THE EFFECTS OF CORRUPTION AND POLITICAL INSTABILITY ON SAVINGS: THE CASE OF ECONOMIC COMMUNITY OF WEST AFRICAN STATES

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ABSTRACT

Despite the abundant research on savings and its determinants, little has been done to examine the effects of corruption and political instability on savings, particularly in the Economic Community of West African States (ECOWAS), one of the most corrupt and politically unstable regions in the world. The objectives of this study include investigating the effects of corruption and political instability on savings, in addition to examining whether the effects of corruption and political instability on savings depend on income levels in the ECOWAS from 1996 to 2012. Using the Panel Corrected Standard Error (PCSE) and the Two Stage Least Squares (TSLS) instrumental variables techniques that take into account random effects, the results indicate that lesser corruption and higher political stability have a significant and positive effect on savings, and the effects of corruption and political instability on savings depend on income levels. These suggest that at high income levels, the negative impact of corruption and political instability on savings is lower, but at low income levels, the negative impact of corruption and political instability on savings is higher in the ECOWAS. In addition, income level, income growth, real interest rate and inflation rate have positive and significant effects on savings. However, the percentage share of agriculture in Gross Domestic Product (GDP) has a negative effect on savings. The study recommends policies to reduce corruption and political instability to raise savings. In addition, raising incomes would reduce the adverse effects of corruption and political instability on savings and also raise savings in the ECOWAS.

Keywords: savings, corruption, political instability, ECOWAS

ABSTRAK

Walaupun terdapat banyak kajian tentang tabungan dan penentunya, namun tidak banyak kajian yang melihat kesan rasuah dan ketidakstabilan politik ke atas tabungan terutamanya yang melibatkan Negara Komuniti Ekonomi Afrika Barat (ECOWAS) yang sememangnya menghadapi banyak masalah rasuah dan ketidakstabilan politik. Oleh itu, objektif kajian ini adalah untuk mengkaji kesan rasuah dan ketidakstabilan politik ke atas tabungan di ECOWAS di antara tahun 1996 hingga 2012. Di samping itu, kajian ini menilai sama ada kesan rasuah dan ketidakstabilan politik ke atas tabungan di ECOWAS bergantung kepada tingkat pendapatan. Dengan menggunakan teknik panel pembetulan ralat piawai (PCSE) dan kaedah pembolehubah instrument kuasa dua terkecil dua peringkat (TSLS) yang mengambilkira kesan rawak , keputusan kajian menunjukkan bahawa rasuah yang rendah dan kestabilan politik yang tinggi mempunyai kesan yang positif dan signifikan ke atas tabungan, dan kesan rasuah dan ketidakstabilan politik terhadap tabungan adalah bergantung kepada tahap pendapatan. Hal ini menunjukkan pada tahap pendapatan tinggi, kesan negatif rasuah dan ketidakstabilan politik ke atas tabungan adalah rendah manakala pada tahap pendapatan yang rendah, kesan negatif rasuah dan ketidakstabilan politik ke atas tabungan adalah lebih besar di ECOWAS. Di samping itu, tingkat pendapatan, pertumbuhan pendapatan, kadar faedah sebenar dan kadar inflasi mempunyai kesan yang positif dan signifikan ke atas tabungan. Bagaimanapun, peratusan sumbangan pertanian dalam Keluaran Dalam Negara Kasar (KDNK) mempunyai kesan yang negatif ke atas tabungan. Kajian ini mencadangkan polisi untuk mengurangkan rasuah dan ketidakstabilan politik bagi meningkatkan tabungan. Sebagai tambahan, peningkatan dalam pendapatan akan mengurangkan kesan negatif rasuah dan ketidakstabilan politik ke atas tabungan di samping meningkatkan tabungan di ECOWAS.

