THE EFFECT OF SELECTED MACROECONOMIC VARIABLES ON GOVERNMENT REVENUES IN RWANDA

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DECLARATION

This is to declare that this research project is my original work that has not been submitted to any other University or Institution of Higher Learning for examination.

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The research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This Research is dedicated to my dear lovely husband KAMALI Theophilus and children, ABATONI Fortunate, ISHIMWE Kelvin, KABUCYE Kelly and IRADUKUNDA Caleb for their support throughout the research process.

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LIST OF ABBREVIATIONS

ADBG	African Development Bank Group
BMS	Block Management system
CITs	Communication Information Technology
CPI	Consumer Price Index
DTE	Developing transitional economies
EAC	East Africa Community
EBM	Electronic Billing Machine
ETD	Electronic Transaction Device
EU	European Union
FIAS	Foreign Investment Aid Service
FY	Financial Year
GDP	Growth Domestic Product
GOR	Government of Rwanda
IDO	International Development Organization
ICHA	Turnover Tax
IMF	International Monitory Fund
IPAR	Institute of Policy Analysis Research
IT	Information Technology
LDCs	less Developed Countries
MDG	Millennium Development Goal
OECD	Organization for Economic Cooperation and Development
PAYE	Pay as you earn

RPF	Rwanda Patriotic Front
RRA	Rwanda Revenue Authority
Rwf	Rwandan Francs
SSA	Sub-Saharan African
SMTO	Small Medium Taxpayers Office
SPSS	Statistical Package for Social Sciences
TGR	Total Government Revenue
TOT	Theory On Taxation
VAT	Value Added Tax

ABSTRACT

The purpose of this study was to determine the effect of selected macroeconomic variable on Government revenues in Rwanda. Studies have been done on the effect of macroeconomic variables, for example comparison of macroeconomic performance and volatility in Kenya, Rwanda and Ethiopia. In measuring the determinants of Government revenues in Rwanda, the selected macroeconomic variables were measured such as inflation rate, currency exchange growth rate, average quarterly interest rate and quarterly GDP growth rate as macroeconomic variables. The study used correlation and regression analysis research design. Also the study employed quarterly secondary data which was for a period of nine years from 2006 to 2014 on a quarterly basis. The data was obtained from the Central Bank of Rwanda and National Institute of statistics Rwanda, RRA and Ministry of finance and economic planning Rwanda .The data was analyzed using SPSS 20 .The findings are important to various police makers and finance students etc. the study combined regression and correlation analysis in examining how macroeconomic variables affect Government revenues. The findings of the study indicated that Government revenue has a weak positive relationship with currency exchange growth rate (.183), with quarterly GDP (0.021), interest rate (0.234) and a negative average quarterly inflation rate (.-019). It can also be stated that macroeconomic variables affected Government revenues with an adjusted R2 of 0.176 meaning 17.6% is the variable in the regression model while 82.4% could not be explained by the variables .The main policy recommendation was that the government should develop strong mechanism to mobilize more resources for Government revenues.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Government revenue is defined as the revenue received by government to finance its operations and development projects. It is an important tool of fiscal policy of the government as it facilitates spending of the government (OECD, 2008). Government revenue is the receipts collected from taxes, appropriation of aid, borrowings, grants and revenue from public investments. Revenue is an increase in net worth resulting from a transaction. Governments need to perform various functions in the field of economic, political and social activities to maximize welfare of citizens. In order to perform these activities governments require large amount of resources. These resources are called public revenues. Public revenues are components of taxes, revenues from administrative activities such as fines, fees, grants and gifts.

Illyas and Siddiqi (2010) stated that public revenue can be classified into two types that is tax and non-tax revenue. Taxes are the most important sources of public revenue. Taxes are compulsory payments to government without any direct benefit or return by the tax payer. Taxes collected by Government are used to provide common benefits to all, mostly in form of public welfare services. It is not based on direct quid pro quo principle. The Government collects tax revenues by way of direct and indirect taxes. Direct taxes include; Corporate tax, personal income tax, capital gain tax and wealth tax. Indirect taxes include custom duty, excise duty, Value Added Tax (VAT) and service tax (Chaudhry and Munir, 2010).

Non tax revenue is another source of Government revenues which refers to the revenue obtained by the Government from sources other than tax. Aguola (2004) noted that though taxation may not be the most important source of Government revenues in terms of the magnitude of revenue derivable from taxation, however taxation is the most important source of revenues to the Government, from the point of view of certainty, and consistency of taxation. He further mentioned that tax is the most important source of revenue to the Government. Owing to inherent power of Government to impose taxes, the Government is assured at all times of its revenues no matter the circumstances. Tax is one of the important sources of Government revenues. Stability and continuity of the flow of tax collection play an important role in the Government planning for providing variety of the required public services in different areas.

Fiscal policy aligning Government income and expenditure is of crucial importance in promoting price stability and sustainable growth in output, income and employment which are important parameters of economic growth (Ahmed, 2010). It is one of the macroeconomic policy instruments that can be used to prevent short-run fluctuations in output, income and employment in order to move an economy to its potential level. However, for sound fiscal policy, a good understanding of the effect of macroeconomic variable on government revenues of a nation is very important, for instance, in addressing government's budgetary deficits. Government collects tax revenues, provides goods and services not produced by the private sector, engages in commercial-type activities, makes cash and in-kind transfers to families and businesses, and pays interest on its debts (Abiola and Asiweh, 2012). All these activities require that Government raise enough

revenue. Governments raise revenue from different sources in order to undertake its development agendas.

1.1.1 Macroeconomic Variables

Macroeconomic is the study of the economy as a whole. That is it focuses on the behavior of an entire economy-the "big picture" which can be regional, national or international. Maghyereh (2002) argues that macroeconomic environment is the overall aspects and working of national economy, such as income, output, and interrelationship among diverse economic sector. Conducive macroeconomic environment promotes the economic growth of the country.

Macroeconomic variables are defined as those variables that are independent from the income levels. They are factors that greatly influence the economic growth. They deal with the performance, structure, behavior, and decision-making of an economy as a whole, rather than individual markets. These variables affect output, national income, unemployment, consumption, inflation, savings, investment, international trade and international finance. Macroeconomic variables are indicators or main signposts signaling the current trends in the economy. Some of the macroeconomic variables include Gross Domestic Product (GDP), unemployment, inflation and exchange rates.

In contrast, microeconomics primarily focuses on the actions of individual agents, such as firms and consumers and how their behavior determines prices and quantities in specific

markets. That is, microeconomic studies individual components, whereas macroeconomics studies the economy as a whole.

GDP is the sum of all productivity within a country for a given year. GDP includes all domestically, manufactured products, all produce and livestock, all asset valuation increases, and intangible investment growth. Inflation is the rate at which prices increase over a period of time. Smaller components, such as the consumer price index, fiscal policies, commercial banking, and access to credit all play a role in influencing inflation up or down. Unemployment measures the number of residents who are not presently employed but are actively seeking employment. Individual macroeconomic variables, such as banking, the Consumer price index, and changes in government regulations, each influence multiple areas of economic growth (Mishkin, 2004).

1.1.2 Government Revenues

Ahmed (2010), States that Government revenues are income received by Government. It is an important instrument of fiscal policy of the Government. Income earned by the Government are received from different sources like taxes levied on the incomes of corporations and individuals on goods and services created, imported and exported in and out of the country, none taxable sources are also Government revenues such as owned corporations' income, central bank revenue and capital receipts in the form of external loans and debts from international institutions like IMF and World Bank.

Government Revenues comprise incomes got from all boards, commission's agencies, or other organizations categorized as dependent on the Government concerned.It is stated in terms of the accounting procedures from which these information originate, Government revenues cover receipts from all accounting funds of a Government, other than intra-Governmental service agency, and private trust funds (Chaudhry and Munir, 2010). Governments often account revenue, and keep their proper official accounting records, in terms of a modified accrual form of accounting. In aggregation and tabulation, combined statistics for an individual Government shows the revenue of the father Government and all of its dependent agencies (Chaudhry and Munir et al 2010).

On the other hand, flows of funds between these entities are considered as internal transfers and are excluded, from revenue totals. These are treated as intra-Governmental revenues and are excluded in much the same way as most intra-Governmental service.

The Government of Rwanda as the other states also collects revenues primarily through taxes paid by individuals and companies and these include corporate and personal income tax, taxes on goods and services, property tax and taxes on international trade. The Government also receives grants and loans to supplement its domestic revenues (2013/2014 Budget).

1.1.3 Effects of Selected Macroeconomic Variables on Government Revenues

According to Oliver (2000), macroeconomic variables are such factors that are pertinent to a broad economy at the regional or national level and affect a large population rather than a few select individuals. It is often argued that Government revenue is determined

by some fundamental macroeconomic variables such as GDP, exchange rate, inflation rates and unemployment which are closely monitored by the government, businesses and consumers. Macroeconomic is a branch of economics dealing with the performance, structure, behavior, and decision making of an economy as a whole. The foundation of macroeconomics is microeconomic. While microeconomics is the branch of economy which is concerned with the behavior of individual entities such as market, firms and households, it consists of individual entities. Revenue collection is very important for every Government in the world as it enables the Government to acquire assets which are not liable to debt and which Government uses to develop its economy. However, revenue collection in the developing economies like Rwanda has not always been as effective as it should be. The ineffectiveness is attributed to many factors.

Drummond (2012) noted that mobilizing more revenues is a priority for the most sub-Saharan African (SSA) countries. Countries have to finance their development agendas, and weak revenue mobilization is the root cause of fiscal imbalances in several countries. However, raising revenue is not an end in itself. Government has to provide more of essential services such as better health care, education, and infrastructure. Raising revenue is a way to create fiscal space, increase priority spending, and reduce dependence on budget support, which is not without limits. Collecting revenues, however, poses challenges for developing countries. Low domestic resource mobilization is associated with structural factors that can be difficult to influence in the short to medium term such as low income, demographic factors, and underdeveloped financial markets.

In most SSA countries, the task of mobilizing more fiscal revenue is complex by increased mobility of tax bases resulting from trade liberalization and the mobility of investment and capital income, tariffs, and other trade taxes. As noted in Keen and Mansour (2009), as countries try to attract more investment they experience great pressure to sustain revenue from corporate income taxation because of tax competition. Another pressure on tariff revenue is the formation of free trade zones and customs unions, which could result in displacement of the tax base. Not surprisingly, increasing domestic resource mobilization has been dubbed the "hard option" for closing Africa's resource gap (Aryeetey, 2004).

Revenue is collected from taxes, appropriation of aid, borrowing, grants and revenue from public investments. Tax revenue is a percentage of total Government collected to finance the Government total expenditure, Musgrave and Musgrave (2004). Tax revenue is from indirect and direct taxes. Borrowing is another area where Government generates revenue, when expenditure exceeds revenue then the Government has to borrow in order to cover the shortfall or the deficit. Revenue collected from public investments is generated from sale of Government assets and dividend earned various Government investments.

The amount of Government revenue depends on the potential taxation of the individual and corporate companies in countries, the taxation targets set by the authorities, and the capability of Governments to collect revenue. However, the success of exploiting the revenue potential and attaining the taxation targets depends on a number of other

determinants. These include the macroeconomic environment, economic structure and the level of development as well as the administrative capacity and the willingness to pay taxes (Teera and Hudson, 2004).

A variety of macroeconomic variables such as inflation, public debt, and grant affect Government revenue mobilization. Inflation is a proxy indicator for the quality and stability of country's macroeconomic policies. This captures the direct impact it exerts on tax collection through its effects on consumption, investment and related tax categories (Davoodi and Grigorian, 2007). Higher inflation rates lead to public demoralization, lowering tax compliance, thus lowering the amount of revenue collected (McMahon and Schmidt-Hebbel, 2000). Overall, inflation generally has negative impact on Government revenue mobilization.

Abhijit (2007) noted that other macroeconomic variables of revenue performance are per capita GDP, share of agriculture in GDP and trade openness. They also mentioned that although foreign aid improves revenue performance but, foreign debt does not have a significant effect. Among the institutional factors, that determines a country's revenue performance is corruption. Political and economic stability matters as well, but this is not robust across specifications. However, those countries that depend on taxing of goods and services as their primary source of tax revenue have relatively poor revenue performance. On the other hand, countries that rely more on income taxes, profit taxes, and capital gains taxes, perform much better.

1.1.4 Government Revenues in Rwanda

Rwanda is a poor rural country with about 85percent of the population engaged in mainly subsistence agriculture and some mineral and agro-processing. Rwanda's economic history can be looked at in two phases before 1994 and after 1994. In 1994; Rwanda experienced genocide which lasted for months. After 1994, Rwanda consolidated in social development and acceleration of growth. In recent years Rwanda's economy has been growing at a fast pace, Rwanda's economic performance was given an International Monetary Fund approval under the poverty reduction and growth facility. (Congress research service, Ted Dagne 2011). According to Bisten and Isaksson (2008), Rwanda is one of the best performing countries in Africa an example of success of a country after the 1994 tutsi genocide. This is due to efforts of the Government embarking on extensive transformation and reconstruction program based on economic policies, peace and stability. The 1994 genocide, made the economy of Rwanda fragile, severely impoverishing the population and stalling the country's ability to attract private and external investment.

The Government of Rwanda collects revenue primarily through taxes paid by a companies and individuals, such as corporate and personal income tax, taxes on goods and services, property tax and taxes on international trade. The Government also receives grants and loans to supplement its domestic revenues. Most of the money that the Government uses to pay for services comes from taxes. Other sources of revenue are grants where total grants for example in 2013/14 budget is estimated to be Rwf 470.7 billion of which Rwf 170.7 billion is direct budget support. However the Government of

Rwanda is committed to progressively increase the share of domestic revenue financing of the budget with a view to become self-reliant in future, (National Budget 2013/2014).

