27.4789	-3.15
2.637433	6.5	-0.98727	-11.6503	19.1515	13.27	0.43637	27.9243	-3.175
2.529155	6.71	-0.31091	-9.70033	19.4979	13.27	0.473946	28.3698	-3.2
2.420877	10.035	0.365455	-7.75042	19.8443	13.27	0.511521	28.8153	-3.225
2.3126	10.255	1.041818	-5.8005	20.1907	13.27	0.549097	29.2607	-3.25
2.204322	10.015	1.718182	-3.85058	20.5371	13.27	0.586672	29.7062	-3.275
2.096045	12.83	2.394545	-1.90067	20.8835	13.27	0.624247	30.1517	-3.3
1.987767	9.625	3.070909	0.04925	21.2299	13.27	0.661823	30.5971	-3.325
1.879489	7.625	3.747273	1.999167	21.5763	13.27	0.699398	31.0426	-3.35

1.771212	7.615	4.423636	3.949083	-21.9227	13.27	0.736974	-31.4881	3.375
1.662934	13.12	5.1	5.899	-22.2691	13.27	0.774549	-31.9335	3.4
1.531901	30.62	5.094167	6.099	-22.3038	13.2	1.173022	-31.7512	3.35
1.400868	30.62	5.088333	6.299	-22.3385	13.2	1.571495	-31.5689	3.3
1.269835	30.62	5.0825	6.499	-22.3732	13.2	1.969969	-31.3866	3.25
1.138802	29.31	5.076667	6.699	-22.4079	13.2	2.368442	-31.2043	3.2
1.007768	29.34	5.070833	6.899	-22.4426	13.2	2.766915	-31.022	3.15
0.876735	29.34	5.065	7.099	-22.4773	13.2	3.165388	-30.8396	3.1
0.745702	29.33	5.059167	7.299	-22.512	13.2	3.563861	-30.6573	3.05
0.614669	29.33	5.053333	7.499	-22.5467	13.2	3.962335	-30.475	3
0.483636	29.3	5.0475	7.699	-22.5814	13.2	4.360808	-30.2927	2.95
0.352603	29.63	5.041667	7.899	-22.6161	13.2	4.759281	-30.1104	2.9
0.221569	30.63	5.035833	8.099	-22.6508	13.2	5.157754	-29.928	2.85
0.090536	30.63	5.03	8.299	-22.6855	13.2	5.556227	-29.7457	2.8
0.083402	30.63	4.994167	8.446417	-22.7208	13.13	8.414675	-29.3919	2.758824
0.076268	30.63	4.958333	8.593833	-22.7561	13.13	11.27312	-29.0381	2.717647
0.069134	30.63	4.9225	8.74125	-22.7915	13.13	14.13157	-28.6843	2.676471
0.062001	30.63	4.886667	8.888667	-22.8268	13.13	16.99002	-28.3305	2.635294
0.054867	18	4.850833	9.036083	-22.8622	13.13	19.84847	-27.9767	2.594118
0.047733	18	4.815	9.1835	-22.8975	13.13	22.70691	-27.6229	2.552941
0.040599	21.5	4.779167	9.330917	-22.9329	13.13	25.56536	-27.269	2.511765
0.033465	19	4.743333	9.478333	-22.9682	13.13	28.42381	-26.9152	2.470588
0.026331	20.64	4.7075	9.62575	-23.0036	13.13	31.28226	-26.5614	2.429412
0.019197	22.1	4.671667	9.773167	-23.0389	13.13	34.14071	-26.2076	2.388235
0.012063	22.3	4.635833	9.920583	-23.0742	13.13	36.99915	-25.8538	2.347059