Kata kunci: tabungan, rasuah, ketidakstabilan politik, ECOWAS

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LIST OF ABBREVIATIONS

ACC	Anti Corruption Commission
ADB	African Development Bank
AGR	Agricultural Share in GDP
AIT	Absolute Income Theory
ARDL	Autoregressive Distributed Lag Model
ARM	African Renaissance Monument
AU	African Union
BBC	British Broadcasting Corporation
BOPs	Balance of Payments
CBN	Central Bank of Nigeria
CEEC	Central and Eastern European Countries
CEOs	Chief Executive Officers
COR	Corruption
CPI	Corruption Perception Index
DEP	Age Dependency
EAP	East Asia and Pacific
ECA	Europe and Central Asia
ECM	Error Correction Model
ECOMOG	ECOWAS Peace Monitoring Group
ECOWAS	Economic Community of West African States
ECPF	ECOWAS Conflict Prevention Framework
ECT	Error Correction Technique
EFCC	Economic and Financial Crimes Commission
EOCO	Economic and Organised Crime Office
EPF	Employees Provident Fund
EU	European Union
FE	Fixed Effects
FEVD	Forecast Error Variance Decomposition

FGLS	Feasible Generalized Least Squares
GDP	Gross Domestic Product
GDPR	GDP Growth Rate
GFI	Global Financial Integrity
GIR	Gross Investment Rates
GLS	Generalized Least Squares
GMM	Generalized Method of Moments
GPCY	Income Growth
GRA	Gambia Revenue Authority
GSR	Gross Savings Rates
G7	Group of Seven Developed Countries
HMO	Cingranelli-Richards Human Rights Database and Political Terror Scale
ICRG	International Country Risk Guide
IMF	International Monetary Fund
INF	Inflation Rate
IV	Instrumental Variable
LAC	Latin America and Caribbean
LCT	Life Cycle Theory
MCC	Millenium Challenge Corporation Compact
MDAs	Ministries, Departments and Agencies
MENA	Middle East and North Africa
MNCs	Multinational Corporations
M2	Broad Money Supply
NDC	National Democratic Congress
NIA	National Investment Agency
NOCAL	National Oil Company
NYEP	National Youth Employment Programme
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PCSE	Panel Corrected Standard Error

PCY	Income Per Capita
PIT	Permanent Income Theory
POL	Political Instability
PRR	Political Risk Rating
PRS	Political Risk Service Group
PV	Present Value
RE	Random Effects
RE	Ricardian Equivalence
RIR	Real Interest Rate
RIT	Relative Income Theory
SFP	School Feeding Programme
SMEs	Small and Medium Enterprises
SSA	Sub-Saharan Africa
SUR	Seemingly Unrelated Regression
TI	Transparency International
TOT	Terms of Trade
TSCS	Time Series Cross Sectional data
UN	United Nations
US	United States
VAR	Vector Auto Regressive Model
VECM	Vector Error Correction Model
WDI	World Development Indicators
WGI	Worldwide Governance Indicators
WMO	Global Insight Business Conditions and Risk

CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Savings plays an important role in economic development of a country (Lucas, 1988; McKinnon, 1973; Romer, 1986; Shaw, 1973; Solow, 1956). Savings is also an important macroeconomic variable which impacts on capital accumulation, productivity, economic growth, and the dependency or otherwise of a country on external resources (Adam & Agba, 2006). In addition, savings mobilization is very crucial for most developing countries in long term economic growth (Kohsaka, 1998). It is not surprising therefore, that the recent decline in savings rates and widening saving-investment gap in both developed and developing countries, has rekindled the interest of authors to investigate the determinants of savings particularly in developing countries (Athukorala & Sen, 2001).

Despite the importance of higher savings rates, the World Bank's World Development Indicators (WDI) reveal that developing regions such as East Asia and Pacific (EAP), Middle East and North Africa (MENA), Latin America and Caribbean (LAC), Europe and Central Asia (ECA), including the 15 countries that make up the Economic Community of West African States (ECOWAS), have continued to experience fluctuations in their savings rates. It is more worrisome that the ECOWAS region (comprising of Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria,

Senegal, Sierra Leone, and Togo, though without any concrete economic integration like the European Union) lagged behind other developing regions in terms of savings rates in the last four decades, 1970-2010. The region's poor savings rates have negative consequences on economic growth (Adewuyi, Bankole, & Arawomo, 2010). Moreover, many ECOWAS countries (and their counterparts in Africa) have relied heavily on foreign savings (mostly overseas development assistance) to spur investment and growth (Elbadawi & Mwega, 2000). Unfortunately, the countries have been experiencing declining international capital inflows due to factors such as lending constraints (Elbadawi & Mwega, 2000), making it difficult for them to reduce the saving-investment gap and to foster higher growth rates.