Rwanda inherited a rudimentary tax legislative and institutional structure at independence. The first tax legislation included the Ordinance of August 1912, which instituted graduated tax and tax on real property. In 1925 November, there was another Ordinance adopting one issued in Belgian Congo in June 1925, to start a profits tax. After independence, taxes were formally introduced in Rwanda by a law of June 1964 concerning profit tax. Customs and excise duties were introduced later by law in July 1969. Apparently, there were minimal improvements until the time of the Rwanda patriotic Front (RPF) regime, in 1994. When the RPF assumed power, as a temporary measure, it introduced an export tax on coffee. Government of Rwanda (GoR) also took steps to reduce the level of tax exemptions such as imports and waivers given to public enterprises, None Government Organizations (NGOs) and churches, and curb tax evasion. In 1996, GoR imposed a presumptive income tax of 3% of annual turnover on all enterprises and increased specific consumption taxes on alcohol, petroleum and soft drinks (IMF, 2000).

In 1997 GoR established Rwanda Revenue Authority (RRA) with aim of maximizing domestic revenue so as to reduce Rwanda‘s dependence on foreign aid. There were no immediate major tax policy measures for the next three years and focus was apparently on building administrative capacity as GoR. The major policy initiative of the post-genocide regime was the introduction of the VAT in 2001. In 2003, another major policy

move was made when RRA was assigned responsibility for collecting non-tax revenues such as: fines and fees; revenue from public property and assets; proceeds from the sale of Government vehicles. This was expanded with the addition of administrative fees in 2007.

Rwanda‘s total domestic revenue as a percentage of GDP rose from 8.4 percentage in 1993, to 14.2 percentage in 2008. In the year that the genocide took place (1994), however, total domestic resources as a percentage of GDP fell to 3.6 percentage. In the period between 1993 and 2008, on average the split between tax and non-tax revenues was 93.3 percentage to 6.3 percentage. Observations made by the IMF (2009), are that tax growth has ranged between 0.25 percentage and 0.3 percentage of GDP every year from 1997. There are three main categories of domestic revenue sources in Rwanda: taxes on goods and services, direct taxes such as PAYE, corporation income tax, personal income tax and tax imputed on turnover, and tax on international trade. In Rwanda taxes on goods and services have formed the largest proportion of total domestic revenues. Since 2001, and with the exception of 2004, the contribution to total taxes from direct taxes has been on a steady rise in 2008 the share of direct taxes peaked up (IMF, 2000).

Rwanda‘s total domestic revenue as a percentage of GDP rose from 8.4% in 1993, to 14.2% in 2008. In 1994, however, total domestic resources as a percentage of GDP fell to a dismal 3.6% on account of the genocide. Tax growth has ranged between 0.25% and 0.3% of GDP every year from 1997 (IMF 2009). Over the years, taxes on goods and services have formed the largest proportion of total domestic revenues at about 48% of

the total tax revenue. Since 2001, and with the exception of 2004, the contribution to total taxes from direct taxes has been on a steady rise – in 2008 the share of direct taxes peaked at 37.5%. The share of taxes on international trade to total tax revenues has steadily decreased from a high of 41% in 1995, to just over 10% in recent years. This reduction is explained by an initial reduction in import duty rates with the maximum rate declining from 60% to 40% (IMF, 2000).

1.2 Research Problem

In 1994, Rwanda experienced genocide in which more than 10% of the country's Population are believed to have died. The genocide ended when the RPF, took power in mid-1994. Reconstruction has been in progress ever since, and a great deal has been achieved. However, since 1994 Rwanda has achieved a lot especially in economic developments than it was before the genocide and there are very significant remaining tasks, including the trial and reintegration into society. A study conducted by Mackinnon (2003), the impact of increases in public expenditure on poverty in Rwanda, indicated that the possible macroeconomic effects of increased the current balance of payments deficit, because domestic demand boosts the relative price of non-tradable and there is increased supply of foreign exchange. However, the researcher never investigated the effect of macroeconomic variables on government revenues.

A study done by African Development Bank group (2010) states that in the pursuit of the policy goal of making Rwanda a preferred foreign investment destination, and to attract particular investors to establish in Africa, GOR has legislated tax incentive. It has also

granted tax exemptions to some businesses. Available data suggests that the impact of these exemptions and incentives in terms of tax revenues foregone is significant. The same study showed that in line with GOR's aspiration in vision 2020 to be less dependent on IDOs, "tax effort needs to be scaled up". It is also noteworthy that when GOR embarked on tax reforms in 1998, it aimed to increase "the revenue-to GDP ratio by 0.5 percent per year (IMF, 2000). The same report mentioned only three categories of revenue resources, such as taxes on goods and services, direct taxes and taxes on international trade. It never highlighted other sources of government revenues. In Rwanda revenue has been increasing year after another as evidenced by the different annual Government reports. However, this has not been fully reflected in their reports, what contributes to these revenues.

Gupta (2007), in his study that covers 105 developing countries over 25 years; he identifies a negative relationship between indirect taxes and revenue performance, in sense that overall tax revenue as a share of GDP tends to be lower in the presence of a relatively high level of taxes on goods and services. Taxes are important source of public revenue and are being widely applied by many countries and areas, with coverage from the under-development area in Africa and Asia to the well developed Western Europe and North America. It is declaimed as the most important of the latter twentieth century and certainly the most breaking and with its significant influence on the domestic economy and the government policies (Pingz, 2006).

Mick (2013) identified that the 'revenue gaps' in low income countries, are evidenced by the large amounts of potential tax that are given away routinely by Governments in the form of unjustified 'tax incentives'; the under taxation of land and property. But the more visible revenue gaps are not always the most important. In the same research he highlighted that the productivity of VAT in some countries is low because the system is poorly designed. And even the visible revenue gaps might not always be best tackled frontally. Effective reform typically requires large doses of political cunning, and may best be wrapped in the soothing of 'tax administration improvements'. If employed intelligently, the obscure concept of broadening the tax base could be used in many countries significantly to narrow the big revenue gaps. Tax is simultaneously both a highly political and a highly technical issue. This study therefore, seeks to investigate the effect of taxes, inflation rates, and GDP growth rate and grant effects on government revenues in Rwanda and it will also address this question what is the effect of selected macroeconomic variables on Government revenues in Rwanda?

1.3 Research Objective

The general objective of this study will be to establish the effect of macroeconomic variables on Government revenues in Rwanda. The specific objectives are;

i. To determine the effect of GDP gross rates on Government revenues in Rwanda.
ii. To assess the effect of inflation rates on Government revenues in Rwanda.
iii. To determine the effect of exchange rates on Government revenues in Rwanda.
iv. To establish the effect of interest rates on Government revenues in Rwanda

v. To determine the effect of unemployment rates on Government revenues in Rwanda.

1.4 Value of the Study

The main aim of this study was to provide to policy makers with an analytical framework which would be used to estimate the associated revenues of Government in Rwanda and also to help them in setting their tax policies. This study would increase body of knowledge to the scholars in the area of Government revenue and economic development. It has also suggested areas for further research so that future scholars can pick up these areas and study further. The study would be important to the Government especially the Ministry of Finance (Rwanda Revenue Authority) for making policy decisions whose overall objectives is to influence the level of economic activity and Government revenues in line with the expanding Government budget. Finally, the findings of this study is important to policy makers especially on matters concerning taxation and budgeting so as to have manageable budgetary.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the study reviews literature by different scholars that focuses on the effect of macroeconomic variables on Government revenues system modernization and revenue collection. First, it has briefly reviewed the theoretical models on which the study is built before reviewing the empirical studies relevant to the subject. The chapter then proceeds to the summary.

2.2 Theoretical Review

Several theories of taxation exist in public economics. Most Governments collect revenues from various sources to provide public services or to finance transfer payments. Taxation is the most common source of revenues in developing economies.

2.2.1 Ability-to-Pay Theory

This theory came from the sixteenth century. It was logically concluded by the Swiss philosopher Rousseau 1712-1778, the political economist from France called Jean-Baptiste Say 1767-1832 and the English economist John Stuart Mill 1806-1873. The theory holds that the tax should be charged according to an Individual's income to pay and is the source of progressive tax as the tax rate increases by the increase of the taxable income (Jones, 2011). This theory is the mainly equitable tax system since people with higher income can afford to pay more taxes and they should be taxed at a higher rate than those with less income tax and has been widely used in industrialized economics. On the

other hand, there is no solid approach for the measurement of the equity of sacrifice in this theory, as it can be measured in absolute, marginal terms or proportional. The implication of the ability to pay theory is that, it matches the taxes and tax systems therefore; this will help the increase of Government revenues. It also has the economic effects and these effects entail social consequences. The choice of taxes to be laid and rates at which they are to be applied express a preference for one set of economic effects and hence of social consequences, to another.

2.2.2 The Benefit Theory

The Benefit theory mentions that the corporate or individuals should be taxed in proportion to the benefits they earn from the Governments in public services and that taxes should be paid by those who receive the direct benefit of the Government programs and projects out of the taxes paid. It was designed in the seventeenth century by English philosophers Hobbes (1588-1679) and Locke (1632-1704), and Dutch jurist Grotius (1583-1645). This theory has been subjected to severe criticism on the following grounds: If the state maintains a certain connection between the benefits conferred and the benefits derived, it will be against the basic principle of the tax. A tax, as we know, is compulsory contribution made to the public authorities to meet the expenditures of the Government and the provisions of general benefit. There is no direct substitution in the case of a tax. Secondly, the majority of the expenditure earned by the state is for the general benefit of its citizens, therefore, it is not possible to estimate the benefit enjoyed by a particular individual every year (Saleemi, 2005). The implication of benefit theory is

that there is a direct correlation between revenue and expenditure in budget. It also approximates market behavior in allocation procedures of the public sector.

2.2.3 The Expediency Theory of Taxation

This theory asserts that every tax suggestion must go by the test of practicability. It must be the only consideration when the authorities are choosing a tax proposal. Economic and social objectives of the state should be treated as irrelevant. This proposition has a truth in it, since it is useless to have a tax which cannot be levied and collected efficiently. There are pressures from economic, social and political groups. Every group tries to promote and protect its own interests and authorities are often forced to reshape tax administration structure to accommodate these pressures. In addition, the administrative set up may not be efficient to collect the tax at a reasonable cost of collection. Taxation provides a powerful set of policy tools to the authorities and should be effectively used for remedying economic and social ills of the society such as income inequalities, regional disparities, unemployment, and cyclical fluctuations and so on. Theory on Taxation (TOT) should result from a balance of the forces (Bhartia, 2009). This theory will be used to analyze the economic and social objectives of the state and also the effects of a tax system in Rwanda.

2.2.4 The Cost of Service Theory of Taxation

The cost of service theory is based on the opinion that if the state charges the actual cost of a service from the people, it will satisfy the idea of justice or equity in taxation. The cost of service principle can no doubt be applied to some extent in those cases where the

services are rendered out of prices and are a bit easy to determine. However, most of the expenditure incurred by the state cannot be fixed for each individual because it cannot be exactly determined. For example, it is not easy to measure the cost of service of the police, armed forces, judiciary, etc., to different individuals. This theory implies that TOT should be charged basing on the cost of the services to be rendered to the payers. This may be difficult to achieve (Kaplow, 2010). In many countries including Rwanda the cost of some services rendered is not easy to determine, thus most of the expenditures incurred by the state can't be exactly determined. For example how can state measure the cost of service of police, armed forces and judiciary to individuals? Therefore, the implication of this theory is that there is peace, security and order in the country.

2.3 Determinants of Government Revenues in Rwanda

The amount of Government revenues mobilized depends on the macroeconomic variable of the countries, the taxation targets set by the authorities, and the ability of Governments to collect revenues. However, the success of exploiting the revenue potential and attaining the taxation targets depends on a number of other factors.

These include the macroeconomic environment, economic structure and the level of development as well as the administrative capacity and the willingness to pay taxes of taxpayers (Teera and Hudson, 2004). In this study the researcher has focused on macroeconomic variables, such as, inflation, GDP growth rates, exchange rates and interest rates in the country as the effect of macroeconomic variables on Government revenues in Rwanda.

2.3.1 Inflation

Inflation refers to the general increase in the price of commodities over a given duration. Inflation tends to push up the price of commodities without a corresponding increase in their real value. The inflation rate in Rwanda was recorded at -3.10 percent in January of 2015 and averaged 6.24 percent from 1997 until 2015.Rwanda's consumer price index (CPI), the main gauge of inflation, increased by 2.1 per cent year –on- year during the month of December 2014 compared to 3.6 per cent the previous year, a report indicated. Tumwebaze (2015), reported that, on monthly basis, inflation decreased by 0.3 per cent, the report released in Kigali by the National Institute of Statistics Rwanda (NISR). According to the report, the annual average rate between December 2013/14 is 1.8 per cent. The increase was mainly due to the rising prices of food and non-alcoholic beverages, which increased by 0.7 per cent according to the report. According to Sébastien Manzi, NISR'S Director of Economic Statistics Department, CPI for housing, water, electricity, gas and other fuels increased by 3.7 per cent respectively. "While consumer index for education increased by 7.4 per cent during the period under review, the biggest negative contribution came from 'transport which increased by 0.3 percentage points.

2.3.2 Gross Domestic Product

GDP is the monetary value of all the finished goods and services produced within a country's borders in a specific time period, though GDP is usually calculated on an annual basis. It includes all of private and public consumption, government outlays, investments and exports less imports that occur within a defined territory. The gross

domestic product (GDP) is one of the primary indicators of a country's economic performance. It is calculated by either adding up everyone's income during the period or by adding the value of all final goods and services produced in the country during the year. Twesige and Mbabazi (2013) noted that Rwanda's economy has continued to improve as measured by the GDP and it increases from 7.5%in 2010 to 8.8%in 2011 and agriculture is the one contributing 8.2% of GDP.