A critical look at available statistics from the WDI indicates that the ECOWAS region's savings rates were lower than those of other developing regions of the world between 1977 and 2010. In addition, savings rates (GSR) measured as gross national savings as a percentage of the gross domestic product exhibited declining trend and sometimes fluctuated (see Figure 1.1).

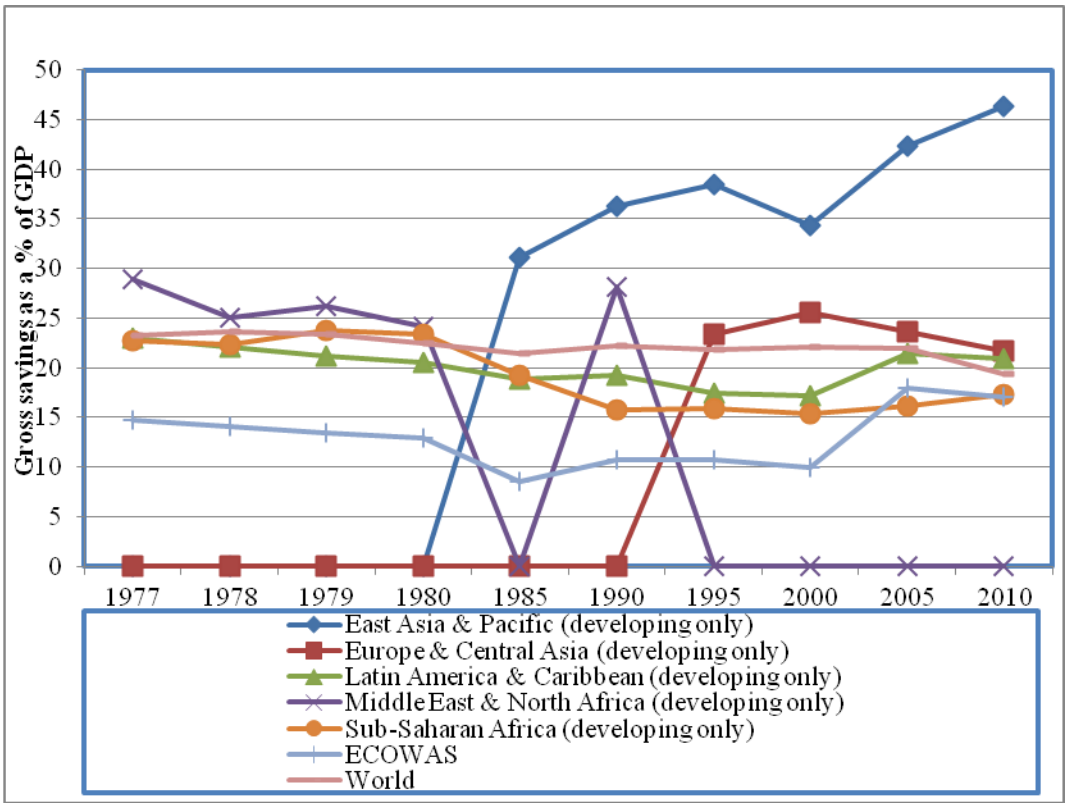

Figure 1.1
Savings Rates Across Developing Regions

Also, comparing GSR across regions it is glaring that ECOWAS is yet to record any meaningful success in savings mobilization. For instance, the GSR of EAP appeared to be in multiples of those of ECOWAS beginning from 1985 through 2010. Similarly, ECA's GSR out-performed those of ECOWAS during 1995-2010, while LAC had a higher GSR compared to ECOWAS during 1977-2010. More so, the MENA region's GSR surpassed those of ECOWAS during the period for which information was provided. Besides, ECOWAS savings rates fell below the world average beginning from 1977 to 2010. The lower savings rates in these countries are

due to factors including lower per capita income, high young-age dependency ratio, and high dependence on aid (Elbadawi & Mwega, 2000).

The dismal performance of ECOWAS savings rates seems to have affected the region's investment rates (GIR) measured as gross investment spending as a share of GDP, because it (GIR) did not only fluctuated, it was also lower than those of other developing regions of the world between 1970 and 2010 (Figure 1.2). For instance, the GIR of EAP's appear to have maintained a steady rise between 1970 and 2010 and higher than those of ECOWAS. In addition, ECA's GIR maintained its dominance over those of ECOWAS between 1990 and 2010. In the same manner, the LAC region had a higher GIR between 1970 and 2000, although its GIR appear to be almost at par with those of ECOWAS from 2005 through 2010. Also, ECOWAS GIR was lower than those of MENA region between 1970 and 2010. Lastly, ECOWAS investment rates fell below world average except in 2010.

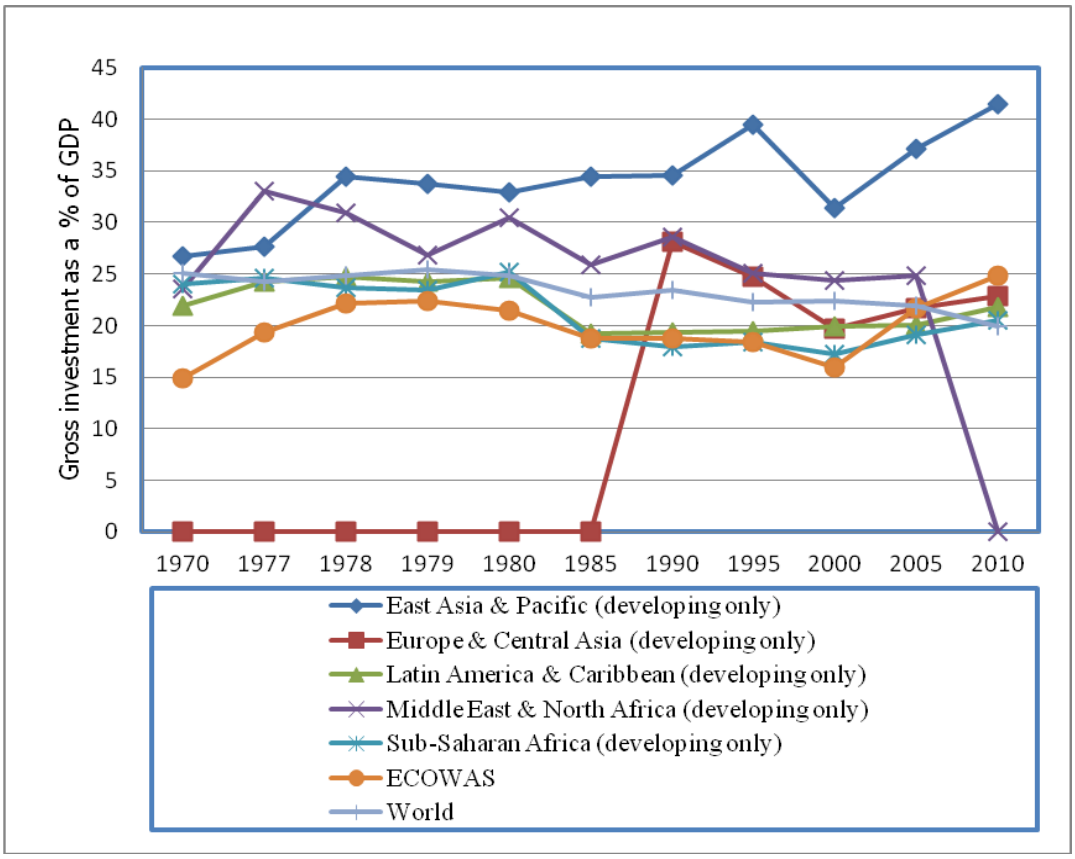

Figure 1.2
Investment Rates Across Developing Regions

Following unimpressive savings and investment rates, the ECOWAS has not been able to achieve the desired gross domestic product (GDP) growth rates (GDPR) needed to reduce poverty, income inequality, unemployment and other socio-economic problems facing the region. For instance, Figure 1.3 shows that ECOWAS GDPR did not only fluctuated, they were also lower than those of other developing regions including EAP and LAC, as well as world average in most part of 1970-2010 period.