2.3.3 Exchange Rates

Exchange rate is the amount of local or home currency required to purchase one unit of a foreign currency. According to Schiller (2008), the exchange rate is determined by the demand and supply of the foreign currency, trade balance, current account balance and capital account balance. GDP per capita is often considered an indicator of a country's growth. Changes in the exchange rate translate directly into changes in domestic collections from imports and exports. For a given level of imports or exports, a more depreciated real exchange rate would increase the base of trade taxes in domestic currency terms, which would in turn increase trade tax collections. To the extent that a real depreciation leads to a lower level of imports, this would offset to some extent the higher collections induced by higher domestic currency values. If aggregate elasticities of import demand were inelastic in the short run, then the valuation effect would likely dominate, leading to an overall increase in revenues from imports. A real depreciation would also tend to increase exports, which would lead to an increase in revenues as both the valuation and volume effect would support each other. In general, however, the tax effects on imports would dominate those on exports, since export taxes are insignificant

in most countries today. In the short term, imports are also likely to adjust more quickly than exports to a change in the value of the currency, reinforcing the importance of changes in import collections initially.

Although on an aggregate basis, aggregate import demand is likely to be relatively inelastic in most developing countries, import taxes apply to a wide range of goods, some of which are elastic in demand, especially consumer or finished goods. These goods also tend to face the highest tax rates. Real depreciation of the exchange rate is likely to lead to a shift in composition toward more price inelastic and less heavily taxed goods, including domestic substitutes, adding to the factors that contribute to lower revenues (Agbeyegbe 2004).

2.3.4 Interest Rate

Interest rates are the cost of borrowing money. Interest rates are normally expressed as a percentage to the total borrowed. The rate of interest is the amount of interest per unit of time, typically one year. There is no one rate of interest but, rather, a myriad of rates. Interest rates vary to reflect the ability and willingness of borrowers to meet their obligations and the ease with which a borrower's promissory note or bond, mortgage, debenture or other evidence of indebtedness can be turned into money. The level of interest rates reflect the quality of the money in which a debt is denominated, the rate at which the lender and borrower are taxed and the confidence in which investors hold the relevant fiscal and monetary authorities. The total borrowed interest rates also show the return on asset like Government bond within an economy. Duetsch Bundesbank (2001)

noted that interest rate is the returns a lender expects by positing and parting with his/her liquidity. The interest rate is a double-edged sword in that if it is high, holders of surplus funds will part with some since they expect higher returns in future. On the other hand, higher interest rates discourage borrowing. In a state of equilibrium, interest rate equates demand, investment and supply, saving in the capital market.

2.4 Empirical Review

Various researchers have examined the effect of macroeconomic variables on Government revenues in various countries.

2.4.1 International Evidence

Using a panel of 27 countries from Asia, Africa and the Western Hemisphere, covering the period 1980 to 1992 and a panel of 105 countries, spanning 1980 to 1995, Ebrill (1999) examined two complementary models of the determinants of import and international trade tax revenue. Using a fixed-effects and an instrumental regression framework he conclude that tariff reforms do not necessarily lead to lower trade tax revenue. He found that, in both models, depreciation of the exchange rate is significantly linked to higher trade tax revenues.

Adam, Bevan, and Chambas (2001) examine the relationship between tax revenue,

Exchange rates, and trade openness in Sub-Saharan Africa, using a difference General Method of Moments dynamic panel estimation. Their model adds to their study in positing both a more general econometric specification (though the time series is too

short to fully capture the time-related dynamics) and two variables for the exchange rate, one that reflects the equilibrium exchange rate and the other reflecting the degree of misalignment of the exchange rate. They conclude that openness raises overall tax revenue in CFA franc countries while it has little effect in non-CFA franc countries, though the disaggregated revenue outcome suggest that it increases trade tax revenue and lowers goods and services tax revenue. They also find that depreciation and elimination of real exchange rate disequilibrium lowers tax yield in CFA countries while it has the opposite effect in non-CFA countries. Their results vary by component of tax revenue. For income taxes, the exchange rate has no effect in non CFA countries while depreciation has a strongly positive effect in CFA countries, though it weakens over time. Movement toward equilibrium in the exchange rate has a negative effect on income taxes. For trade taxes, depreciation of the exchange rate is linked to higher revenue, though the precise effect differs across CFA and non-CFA countries. For goods and services taxes, real exchange rate depreciation and movement of misalignment in a more depreciated direction tend to increase goods and services taxes in non-CFA countries but to decrease the tax yield in CFA countries. Overall, they conclude that the poor revenue performance in the CFA countries in that period reflected mainly differences in environmental and structural factors and to different responses to changes in the equilibrium real exchange rate, but that misalignment of the exchange rate also played a role.

In a study on the Fiji economy done by, Narayan (2003) indicated that a 25 percent increase in VAT rate in Fiji led to about 4 percent increase in government revenue, assuming that 100 percent of revenue is collection rate, and about 0.6 percent increase in

real GDP; however, it led to decline in real consumption, investment, and national welfare.

Teera (2003) attempted an assessment of Uganda's tax performance relative to 18 other Sub-Saharan countries (SSC) with aim of evaluating the feasibility of raising tax revenues in Uganda. The study used pooled data to construct an index of tax effort for this country, and also applied the model to individual tax shares to pin point the source of high and low effort. The result showed that Uganda's tax effort index for total taxes on income were less than unity, while the indices for international trade taxes and taxes on goods and services exceeded unity.

Ahsan and Wu (2005) looked at the tax share in Growth Domestic Product (GDP) for developed and developing countries for 1979-2002 and established the negative and significant relation of agriculture share, GDP per capita, and population growth to the tax ratio while trade share in GDP has positive and significant relation but corruption has negative and insignificant relation.

Lutfunnahar (2007) recognized the determinants of revenue performance for Bangladesh along with other 10 developing countries for the 15 years through a panel data analysis. The results obtained suggest broad money, international trade, external debt and population growth to be significantly determinants of tax efforts. The study concluded that Bangladesh and other countries have low tax effort and are not utilizing their full

capacity of tax revenue and therefore, have the potential for financing budgetary imbalance through raising tax revenue.

Mahdavi (2008) used the advanced techniques with an unbalanced panel data for 43 developing countries over the period 1973-2002 Pakistan included. His results demonstrated that aid had a negative effect, non-tax revenue had also negative effect while agriculture sector share had positive but insignificant coefficient. Trade sector share had a positive effect and economically active female variable had a net adverse but insignificant effect while the old-age portion of population showed negative association for both income and sales tax. Extent of urbanization and literacy rate both showed positive effect. Population density, monetization and inflation rate remained negatively correlated. Inverse of GDP per capita was strongly and negatively correlated with the level of taxation.

Mwakalobo (2009) studied economic reforms using panel data methodology in East African countries by reviewing the impact on Government revenue and public investment. Mwakalobo established that inadequate and unpredictable revenue generation had adversely affected public investment spending in some East African countries particularly Tanzania, where the declining trends in Government and tax revenue had been accompanied with the declining public investment in almost all spending categories. Where Government revenue declined and revenue generation was inadequate, public investment spending in physical infrastructure declined. This again was particularly visible in Tanzania. Where Government revenue increased and tax revenue performance

had been more impressive, public investment spending rose, as in Uganda. Spending on defense has been reduced; however, it has remained relatively higher in Uganda than in Tanzania and Kenya. The priority sectors that have been receiving higher shares of Government expenditures are general public services, human capital development, and physical infrastructure in Tanzania, Kenya and Uganda, respectively. Spending in human capital development has been relatively low in Tanzania compared to that in Kenya and Uganda. This creates some concerns on commitments of the Tanzanian government to achieving the Millennium Development Goals (MDG) objectives, reducing poverty and overall economic development.

Chaudhry and Munir (2010) studied the determinants of law tax revenue in Pakistan, stated that tax revenue collection is one significant issue of economic development among others. Pakistan's economic performance since its emergence in 1947 has remained volatile across the sectors and provinces, and even its structure has changed over the time. The results obtained propose that openness, broad money, external debt, foreign aid and political stability to be the significant determinants of tax efforts, with expected signs of the estimated coefficients. Agriculture share, manufacturing share and service sector share turn out to be insignificant and the sign of the coefficient of agriculture share deviates from expectations and same as the sign of GDP per capita and urbanization. In addition to the traditional explanatory variables used in previous studies, this study addresses the possible impact of monetization on the revenue performance and finds broad money to be significant determinant of tax share in Pakistan. It was indicated that determinants of low tax revenue in Pakistan are narrow tax base, more dependence

on agriculture sector, devaluation, foreign aid, informal economy and low level of literacy rate. It is very difficult task for Pakistan to design and implement suitable tax system since Pakistan has large traditional agriculture sector and other 'hard to-tax' sectors such as small business and shadow economy. The results suggest that boosting the openness, money supply and political stability, there is a potential to raise the level of taxation.

Research on empirical evaluation of contribution of Value Added Tax in Nigeria, found that VAT rates have been determined in way that minimizes disincentive effects on economic activities. The researchers explained that the effects of low tax effort in Nigeria have been strengthened by the value of added tax system (Owolabi and Okwu 2011). This in turn, has addressed part of worries of Kalder (1963) who questioned "will underdeveloped countries learn to tax?" Bird, Vazque and Torgler (2007) noted that the underlying assumptions of Kaldor's question are that nation wishing to develop needs to collect taxes between 10-15percentage. To meet the global aspiration of attaining the MDG come in 2015, these countries must spend more on economic and social infrastructure and this can only be achieved through improvement in tax efforts to realize the required level of public expenditure (Golit, 2008). Using panel data on 43 Sub-Saharan African Countries used by (Owalabis, Okwa, 2011) for the period 1990-1995 to measure the effects of the tax-GDP ratio to construct an index of tax effort for these countries.

2.4.2 Local Evidence

Foreign Investment Advisory Service (FIAS) in 2006 examined the Effective Tax Burden in Rwanda and their study concentrated on taxation of the corporate sector, which include primarily of; corporate income tax and Value Added Tax. In that study they found that from a macroeconomic perspective, tax policy in Rwanda has been increasingly effective at raising revenues, as measured by tax/GDP ratios. The tax/GDP was around 14 percent of GDP, up from 9.2 percent in 1996. Total central Government revenues in 2004 amounted to 147.1 billion RWF (approximately US$277M) 91 percent of which was collected through taxation. Rwanda's reliance on import taxes has steadily fallen, and now VAT contributes the largest share of total revenue (33.3 percent). Corporate and income taxes contribute similar amounts (13.7 percent and 14.4 percent respectively).

A study done by African Development Bank Group (ADBG) in 2010, indicated that Rwanda tax system has undergone several reforms since 2001. Nevertheless, the reforms have been systematic and sequenced, through this reform Rwanda has made major strides in efficiency improvements and modernization of tax administration system. Therefore, Rwanda has managed to widen the tax base by establishing the Small and Medium Taxpayers Office (SMTO) and embarking on implementation of the block management system (BMS).

Musoni (2013) examined the threshold effects in the relationship between inflation and economic growth. His study revealed a significant difference between the inflation target used for policy purpose in Rwanda and the estimated inflation threshold. He also noted

that since the monitory authorities have been targeting an inflation level of around 5 percent in the implementation of economic stabilization and structure adjustment programs, but the monitory and fiscal policies applied in the programs were tighter than necessary and that there was a room for higher economic growth with higher inflation rate without pushing the economy in inflationary spiral. It follows that, while the primary objective of monetary policy implemented by the National Bank of Rwanda is the achievement and maintenance of price stability, the monetary authorities should also be mindful of the trade-off between inflation, growth and employment in a developing country such as Rwanda in which the production capacity is not fully utilized and where supply shocks are predominant. Again, on the basis of empirical evidence, his study suggests that the upper limit of inflation target for policy purposes in Rwanda should be 14.97 % rather than 5%; this implies that an easier monetary policy should be pursued when inflation is lower than the threshold level, while a tighter stance should be adopted if inflation approaches that level.

2.5 Summary of Literature Review

From the review of literature on the effect of macroeconomic variables on government revenues, that the amount of Government revenue mobilized depends on potential taxation of the countries, inflation, GDP and grant effects. This chapter also presented empirical studies of different scholars. Lutfunnahar (2007) recognized the determinants of revenue performance for Bangladesh along with other 10 developing countries for the 15 years through a panel data analysis. Chaudhry and Munir (2010) studied the

determinants of law tax revenue in Pakistan, stated that tax revenue collection is one significant issue of economic development among others.

Mwakalobo (2009) studied economic reforms in East African countries by reviewing the impact on government revenue and public investment. In a study done by African Development Bank Group (2010) in Rwanda, the researchers indicated that Rwanda tax system has undergone several reforms since 2001. Some conclusions can be derived in that, VAT was adopted in many countries to replace other consumption taxes (Bird, 1999) because, VAT is generally more broad-based, and it raises reliable revenue, it replaced inefficient distortionary and badly administered taxes and efficiency (Tait 1991). Shome (1998) tax contribution may be generally used to evaluate its performance to the Government total revenue. The purpose of this study is to bridge the gap in empirical study. Therefore, the study will examine the effect of macroeconomic variables on Government revenues, for the periods of 2001-2014.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter has used different methods in conducting this study. They include the research design, the model that was used in analysis of data. In this section, the research was discussed using the data collection, data analysis and presentation techniques.