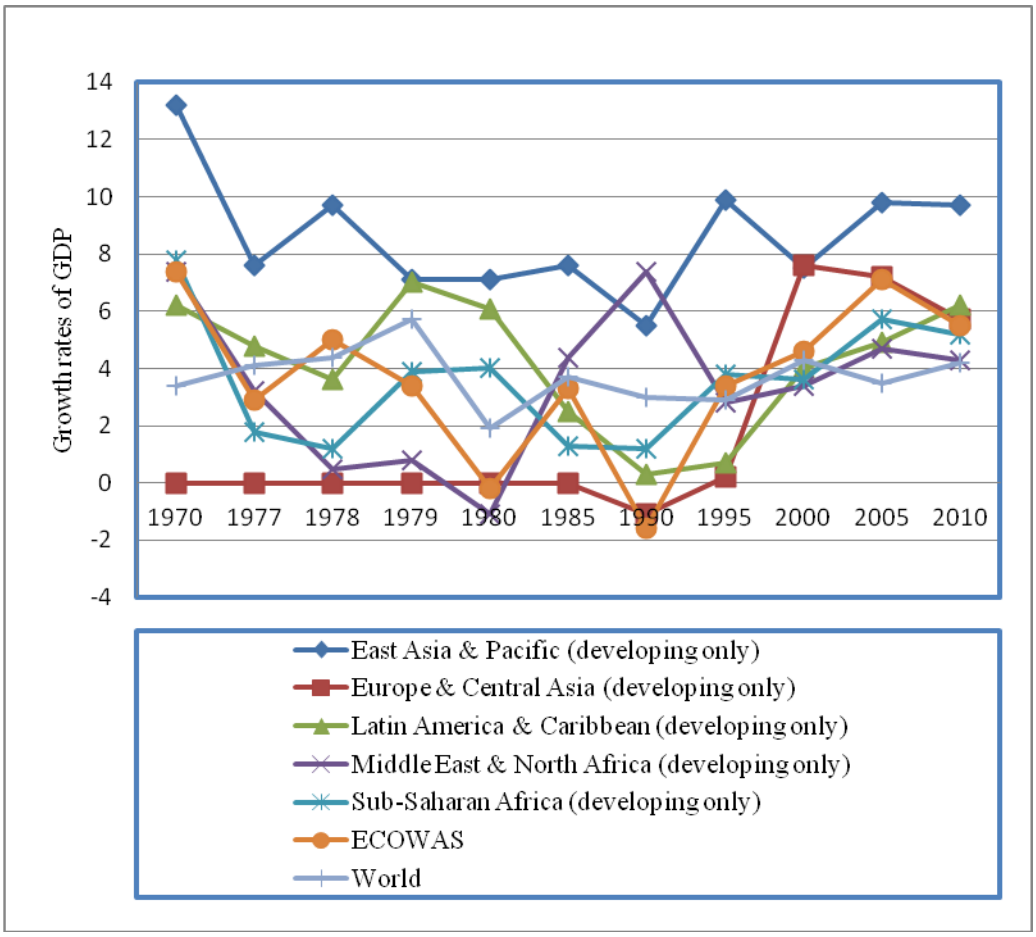

Figure 1.3
Growth Rates Across Developing Regions

Although the literature has not adequately addressed the role of corruption and political instability in savings mobilization, these factors may be important determinants of savings particularly in ECOWAS countries. Da Silva (1998) pointed out that there is scarcity of research linking savings to political instability, and only a few studies have examined savings-political instability relationship (Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Similarly, the numerous studies on corruption have focused on the effect of corruption on growth (Mauro, 1995; Swaleheen, 2011), foreign investment (Asiedu & Freeman, 2009; Wei, 2000),

investment growth (Everhart, 2010), tax revenue (Ghura, 2002), income inequality and poverty (Gupta, Davoodi, & Alonso-Terme, 2002), growth and income inequality (Gyimah-Brempong, 2002), natural resources and economic growth (Leite & Weidmann, 1999), while little has been done on the savings effect of corruption.

Moreover, the few studies that focused on savings and political instability considered a few ECOWAS countries including Cote D'Ivoire, Niger, Nigeria, Senegal, and Sierra Leone (Venieries & Gupta, 1986), and Ghana, Nigeria, Sierra Leone and Togo (Edwards, 1996), thus ignoring countries that are politically unstable. In the same manner, the study by Swaleheen (2008) on savings and corruption left out many ECOWAS countries (Benin, Guinea, Guinea Bissau, Mali, Niger, Nigeria and Togo) that are considered to be very corrupt. Given the adverse effects of corruption and political instability on the economy, notable institutions/groups such as Transparency International (TI) and Political Risk Service Group (PRS) have been publishing reports on the extent of corruption and political conditions in each country.