3.2 Research Design

Burns and Grove (2003) define a research design as "a plan for conducting a study with maximum control over factors that may interfere with the validity of the findings". Parahoo (1997) describes a research design as "a plan that describes how, when and where data are to be collected and analyzed". Polit (2001) define a research design as "the researcher's overall for answering the research question or testing the research hypothesis".

For this study; the researcher adopted a descriptive research design. A descriptive study is one in which information is collected without changing the environment i.e nothing is manipulated. The choice of the descriptive research design was based on the fact that the researcher was interested in carrying out an in-depth study on the effect of selected macroeconomic variables on Government revenues in Rwanda. The researcher used quantitative approaches in this study. Qualitative approaches has been used in order to gain a better understanding and enables a better and more insightful interpretation of the results from the quantitative study, (Burns and Grove 2003).

3.3 Data Collection

Data refers to all the information a researcher has gathered for her study. This data was designed to collect information on the effect of the selected macro-economic variables on Government revenues in Rwanda. This study has used secondary data which was obtained from, RRA, Ministry of finance and economic planning and National Bank of Rwanda and National Institute of Statistics Rwanda. The data analyzed included: Inflation rates as calculated by the quarter percentage change in the CPI, GDP measured as the real GDP value generated within the quarter of the year and grants which was measured by the total foreign aid received and this covered the fiscal years 2006 to 2014 to provide relevant information to measure the effect of macroeconomic variables on Government revenues in Rwanda.

3.4 Data Analysis

Data Analysis is the process of systematically applying statistical and or logical techniques to describe, illustrate, condense and evaluate data. Data analysis is developed to deal with manipulation of the information that has been gathered so as to present the evidence. In this study quantitative data was analyzed by using tools such as Statistical Package for Social Sciences (SPSS). Qualitative data was analyzed descriptively. The researcher also used tables and bar graphs for easy understanding and analysis of the data.

3.4.1 Analytical Model

The researcher used SPSS 20 to analysis and establish the effect of selected macroeconomic variables on Government revenues in Rwanda. The Dependent variable was Government revenues while the independent variables are macroeconomic variables. The analytical model that used in analyzing the relationship between the dependent and independent variables is:

$Y= \alpha + ß_1X_{1+} ß_2X_2 + ß_3X_3 + ß_4X_{4 +} \varepsilon$

Where;

α= Constant Term

Y= Government revenues measured by total revenue collected per quarter

$ß_1, ß_2, ß_3, ß_4,$ are regression coefficients or change induced in Y by each X variable

$X_{1=}$ Gross domestic products measured as the real GDP value generated within the quarter.

X_2= Inflation rates calculated by the annual percentage change in the CPI per quarter

X_3= Exchange rates measured by the rate of the foreign currency.

X_4= Interest rates measured by how the central bank controls the interest rates in commercial banks.

ε = Error Term

3.4.2 Test of Significance

The regression Analysis was tested using coefficient of determination R^2, T statistical and ß value test. To test the significance of the analytical model, the researcher used the

Analysis of Variance (ANOVA). According to Larson (2008), Analysis of variance (ANOVA) is a statistical technique to analyze variation in a response variable measured under conditions defined by discrete factors (classification variables, often with nominal levels). Frequently, ANOVA is used to test equality among several means by comparing variance among groups relative to variance within groups (random error).

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis, findings, interpretations and presentation of the study based on the research main objective which was to establish the effect of the selected macroeconomic variables on Government revenues in Rwanda. The analysis was based on data collected for the period of 2006 to 2014 on quarterly basis. The results were presented in the form of summary tables and bar graphs. The data for this study was obtained from Central Bank of Rwanda, National institute of Statistics Rwanda, RRA and Ministry of finance and economic planning. The data was analyzed using descriptive analysis, correlation analysis and multiple linear regressions to answer the research objective.

4.2 Descriptive Statistics

This is the presentation of data in forms of tables, graphs and charts as it helps in the process of data analysis. In this study the researcher collected data for nine years that was from 2006 to 2014 and data was presented in form graphs and tables followed with correlation and regression analysis.

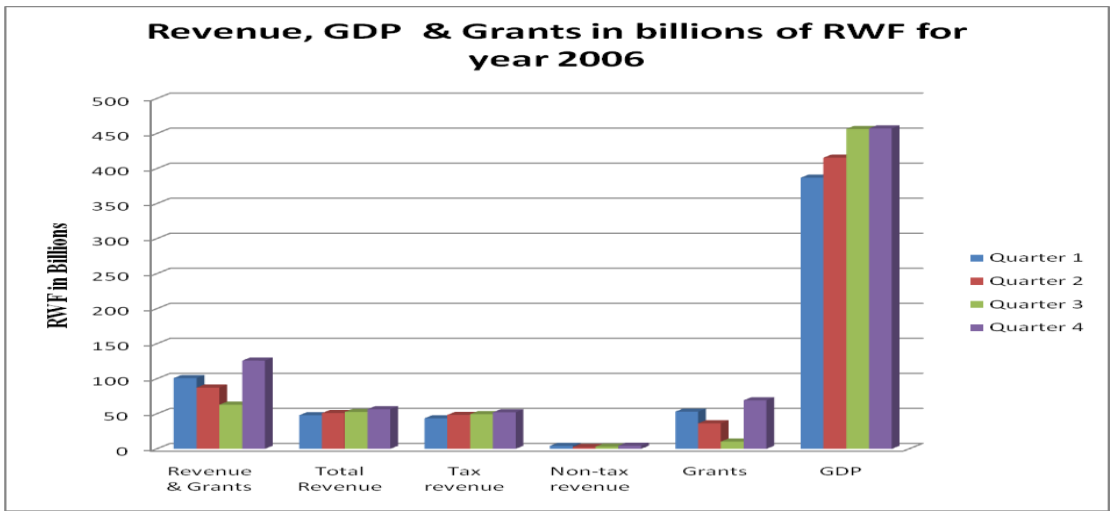
Table 4.1: Descriptive Statistics

	Mean	Std. Deviation	N
TGR	214.117222	97.7555339	36
GDP	665.600972	269.3951289	36
INFLATION	7.294444	4.2959080	36
INTEREST	16.637778	.5514299	36
EXCHANGE	593.391111	45.7942150	36

Source: Research Findings

Table 4.1 indicates that the mean of total revenue and grants deviates at 116.36 from the total revenue and grants, while GDP mean deviates from total gross domestic product at 396.2. Then exchange rate mean indicates that it deviates at 547.6 from the exchange rate.

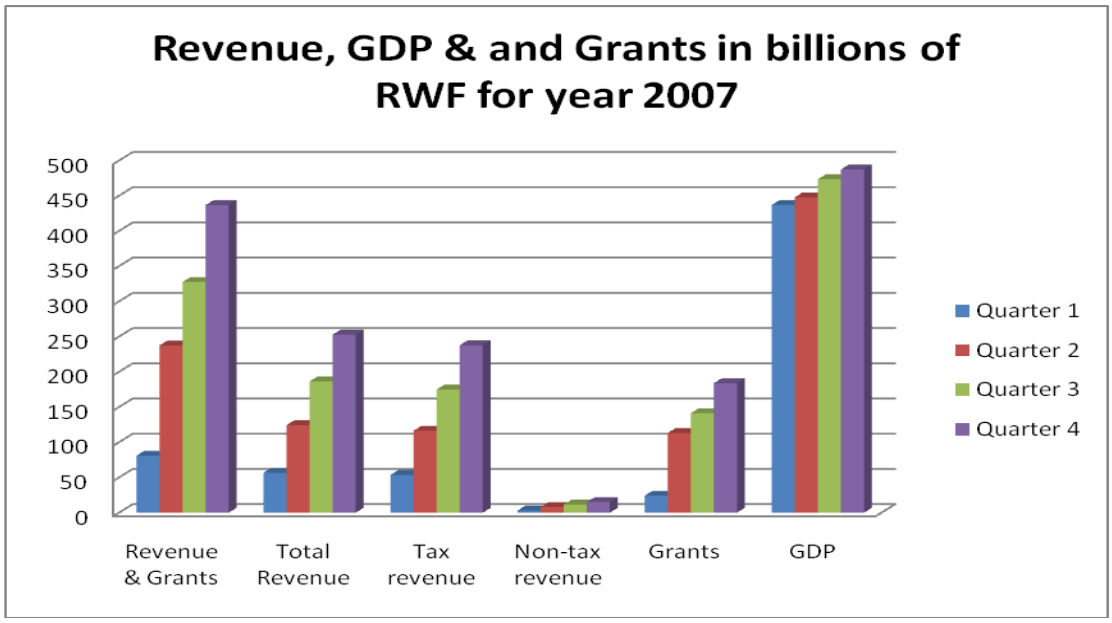
Figure 4.1: Trend of Revenues, GDP and Grants for 2006



Source: Research Findings

From the above figure 4.1 shows the trend of the Government revenues, Grants and the GDP for the four quarters of 2006. X axis represents the periods while the Y axis represents the revenue in billions in Rwandan francs. In all quarters of 2006, the total amount of GDP was higher than all the revenues. The non-tax revenue contributed less percentage compared to other components of Government revenues.

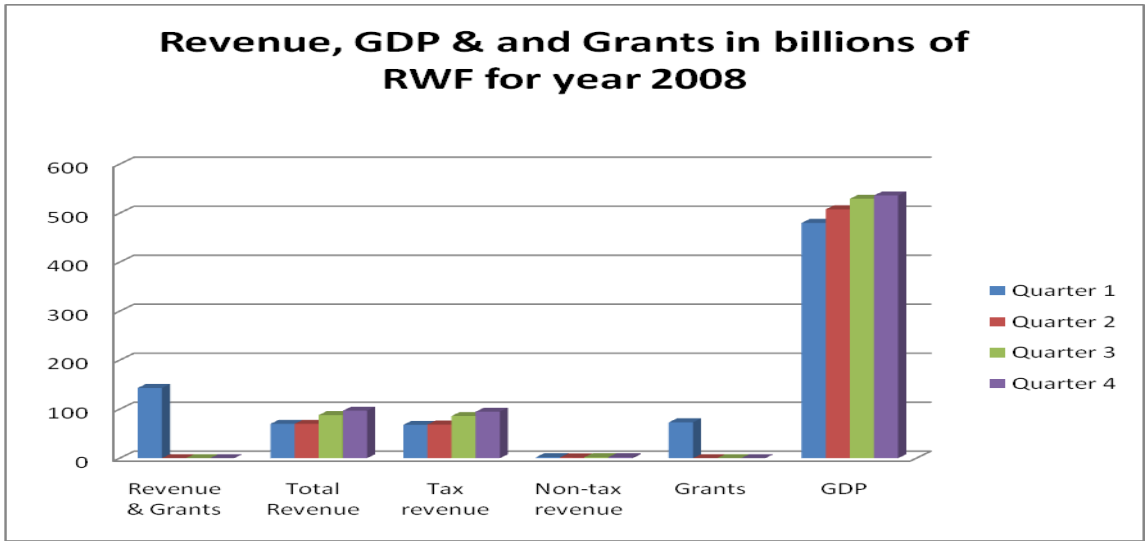
Figure 4.2: Trend of Revenues, GDP and Grants for 2007



Source: Research Findings

Figure 4.2 shows that in the first quarter of 2007, the GDP was still higher followed by the revenue and grants. At the same time the trend shows that, the reimbursement of grants in the first quarter was the least contribution to the Government revenues compared to other quarters of the same year.

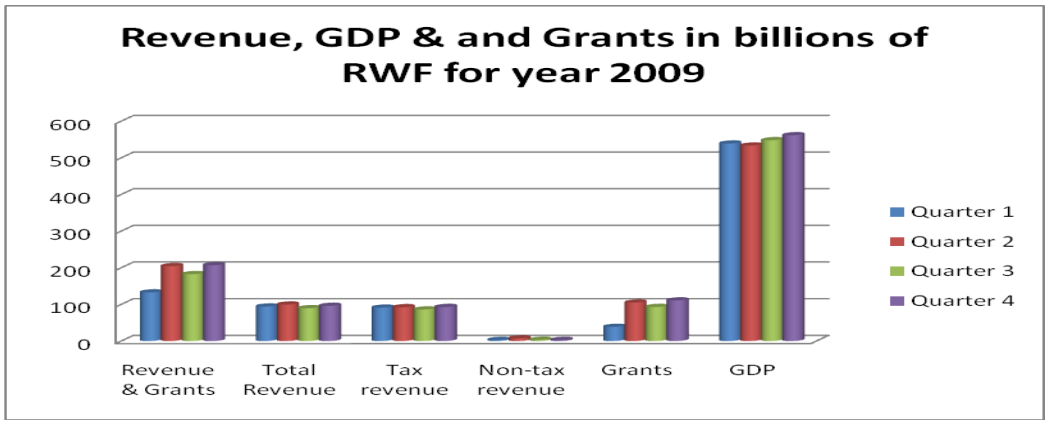
Figure 4.3: Trend of Revenues, GDP and Grants for 2008



Source: Research Findings

In figure 4.3 above shows that the total revenue in the first and the second quarters was almost equal amount. In addition, tax revenue in the first and second quarter almost contributed the same percentage to the Government revenues. The trend for the increment of non-tax revenues in all quarters of 2008 was small.

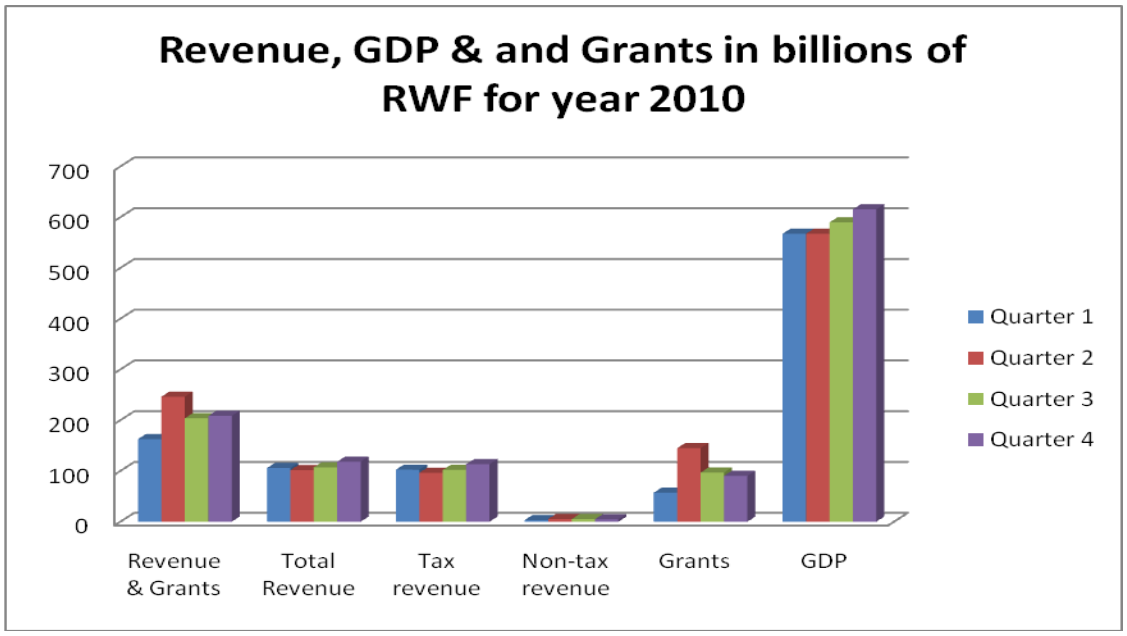
Figure 4.4: Trend of Revenues, GDP and Grants for 2009



Source: Research Findings

The figure 4.4 above indicates that the trend of the GDP was higher than any other variables on X axis, where by GDP is more than double compared to the total revenue and grants.

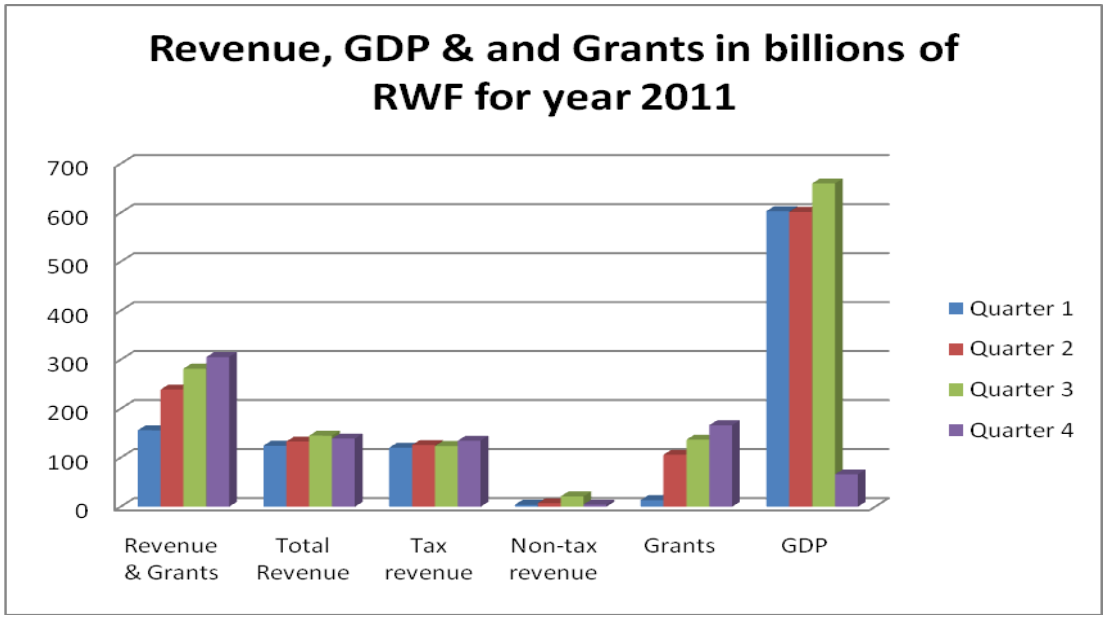
Figure 4.5: Trend of Revenues, GDP and Grants for 2010



Source: Research Findings

Figure 4.5 above shows, the total revenue performance for the second quarter is higher followed by the fourth quarter, third quarter and then the first quarter. However, GDP in the fourth quarter is the highest than all the quarters of 2010.

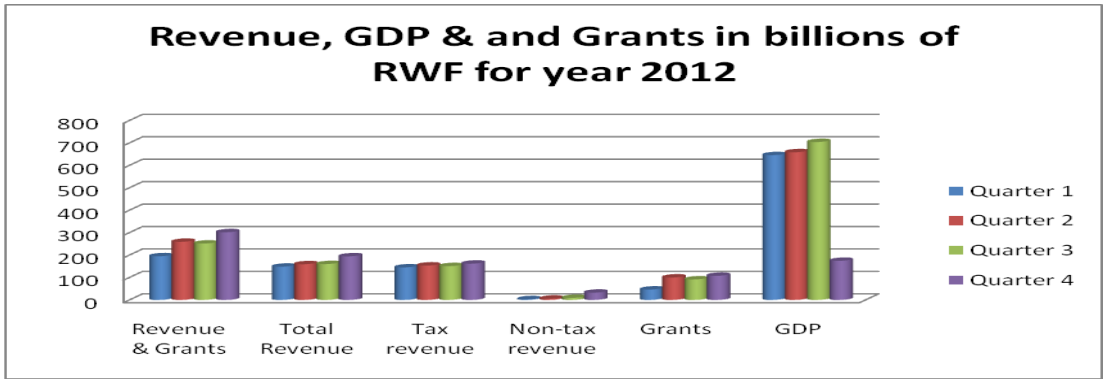
Figure 4.6: Trend of Revenues, GDP and Grants for 2011



Source: Research Findings

Figure 4.6 for 2011 shows that the least contributor to Government revenues is non-tax revenue in both quarters followed by tax revenue and then grants though, in the first quarter grants was less than fifty billion.

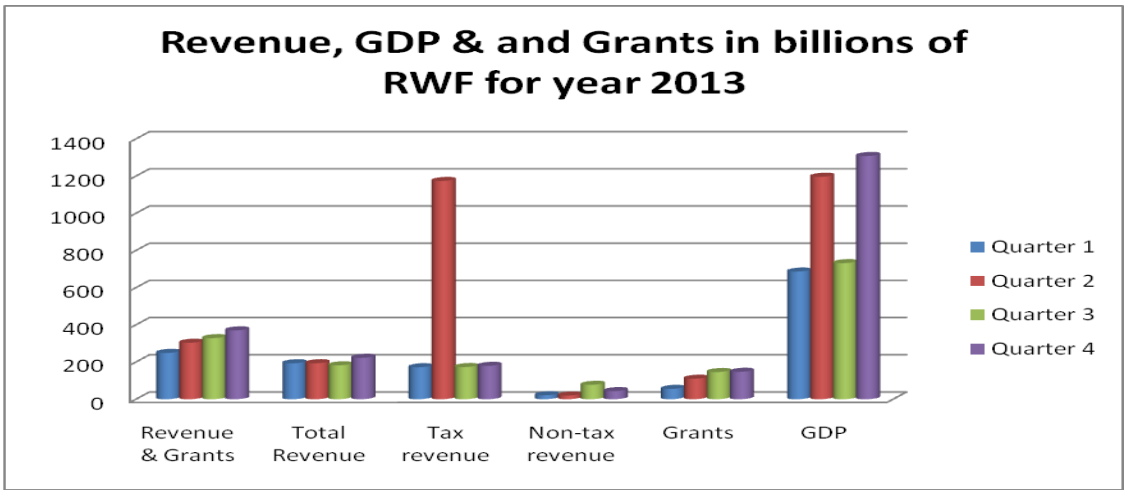
Figure 4.7: Trend of Revenues, GDP and Grants for 2012



Source: Research Findings.

From above figure 4.7 of 2012, the trend of tax revenue and grants is fluctuating. GDP in the third quarter was much higher than GDP in the fourth quarter of the same year.

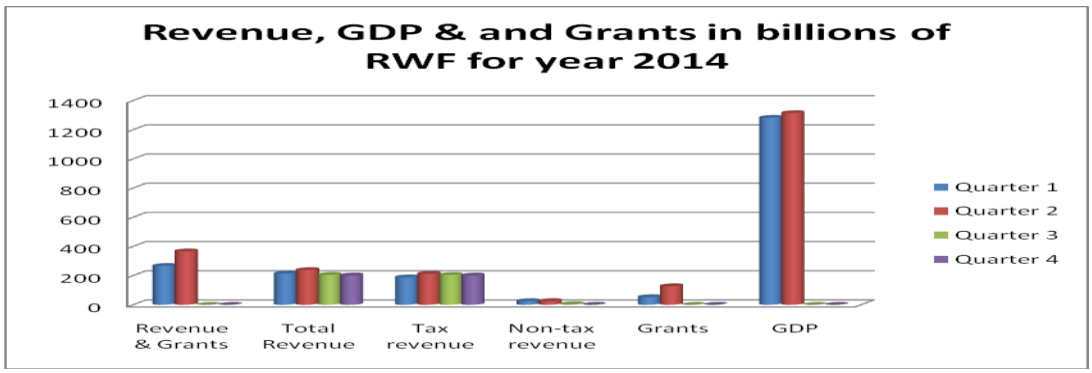
Figure 4.8: Trend of Revenues, GDP and Grants for 2013



Source: Research Findings

From the above figure 4.8 indicates that the tax revenue in the second quarter contributed the highest percentage compared to other components of the total Government revenues. The trend of GDP shows that it fluctuating that from the first quarter to the fourth quarter.

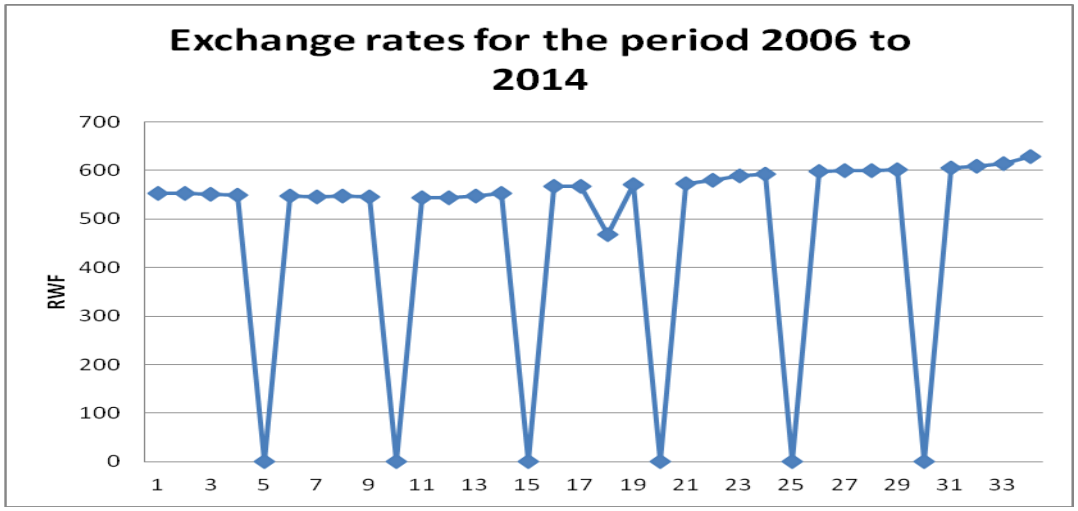
Figure 4.9: Trend of Revenues, GDP and Grants for 2014



Source: Research Findings.

Figure 4.9 indicate that, Gross domestic product continues to increase in all quarters; therefore it means that the economy of the country is growing. However, non-tax revenue continues to decrease. However the trend of total revenue and tax revenue is almost the same in all quarters of 2014.

Figure 4.10: Trend of Exchange rate of a dollar to a Rwandan Francs



Source: Research Findings

Figure 4.10 indicates the trend of exchange rate on a dollar to Rwandan franc from 2006 to 2014. In this research exchange rate is one of the independent variables and it shows that since 2006 to 2014 the trend continues to increase whereby it keeps on increasing every year.

4.3 Inferential Statistics

In examining the effect of the selected macroeconomic variables on Government revenues in Rwanda through ANOVA using the significance of F- statistics at 5%

significance level and a coefficient of determination (R^2), is shown by the following tables, the variables in the model used were measured.

4.3.1 Correlation Analysis

Correlation analysis is to determine the degree of relationship between the variables. Correlation is a statistical device which helps in the analysis of co-variation of two or more variables. In this study, the independent variables are GDP, inflation, interest and exchange, while dependent variable is the Government revenues.

4.3.2 Regression Analysis

Table 4.2: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-710.615	644.067		-1.103	.278
	GDP	.008	.153	.021	.049	.961
	INFLATION	-.424	4.972	-.019	-.085	.933
	INTEREST	41.568	46.697	.234	.890	.380
	EXCHANGE	.390	1.178	.183	.331	.743

a. Dependent Variable: TGR

Source: Research Findings

The regression output is laid on table 4.2 Standardized coefficients (Beta) were used to determine the relative importance of the significant predictors of Government revenues. The larger the absolute standardized coefficient, the larger the contribution of that predictor to Government revenues as indicated by the T-statistics. The interest rate has a larger contribution (β=0.234) to the Government revenue, followed by exchange rate (β=0.189), and GDP (β=0.021) while the least contributor to the Government revenues is inflation with Beta value of (-0.019).

The results indicate that a unit change (1%) in inflation causes a decline of -0.019 (-1.9%) change in Government revenues. This indicates that inflation does not have an influence on Government revenues in Rwanda. A unit change in interest rate leads to an increase of 0.234 (23.4%) change in Government revenues. A unit change in exchange rate leads to a positive change of 0.189 (18.9%) change in Government revenues. This also indicates that GDP has an influence on Government revenues. A unit change (1%) in GDP leads to a significant increase of 0.021 (2.1%) change in Government revenues in Rwanda.

A t-test statistics has been used to generate a p-value or coefficient of significance. A smaller p-value indicates higher significant influence of the predictor to Government revenues. A scan of the p-values of all the four predictors shows that none of the p-values is less than 0.05. This means that GDP (p-value of 0.961>0.05), inflation (p-value of 0.933>0.05), interest rate (p-value of 0.380>0.05) and exchange rate (p-value of

0.743>0.05) are not significant in explaining the performance of Government revenues in Rwanda.

4.3.3 Analysis of Variance

Table 4.3: ANOVA model Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58949.436	4	14737.359	1.658	.185b
	Residual	275515.618	31	8887.601		
	Total	334465.054	35			

a. dependent variable: tgr, b. predictors: (constant), exchange, inflation, interest, gdp

Source: Research Findings

Table 4.3 shows that variations in the performance (Government revenue) can be explained by the model to the extent of 58949.436 out of 334465.054 or 17.6% while other variables not captured by this model can explain 82.4% (275515.618 out of 334465.054) of the variations in Government revenues.

F value of the model produces a p-value of 0.185 which is significantly different from zero. A p-value of 0.185 is greater than the set level of significance of 0.05 (0.185>0.05) for a normally distributed data. This means that the model is not significant in explaining the effect of macroeconomic variables on Government revenues in Rwanda. However, the model can be considered fit at 81.5.2% level of significant. This calls for further studies which can include other determinants of Government revenues in Rwanda. From

the Tables, it can be concluded that inflation, GDP, exchange rate and interest rate have no strong significant effect on Government revenues (p-values >0.05).

Table 4.4: Pearson Correlations

		TGR	GDP	INFLATION	INTEREST	EXCHANGE
Pearson Correlation	TGR	1.000	.351	-.238	.396	.393
	GDP	.351	1.000	-.512	.655	.915
	INFLATION	-.238	-.512	1.000	-.402	-.629
	INTEREST	.396	.655	-.402	1.000	.767
	EXCHANGE	.393	.915	-.629	.767	1.000
Sig. (1-tailed)	TGR	.	.018	.081	.008	.009
	GDP	.018	.	.001	.000	.000
	INFLATION	.081	.001	.	.008	.000
	INTEREST	.008	.000	.008	.	.000
	EXCHANGE	.009	.000	.000	.000	.
N	TGR	36	36	36	36	36
	GDP	36	36	36	36	36
	INFLATION	36	36	36	36	36
	INTEREST	36	36	36	36	36
	EXCHANGE	36	36	36	36	36

Source: Research Findings

Table 4.4 illustrates the Pearson correlation coefficients between the variables. There is negative relationship between the total Government revenue (-0.238) and the inflation rates. However, the Government revenues have a positive relationship with GDP (0.351), interest rates (0.396) and exchange rates (0.393), which means that the increase in one independent variable is associated with an increase in the dependent variable.

4.3.4 Model Summary

Table 4.5: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	df1
.420a	.176	.070	94.2740716	.176	1.658	4

Source: Research Findings

Model Summary

Model	Change Statistics		Durbin-Watson
	df2	Sig. F Change	
1	31a	.185	1.132

a. Predictors: (Constant), exchange, inflation, interest, gdp

b. dependent variable: tgr

Source: Research Findings

Regression analysis revealed a positive relationship (R = 0.420). The R coefficient of 0.420 indicates that the predictors of the model which are, exchange, inflation, interest and GDP have a correlation of 42% with the dependent variable (Government revenues) The study also revealed that a combination of exchange rate, inflation rate, interest rate and GDP together contributed to 17.6% (R^2= 0.176) of the Government revenues. The F value (1.658) changes are not very significant which implies that the model is not fit or robust at 95% level of confident since the P-value is greater than 0.05 (p-value= 0.185) .

4.4 Interpretation of the Findings

The Pearson correlation coefficients between the variables revealed Government revenues had a moderate positive correlation with the GDP. It also has revealed that Government revenues and interest rate, exchange rate have a positive relationship. However, dependent variable and inflation rate revealed a negative linear correlation.

The model summary revealed that the independent variables: GDP, inflation, interest and exchange have a correlation of 42.0% with the dependent variable which implies that they are not significant predictors of Government revenues in Rwanda. The model is not fit or robust at 95% level of confidence since the P-value >0.05.

A regression analysis was also used in this study. The results indicate that a unit change in inflation causes a decline of -0.019 (-1.9%). A unit change in interest rate leads to an increase of 0.234 (23.4%) change in Government revenues. A unit change in exchange rate leads to an increase .183 (18.3%) in Government revenues. Thus a unit change in

gross domestic leads to a less increase of .021 (2.1%) in Government revenues in Rwanda.

ANOVA showed that variations in the Government revenues could be explained by the model to the extent of 18.5% while other variables not captured by this model could be explained to the extent of 81.5% of the variations in Government revenues. In terms of significance of each of the predictors, a t-test statistics has been used to generate a p-value or coefficient of significance. Then the result has shown that GDP, Inflation, interest and exchange are not significant in explaining the determinants of Government revenues in Rwanda.

Mwakalobo established that inadequate and unpredictable revenue generation had adversely affected public investment spending in some East African countries particularly Tanzania, where the declining trends in Government and tax revenue had been accompanied with the declining public investment in almost all spending categories. Where Government revenue declined and revenue generation was inadequate, public investment spending in physical infrastructure declined. This again was particularly visible in Tanzania. Where Government revenue increased and tax revenue performance had been more impressive, public investment spending rose, as in Uganda. Spending on defense has been reduced; however, it has remained relatively higher in Uganda than in Tanzania and Kenya. The priority sectors that have been receiving higher shares of Government expenditures are general public services, human capital development, and

physical infrastructure in Tanzania, Kenya and Uganda, respectively. Spending in human capital development has been relatively low in Tanzania compared to that in Kenya and Uganda. This creates some concerns on commitments of the Tanzanian government to achieving the Millennium Development Goals (MDG) objectives, reducing poverty and overall economic development.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objective of the study. The objective of this study was to establish the effect of the selected macroeconomic variables on Government revenues in Rwanda.

5.2 Summary

The aim of this study was to establish the effect of the selected macroeconomic variables on Government revenues in Rwanda. In this study, the researcher adopted a descriptive research design which assisted to investigate the effect of the selected macroeconomic variables on Government revenues in Rwanda. The researcher used the secondary data gathered from national bank of Rwanda, National institute of statistics of Rwanda, RRA and Ministry of finance and economic planning of Rwanda by analyzing the quarterly reports from 2006 to 2014 and the data was analyzed using SPSS 20.

The Pearson correlation analysis revealed a weak positive linear correlation between the dependent variable and the independent variables: ($r < .40$). The GDP, inflation, interest and exchange are not significantly related to the Government revenues in Rwanda. Quarterly gross domestic product hard a weak positive relationship with Government revenues. Although this variable produced weak positive results, it has a significant impact on Government revenues in Rwanda.

A t-test statistics has been used to generate a p-value or coefficient of significance. It was concluded that GDP, inflation, interest and exchange are not significant in explaining the effect of macroeconomic variables in Rwanda. The study recommends further studies to be carried out to find the other determinants of Government revenues performance in Rwanda.

5.3 Conclusions

From the findings, the study concludes that the model is not significant in explaining the effect of the selected macroeconomic variables on Government revenues in Rwanda. GDP, inflation, interest rate and exchange are not significant predictors of Government revenues because the relationship is weak.

The GDP does not explain the determinants of the Government revenues since the p-value is 0.961 (p-value>0.05). This implies that whether the GDP is big or small; it does not affect the Government revenues in Rwanda. The inflation rate is not a significant predictor of dependent variable in this study with a p-value of 0.933 (p-value>0.05).

The interest rate also does not significantly explain the Government revenues with p-value of 0.380>0.05. The exchange rate is not a significant predictor as shown by the analysis (p-value of 0.743>0.0 5 to the Government revenues in Rwanda.

5.4 Recommendations for Policy and Practice

The study recommends that there is an urgent need for policy makers to create awareness on the role played by the Government revenues in the economy of Rwanda.

Since Government revenue is used in the day to day operations. Government should establish the strong mechanism of mobilizing more resources for the Government.

The study recommends that there is a need for the government to control the interest rates charged by the banking sector to encourage investments and also use it as monetary tool to regulate the inflation rate in economy. Also Government needs to control the depreciation of Francs as it was seen in this study that exchange for all currencies keep on increasing every year.

The study findings established that non tax revenue had continuously decreased since 2006 to 2014. Having found a positive contribution of non tax revenue this study recommends that policy makers should put in place policies that will lead to collection of more non tax revenue and hence contribute to reversing the trend. With a gradual increase in economic growth, the study recommends that policy makers need to enact legislations which will control the entire government revenue collection process in order to enhance economic growth of Rwanda economy.

5.5 Limitations of the Study

During this study, the researcher faced some challenges and limitations.

This study was based on a test of five independent variables namely inflation, interest rate, GDP, exchange rate and unemployment. However, during this study the unemployment rate was not test or analyzed because the data was not available. At the same time the researcher had intended to cover a period from 2001 to 2014, but the quarterly data from 2001 to 2005 cannot be accessed using secondary data. Therefore, the period covered was from 2006 to 2014.

This study relied on secondary data that proved to be a challenge in proving the accuracy of the data unlike in primary data where the researcher collects the data and therefore being guaranteed of its accuracy. Some institutions don't disclose full information in their reports especially data related to unemployment. This was very challenging to the researcher. In some institutions, it was difficult to get the data on time due to the fact that they have many work responsibilities. This has really delayed the whole work. The researcher had scheduled time and budget that enable the study to be completed using the budget drawn and within the required time of the study.

5.6 Areas for Further Research

This study is based on data for 9 years, so data from this and other published sources may be insufficient to make a solid conclusion. Hence, further studies should be undertaken to expand the period under study thus increasing the sample data and reliability of the conclusion.

Further study should be done on how the Government can be independent to avoid dependence on loans and grants since these grants come with some conditions and Government can't have strategic plans depending on donor funds.

Other study should be done to find other macroeconomic variables on Government revenues and use different model to test the relationship since the one used in this study showed weak relationship.

This study further recommends that future studies be conducted on other sources of revenue that the Government can tap to increase its revenue collection. The expenditure of the Government has increased following devolved government that created more offices.

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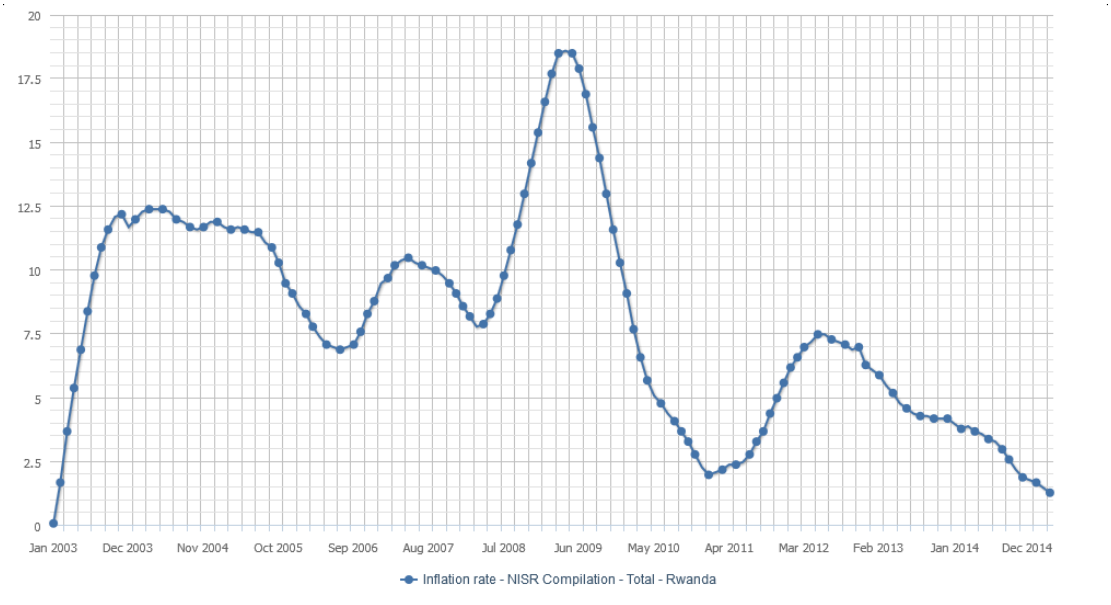
APPENDICES

APPENDIX I: Rwanda Inflation rates from 2006 to 2014

Months	2006	2007	2008	2009	2010	2011	2012	2013	2014
January	8.6	9.5	8.6	16.6	9.1	2.0	6.2	6.1	4.00
February	8.3	9.7	8.2	17.7	7.7	2.1	6.6	5.9	3.8
March	7.8	10.2	7.8	18.9	6.6	2.2	7.00	5.5	3.9
April	7.4	10.4	7.9	18.6	5.7	2.4	7.2	5.2	3.7
May	7.1	10.5	8.3	18.5	5.1	2.4	7.5	4.8	3.6
June	7.0	10.3	8.9	17.9	4.8	2.5	7.5	4.6	3.4
July	6.9	10.2	9.8	16.9	4.4	2.8	7.3	4.4	3.3
August	7.0	10.1	10.8	15.6	4.1	3.3	7.2	4.3	3.0
September	7.1	10.0	11.8	14.4	3.7	3.7	7.1	4.3	2.6
October	7.6	9.8	13.0	13.0	3.3	4.4	6.9	4.2	2.2
November	8.3	9.5	14.2	11.6	2.8	5.00	7.00	4.2	1.9
December	8.8	9.7	15.4	10.3	2.3	5.6	6.3	4.2	1.8

Source: NATIONAL INTITUTE OF STATISTICS RWANDA COMPLATION



Source: National Institute of statistics Rwanda

APPENDIX II: Rwanda Exchange rates USD/RWF from 2006 to 2014

USD/RWF

Date	Selling	Buying	Average
30/12/14	701.24849	687.499882	694.374186
28/11/14	698.226729	684.537365	691.382047
31/10/14	696.276375	682.625249	689.450812
30/09/14	693.7155	680.114582	686.915041
29/08/14	691.20056	677.64895	684.424755
31/07/14	690.749599	677.206831	683.978215
30/06/14	689.024193	676.055931	682.540062
30/05/14	687.988962	675.040186	681.514574
30/04/14	686.06728	673.154671	679.610976
31/03/14	684.300686	671.421326	677.861006
28/02/14	681.773633	668.941837	675.357735
31/01/14	680.6169	667.806874	674.211887
31/12/13	676.443054	663.711584	670.077319
29/11/13	672.942879	660.277287	666.610083
31/10/13	667.956324	655.384586	661.670455
30/09/13	663.660049	651.169171	657.41461
30/08/13	655.997667	643.651005	649.824336
31/07/13	654.066917	641.756593	647.911755
28/06/13	647.811351	637.528631	642.669991
31/05/13	646.135637	635.879515	641.007576
30/04/13	644.150064	633.92546	639.037762
28/03/13	640.837527	630.665503	635.751515

28/02/13	639.233833	629.087265	634.160549
31/01/13	637.299709	627.183841	632.241775
31/12/12	636.457884	626.355378	631.406631
30/11/12	634.770545	624.694823	629.732684
31/10/12	632.191397	622.156613	627.174005
28/09/12	627.713226	617.749524	622.731375
31/08/12	619.404386	609.57257	614.488478
31/07/12	618.01975	608.209912	613.114831
29/06/12	617.324787	607.525981	612.425384
31/05/12	614.18043	604.431534	609.305982
30/04/12	612.99	603.26	608.125
30/03/12	611.687058	601.97774	606.832399
29/02/12	610.599133	600.907083	605.753108
31/01/12	609.530948	599.855854	604.693401
30/12/11	608.974112	599.307856	604.140984
30/11/11	607.467917	597.825569	602.646743
31/10/11	606.692009	597.061977	601.876993
30/09/11	604.78451	595.184756	599.984633
31/08/11	604.673285	595.075297	599.874291
29/07/11	604.043597	594.455603	599.2496
30/06/11	607.236431	597.597757	602.417094
31/05/11	603.094975	593.522039	598.308507
29/04/11	606.55523	596.92737	601.7413
31/03/11	605.331317	595.722883	600.5271
28/02/11	603.288	593.712	598.5

31/01/11	604.171938	594.581908	599.376923
31/12/10	598.0167	590.8833	594.45
30/11/10	596.577213	589.460983	593.019098
29/10/10	594.861189	587.765429	591.313309
30/09/10	593.49181	586.412384	589.952097
31/08/10	590.713869	583.667581	587.190725
30/07/10	592.367056	585.301048	588.834052
30/06/10	592.112132	585.049164	588.580648
31/05/10	584.251612	577.282408	580.76701
30/04/10	579.837919	572.921363	576.379641
31/03/10	577.007394	570.124602	573.565998
26/02/10	575.823874	568.9552	572.389537
29/01/10	576.415517	569.539785	572.977651
31/12/09	574.664883	567.810033	571.237458
30/11/09	573.931296	567.085198	570.508247
30/10/09	572.718469	565.886837	569.302653
30/09/09	572.079317	565.255309	568.667313
31/08/09	571.514873	564.697599	568.106236
31/07/09	572.487205	565.658331	569.072768
30/06/09	572.067926	565.244054	568.65599
29/05/09	570.512151	563.706837	567.109494
30/04/09	571.478371	564.661531	568.069951
31/03/09	572.539077	565.709585	569.124331
27/02/09	570.784426	563.975864	567.380145
30/01/09	569.43247	562.640034	566.036252

31/12/08	562.250905	555.544135	558.89752
28/11/08	556.860058	550.217592	553.538825
31/10/08	555.503711	548.877425	552.190568
29/09/08	554.183594	547.573054	550.878324
29/08/08	552.096375	545.510733	548.803554
31/07/08	548.942908	542.394882	545.668895
30/06/08	546.862236	540.339028	543.600632
30/05/08	546.107736	539.593528	542.850632
30/04/08	546.862236	540.339028	543.600632
31/03/08	547.365236	540.836028	544.100632
29/02/08	547.490986	540.960278	544.225632
31/01/08	546.181832	539.66674	542.924286
31/12/07	547.4856	540.954956	544.220278
30/11/07	548.558833	542.015387	545.28711
31/10/07	549.135137	542.584817	545.859977
28/09/07	550.041995	543.480857	546.761426
31/08/07	551.143235	544.568961	547.856098
31/07/07	552.357144	545.76839	549.062767
29/06/07	551.154108	544.579706	547.866907
31/05/07	548.406615	541.864985	545.1358
30/04/07	549.377807	542.824593	546.1012
30/03/07	549.751466	543.193794	546.47263
28/02/07	551.02713	544.454242	547.740686
31/01/07	552.695152	546.102366	549.398759
31/12/06	551.395612	545.909088	548.65235

30/11/06	553.428023	547.921277	550.67465
31/10/06	553.456666	547.949634	550.70315
29/09/06	552.601797	547.103271	549.852534
31/08/06	554.2797	548.7645	551.5221
31/07/06	555.2579	549.7329	552.4954
30/06/06	554.7688	549.2488	552.0088
31/05/06	554.4535	548.9365	551.695
28/04/06	555.192	549.6678	552.4299
31/03/06	555.6732	550.1442	552.9087
28/02/06	556.7841	551.2439	554.014
31/01/06	557.4353	551.8887	554.662

Source: National Bank of Rwanda Archive

APPENDIX III: Selected Macroeconomic Variables from 2006 to 2014

	March	June	Sept	Dec 2006	March	June	Sept	Dec 2007	March	June	Sept	Dec 2008
Revenue & Grants in billions of RWF	101.0	87.4	63.0	125.9	80.8	237.4	327.6	436.8	143.3	105.34	132.05	145.53
Total Revenue in billions of RWF	47.9	51.0	52.6	56.6	56.7	124.3	186.4	252.9	70.1	70.2	88.0	96.98
Tax revenue in billions of RWF	43.6	48.4	49.5	52.1	53.6	116.3	174.9	237.8	68.0	68.6	86.1	94.9
Non-tax revenue in billions of RWF	4.3	2.6	3.1	4.5	3.1	8.0	11.5	15.1	2.1	1.6	1.9	2.08
Grants in billions of RWF	53.0	36.4	10.4	69.3	24.1	113.1	141.2	183.9	73.2	35.14	44.05	48.55
GDP in billions of RWF	386.988	415.556	456.557	457.376	436.896	447.759	473.439	487.407	480.202	507.882	529.441	536.179
Inflation	8.2%	7.2%	7.0%	8.2%	9.8%	10.4%	10.1%	9.7%	8.2%	8.4%	10.8%	14.2
Interest rates	15.45%	15.58%	16.23%	16.20%	15.99%	15.9%	16.05%	15.95%	16.06%	16.24%	16.32%	16.39%
Exchange	553.54	552.14	551.36	549.94	548.14	546.18	548.21	545.55	543.89	543.35	547.09	552.97

http://www.bnr.rw/index.php?id=329 link for interest rates from Central Bank of Rwanda

Revenues for 2006 got from first quarter report 2007, central bank of Rwanda

Revenues for 2007 from first quarter report2008, Central Bank of Rwanda

2009	March	June	Sept	Dec	March	June	Sept	Dec 2010	March	June	Sept	Dec 2011
Revenue & Grants in billions of RWF	132.7	204.4	182.6	207.0	162.7	246.3	203.8	208.5	156.0	239.2	281.8	305.5
Total Revenue in billions of RWF	94.1	99.6	89.6	96.1	105.7	101.5	107.1	118.2	124.5	133.0	145.0	139.2
Tax revenue in billions of RWF	91.1	92.4	86.2	93.0	102.4	96.2	102.0	113.3	120.5	125.9	123.9	134.8
Non-tax revenue in billions of RWF	3.0	7.2	3.4	3.1	3.3	5.3	5.1	4.9	4.1	7.1	21.1	4.4
Grants in billions of RWF	38.6	104.8	93.0	110.9	57.0	144.8	96.7	90.3	31.5	106.2	136.8	166.3
GDP in billions of RWF	538.942	533.439	548.029	561.529	567.424	567.424	589.736	615.524	603.298	601.879	659.88	667.055
Inflation	17.7%%	18.3%	15.6%	11.6%	7.8%	5.2%	4.1%	2.8%	2.1%	2.4%	3.3%	5.0%
Interest rates	16.08%	16.78%	17.42%	16.61%	16.77%	17.00%	16.98%	17.20%	16.37%	16.69%	16.86%	16.75%
Exchange	566.50	567.90	568.72	569.97	572.49	579.12	588.90	592.17	598.80	600.13	600.02	602.16

Revenues for 2009 and 2010 are from fourth quarter report 2010 of Central Bank of Rwanda

Revenues for 2011 from fourth quarter report 2011 central Bank of Rwanda

2012	March	June	Sept	Dec	March 2013	June	Sept	Dec	March	June	Sept	Dec 2014
Revenue & Grants in billions of RWF	194.5	259.2	251.5	301.8	248.9	303.5	328.3	370.2	267.2	366.8	299.7	
Total Revenue in billions of RWF	148.2	159.2	160.0	194.2	193.2	193.4	182.3	222.8	214.2	238.9	213.4	201.7
Tax revenue in billions of RWF	144.9	153.3	150.8	161.8	171.9	173.8	174.9	179.4	188.6	212.8	205.0	201.3
Non-tax revenue in billions of RWF	3.3	5.9	9.2	32.4	21.3	19.6	7.4	43.4	25.6	26.1	8.4	0.4
Grants in billions of RWF	46.3	100.0	91.5	107.6	55.7	110.1	146.0	147.4	53	127.9	86.3	
GDP in billions of RWF	645.521	658.439	704.092	724.257	686.573	696.167	731.68	1,308	1,282	1,314	1,282	1,259
Inflation	4.3%	7.4%	7.2%	6.7%	5.8%	4.9%	2.9%	2.8%	3.9%	3.6%	3.0%	2.0%
Interest rates	16.51%	16.80%	16.90%	16.58%	17.13%	17.49%	17.49%	17.16%	17.12%	17.39%	17.24%	17.28%
Exchange	605.43	608.43	614.87	628.16	633.11	639.70	649.04	664.29	674.69	680.26	684.41	690.37

Revenues for 2012 and 2013 from fourth quarter report 2013 Central Bank of Rwanda

Revenues for 2014 from third quarter report 2014 Central Bank of Rwanda

Source: Research findings

APPENDIX IV: Interest rate structures from 2006 – 2014

Year 2014												
Designation	**Jan-14**	**Feb-14**	**Mar-14**	**Apr-14**	**May-14**	**Jun-14**	**Jul-14**	**Aug-14**	**Sep-14**	**Oct-14**	**Nov-14**	**Dec-14**
Key Repo Rate	7.000	7.000	7.000	7.000	7.000	6.500	6.500	6.500	6.500	6.500	6.500	6.500
Deposit rate	8.850	7.960	8.310	8.016	9.289	8.649	8.416	8.791	7.331	7.302	8.198	7.757
Lending rate	17.450	17.090	16.830	17.420	17.235	17.515	17.230	17.390	17.110	17.470	16.710	17.660
Repo	4.333	3.694	3.324	3.091	3.585	3.682	3.930	4.441	4.236	3.853	3.166	2.765
Reverse Repo	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	11.000	11.000	11.000	11.000	11.000	10.500	10.500	10.500	10.500	10.500	10.500	10.500
Interbank rate	5.593	5.794	5.822	5.646	5.690	5.708	5.535	5.525	5.597	5.709	5.705	4.736
T-Bill market												
28 days	5.416	5.066	4.904	4.788	4.486	4.297	4.030	4.082	4.195	4.172	3.909	3.662
91 days	5.958	5.755	5.529	5.255	5.259	4.993	4.539	4.356	4.490	4.563	4.402	4.079
182 days	6.658	6.498	6.572	6.345	6.257	5.669	5.162	4.967	5.165	5.174	4.983	4.964
364 days	8.233	8.150	7.997	7.760	7.370	6.572	6.479	6.300	6.528	6.410	6.275	6.156
WAR	**6.364**	**6.089**	**6.021**	**5.983**	**5.919**	**5.609**	**5.527**	**5.159**	**5.471**	**5.319**	**5.084**	**4.884**
T-Bonds market												
TBond 3 yrs				-				11.625				
TBond 5 yrs	-	-	-	-	-	-	-	12.000	-	-	-	-
TBond 7 yrs	-	-	-	-	-	-	-	-	-	-	12.500	-
Year 2013												
Designation	**Jan-13**	**Feb-13**	**Mar-13**	**Apr-13**	**May-13**	**Jun-13**	**Jul-13**	**Aug-13**	**Sep-13**	**Oct-13**	**Nov-13**	**Dec-13**
Key Repo Rate	7.500	7.500	7.500	7.500	7.500	7.000	7.000	7.000	7.000	7.000	7.000	7.000
Deposit rate	11.300	10.320	10.380	10.670	11.550	10.610	8.530	10.460	8.980	9.190	8.030	8.580
Lending rate	17.090	17.140	17.170	17.270	17.560	17.650	17.190	17.470	17.820	17.350	17.190	16.930
Repo	7.435	7.364	6.995	7.228	7.077	6.678	6.404	5.599	5.447	4.998	4.421	3.986
Reverse Repo	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	11.500	11.500	11.500	11.500	11.500	11.000	11.000	11.000	11.000	11.000	11.000	11.000
Interbank rate	11.109	10.303	10.028	11.111	11.437	10.175	11.872	7.571	7.000	6.697	6.092	5.585

Reserve Requirement	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
T-Bill market												
28 days	12.097	11.584	11.001	11.160	10.991	9.999	8.948	7.831	6.834	6.175	5.533	4.991
91 days	12.552	12.309	12.142	12.347	11.956	10.702	9.564	8.349	6.893	6.479	5.855	5.305
182 days	12.821	12.694	12.566	12.823	12.434	11.337	10.000	8.861	7.339	6.737	6.225	5.944
364 days	-	-	12.800	13.000	12.690	11.650	10.688	9.346	7.793	7.550	7.023	6.410
WAR	**12.361**	**12.196**	**12.127**	**12.032**	**11.979**	**10.812**	**9.736**	**8.589**	**7.137**	**6.766**	**6.059**	**5.621**
Year 2012												
Designation	**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**
Key Repo Rate	7.000	7.000	7.000	7.000	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500
Deposit rate	7.400	8.25	8.20	8.09	9.92	7.91	8.85	8.64	8.460	9.240	11.150	10.690
Lending rate	16.950	16.27	16.30	16.87	16.72	16.82	16.52	17.08	17.140	16.610	16.650	16.490
Repo	6.444	6.013	6.897	6.914	7.369	7.430	7.373	7.340	7.453	7.297	7.495	7.460

Standing Deposit Facility			5.500			5.500			5.500			
Standing Lending Facility			9.500			9.500			9.500			
Reverse Repo	-	-	-	-	-	-	-	-	-	-	-	
Discount rate	11.000	11.000	11.000	11.000	11.500	11.500	11.500	11.500	11.500	11.500	11.500	11.500
Interbank rate	7.250	6.858	7.650	8.000	8.597	8.950	9.092	9.515	10.816	10.882	11.902	11.121
Reserve Requirement	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
T-Bill market												
28 days	7.143	7.145	7.419	7.484	7.910	8.813	9.391	10.623	11.542	11.862	11.803	11.804
91 days	7.258	7.616	7.616	7.623	8.134	9.630	10.152	10.173	12.095	12.369	12.534	12.599
182 days	7.662	7.446	7.933	7.923	8.336	9.414	-	10.547	12.011	12.484	12.741	12.832
364 days	8.375	8.023	7.780	8.450	8.858	9.133	-	11.651	12.700	-	-	-
WAR	**7.603**	**7.611**	**7.729**	**7.852**	**8.341**	**9.306**	**9.846**	**11.115**	**12.280**	**12.072**	**12.383**	**12.393**

Year 2011												
Designation	**Jan-11**	**Feb-11**	**Mar-11**	**Apr-11**	**May-11**	**Jun-11**	**Jul-11**	**Aug-11**	**Sep-11**	**Oct-11**	**Nov-11**	**Dec-11**
Key Repo Rate	6	6	6	6	6	6	6	6	6	6.50	7.00	7.00
Deposit rate	7.51	7.5	7.49	8.65	7.93	8.03	7.22	7.67	7.7	7.36	7.97	7.96
Lending rate	15.63	16.9	16.59	16.21	16.89	16.97	16.58	16.98	17.01	17.04	16.480	16.730
Repo	5.95	6.00	6.00	6.00	6.00	6.000	6.000	6.000	6.000	6.37	6.624	6.530
Reverse Repo	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	10.00	10.00	10.00	10.00	10.00	10.000	10.000	10.000	10.000	10.50	11.00	11.00
Interbank rate	6.71	6.74	6.74	6.86	6.92	7.000	6.930	6.870	6.970	7.36	7.480	8.080
Reserve Requirement	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
T-Bill market												
28 days	6.13	6.23	6.402	6.351	6.212	6.111	6.149	6.097	6.267	6.77	6.826	6.982
91 days	6.38	6.44	6.896	6.841	6.692	6.469	6.353	6.208	6.475	7.01	7.240	7.281
182 days	7.20	7.19	7.385	7.241	7.180	6.923	7.211	7.163	6.854	7.24	7.690	7.613
364 days	7.70	7.34	7.575	7.378	7.325	7.205	7.060	7.050	6.980	7.50	8.623	8.178
WAR	**7.19**	**7.02**	**7.215**	**7.109**	**7.038**	**6.781**	**6.803**	**6.740**	**6.714**	**7.21**	**7.822**	**7.617**
T-Bonds market												
TBond 2 yrs	-	-	-	-	-	-	-	-	-	-	-	-
TBond 3 yrs	-	10.425	-	-	-	-	-	-	-	-	-	-
TBond 5 yrs	-	-	-	-	-	-	-	-	-	11.121	-	-
3 to 12 months BNR liquidity facility	-	-	8.40	-	-	-	-	-	-	-	-	-
Year 2010												
Designation	**Jan-10**	**Feb-10**	**Mar-10**	**Apr-10**	**May-10**	**Jun-10**	**Jul-10**	**Aug-10**	**Sep-10**	**Oct-10**	**Nov-10**	**Dec-10**
Key Repo Rate	**7.5**	**7.5**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**6**
Deposit rate	7.59	7.12	7.17	6.93	6.86	6.30	6.14	6.17	6.22	6.51	7.07	7.10
Lending rate	17.28	16.08	16.94	16.96	16.65	17.38	16.91	17.20	16.82	17.34	17.51	16.94
Repo	5.25	4.61	4.42	3.46	3.92	5.19	5.42	5.42	5.47	5.22	5.07	5.47

Reverse Repo	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	*11.50*	*11.50*	*11.50*	11.00	11.00	11.00	11.00	11.00	11.00	11.00	10.00	10.00
Interbank rate	*7.07*	*7.28*	*6.81*	6.30	6.13	6.58	7.03	6.76	7.38	7.32	7.16	6.84
Reserve Requirement	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*	*5.00*
T-Bill market												
28 days	7.50	7.72	-	7.16	7.03	7.14	7.08	6.98	6.96	6.93	6.79	6.29
91 days	*9.38*	*8.55*	*7.72*	7.36	7.11	7.20	7.21	7.02	7.03	7.00	6.97	6.76
182 days	-	*9.30*	*9.11*	8.83	8.16	8.00	-	7.48	7.88	7.69	7.07	7.22
364 days	-	-	-	-	9.00	-	-	-	8.85	8.00	7.69	7.68
WAR	***9.06***	***8.81***	***8.42***	**7.94**	**7.60**	**7.30**	**7.15**	**7.14**	**7.62**	**7.51**	**7.28**	**7.32**
T-Bonds market												
TBond 2 yrs	9.50	-	-	-	-	-	-	9.46	-	-	-	
TBond 3 yrs	-	-	-	10.54	-	-	-	-	-	-	-	
TBond 5 yrs	-	-	-	-	-	-	-	-	-	-	11.12	
3 to 12 months BNR liquidity facility	-	-	9.04	9.24	-	9.13	-	9.50	8.83	-	-	-
Source: NBR, Statistics												
Year 2009												
Designation	**Jan-09**	**Feb-09**	**Mar-09**	**Apr-09**	**May-09**	**Jun-09**	**Jul-09**	**Aug-09**	**Sep-09**	**Oct-09**	**Nov-09**	**Dec-09**
Key Repo Rate	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**7.5**
Deposit rate	5.51	5.61	6.57	7.58	9.15	9.44	9.94	8.59	8.64	8.82	8.91	8.54
Lending rate	16.33	16.18	15.74	16.81	16.64	16.89	17.28	17.41	17.56	17.63	16.44	15.77
Repo	7.28	6.50	5.29	2.39	4.63	5.50	4.68	4.37	6.06	6.42	6.36	6.27
Reverse Repo	11.05	-	-	-	-	-	-	-	-	-	-	-
Discount rate	*12.87*	*12.00*	*12.00*	*12.00*	*12.00*	*12.00*	*12.50*	*12.50*	*12.50*	*12.50*	*12.50*	*11.50*
Interbank rate	*8.54*	*10.39*	*8.98*	*7.95*	*8.67*	*9.03*	*9.59*	*9.29*	*8.98*	*8.72*	*8.07*	*7.49*
Reserve Requirement	*8.00*	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
T-Bill market												
4 weeks	-	-	-	-	-	-	-	-	-	-	-	7.27
13 weeks	-	-	-	7.68	9.62	10.04	10.07	9.63	8.55	8.53	8.15	8.58
26 weeks	-	-	-	-	-	-	11.51	11.31	-	8.88	-	8.00

52 weeks	-	-	-	**-**	-	-	-	-	-	-	-	-
WAR	**-**	**-**	**-**	**7.68**	**-**	**10.40**	**10.62**	**10.75**	**8.55**	**8.73**	8.15	**8.04**
Source: NBR, Statistics												
Year 2008												
Designation	**Jan-08**	**Feb-08**	**Mar-08**	**Apr-08**	**May-08**	**Jun-08**	**Jul-08**	**Aug-08**	**Sep-08**	**Oct-08**	**Nov-08**	**Dec-08**
Key Repo Rate	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**8**	**8**	**8**	**8**	**8**
Deposit rate	5.97	5.78	5.69	5.91	5.7	6.05	6.34	5.98	6.40	6.24	6.14	6.72
Lending rate	16.23	16.31	15.63	16.43	16.09	16.20	16.47	15.93	16.55	16.15	16.52	16.51
Money market rate:												
-Mop-up	5.26	5.18	5.24	5.34	5.96	6.59	7.23	7.85	-	-	-	-
-Injection	-	-	-	-	-	-	-	-	-	-	-	-
-REPO rate	-	-	-	-	-	-	-	6.48	6.55	6.41	6.52	6.56
Discount rate	12.50	12.50	12.50	12.50	12.50	12.50	12.50	11.25	11.25	11.25	11.25	11.25
Interbank rate	8.00	6.99	8.00	6.00	6.68	6.62	7.12	7.01	6.97	7.42	7.08	7.74
Reserve Requirement	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
T-Bill market												
4 weeks	-	-	5.96	-	-	5.87	6.78	7.52	6.78	7.12	6.99	-
13 weeks	-	-	5.99	6.01	6.39	6.39	7.46	7.11	-	-	6.27	7.44
26 weeks	-	-	6.69	-	-	7.08	7.50	-	-	-	-	-
52 weeks	-	-	-	6.52	-	7.51	-	-	-	-	-	-
Tbill market (WAR)	**-**	**-**	**6.39**	**6.22**	**6.39**	**6.80**	**7.30**	**7.31**	**6.78**	**7.12**	**6.67**	**7.44**
T-Bonds market												
TBond 2 yrs	8.00	-	-	-	-	-	-	-	-	-	-	-
TBond 3 yrs	-	8.25	-	-	-	-	-	-	-	-	-	-
Source: NBR, Statistics												
Year 2007												
Designation	**Jan-07**	**Feb-07**	**Mar-07**	**Apr-07**	**May-07**	**Jun-07**	**Jul-07**	**Aug-07**	**Sep-07**	**Oct-07**	**Nov-07**	**Dec-07**
Key Repo Rate	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**

Deposit rate	7.97	7.88	7.86	7.86	7.56	7.65	7.59	7.76	7.35	8.01	7.18	6.77
Lending rate	15.76	16.22	15.98	15.32	16.35	16.03	16.56	15.76	15.84	15.57	16.10	16.19
Money market rate:												
-Mop-up	8.24	8.27	8.71	8.14	6.96	5.59	5.48	5.67	5.52	5.35	5.34	5.26
-Injection	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
Interbank rate	7.83	7.98	7.98	7.98	7.98	6.33	7.06	6.00	5.20	8.00	8.21	6.00
Tbill market (WAR)	8.80	8.09	9.57	9.60	8.88	7.03	6.31	6.93	6.62	5.90	5.85	5.89
Year 2006												
Designation	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**	**May-06**	**Jun-06**	**Jul-06**	**Aug-06**	**Sep-06**	**Oct-06**	**Nov-06**	**Dec-06**
Key Repo Rate	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Deposit rate	7.94	8.17	8.13	8.03	8.23	8.27	8.24	8.35	8.36	8.34	8.09	8.29
Lending rate	15.82	14.84	15.70	15.44	15.05	16.26	16.31	16.03	16.35	16.46	16.06	16.07
Money market rate:												
-Mop-up	9.00	8.90	9.00	9.00	9.00	9.00	9.00	9.00	8.93	8.77	7.29	7.39
-Injection	-	-	-	-	-	-	-	-	-	-	-	-
Discount rate	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
Interbank rate	9.35	9.25	8.92	9.33	7.55	8.41	8.40	8.17	7.43	7.43	7.43	7.43
Tbill market (WAR)	10.45	10.35	10.15	10.15	10.03	10.26	10.38	10.04	9.91	9.51	8.50	

Source: Central Bank of Rwanda