The TI measures the magnitude of corruption in each country via the corruption perception index (CPI). The CPI ranges from 0 (very corrupt) to 10 (very clean). The TI also ranks countries in terms of how they are perceived to be corrupt. A higher ranking implies lesser corruption and vice versa. The CPI and ranking for ECOWAS countries during the 2007-2012 period are presented in Table 1.1. Of the 182 countries surveyed in 2012 for instance, ECOWAS countries were shown to be enmeshed in corruption, as only Cape Verde had a CPI of 5.5 on a scale of 10.

Besides, Cape Verde has maintained a CPI of at least 5 since 2008, and it is the only country in the ECOWAS region to rank among the top 50. This suggests that, Cape Verde is the only country in the region that has done fairly well in tackling corruption. Unfortunately, nine ECOWAS countries ranked below 100, indicating that corruption is high in the region.

Table 1.1
ECOWAS Countries TI Corruption Perception Index and Ranking

	Corruption Perception Index						**Ranking**
Country	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2012**
Benin	2.7	3.1	2.9	2.8	3	3.6	94
Burkina Faso	2.9	3.5	3.6	3.1	3	3.8	83
Cape Verde	4.9	5.1	5.1	5.1	5.1	6	39
Cote D'Ivoire	2.1	2	2.1	2.2	2.2	2.9	130
Gambia	2.3	1.9	2.9	3.2	3.5	3.4	105
Ghana	3.7	3.9	3.9	4.1	3.9	4.5	64
Guinea	1.9	1.6	1.8	2	2.1	2.4	145
Guinea Bissau	2.2	1.9	1.9	2.1	2.2	2.5	150
Liberia	2.1	2.4	3.1	3.3	3.2	4.1	75
Mali	2.8	2.7	3.1	2.7	2.8	3.4	105
Niger	2.6	2.8	2.9	2.6	2.5	3.3	113
Nigeria	2.2	2.7	2.5	2.4	2.4	2.7	139
Senegal	3.6	3.4	3	2.9	2.9	3.6	94
Sierra Leone	2.1	1.9	2.2	2.4	2.5	3.1	123
Togo	2.3	2.7	2.8	2.4	2.4	3	128

Source: Transparency International; Note: A higher (lower) value indicates lesser (higher) corruption.

Similarly, the PRS measures the extent of corruption and political risk across countries via the international country risk guide (ICRG). The PRS's report for various years illustrates that ECOWAS countries have not recorded any meaningful success in the fight against corruption. The ICRG corruption index has a maximum value of six, and a higher value demonstrates that a country has fared well in tackling corruption and vice versa. Table 1.2 shows the ICRG corruption index for countries

that make up the ECOWAS. The information presented herein indicates that the countries have failed to successfully reduce or minimize corruption. For instance, only six countries namely - Cote D'Ivoire, Gambia, Guinea, Liberia, Senegal and Sierra Leone attained a score of three out of a maximum of six, while the remaining countries consistently scored less than three between 2004 and 2011. Unfortunately, five of the countries mentioned above achieved this feat during the early years of the publication. Since 2006, only Liberia attained a score of three and that was in the year 2009.

Table 1.2
ECOWAS Countries ICRG Corruption Index

Country	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Burkina Faso	2	2	2	2	2	2	2	2
Cote D'Ivoire	2	3	1.5	2	2.5	2.5	2	2
Gambia	2.5	3	2	2.5	2.5	2.5	2.5	2.5
Ghana	2.5	2	1.5	1.5	1.5	1.5	2.5	2.5
Guinea	2.5	3	2.5	2	2	2	1.5	1.5
Guinea Bissau	2	2	2	2	2	2	2	2
Liberia	2.5	2.5	2.5	2.5	2.5	3	2.5	2.5
Mali	2	2	2	2	2	2	2	2
Niger	1	1	1	1.5	1.5	1.5	1.5	1.5
Nigeria	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Senegal	2.5	3	2.5	2.5	2	2	2	2
Sierra Leone	2.5	3	1.5	1.5	1.5	2	2	2
Togo	1.5	2	1.5	1.5	1.5	1.5	2	2

Source: Political Risk Service Group; Note: A higher (lower) value indicates lesser (higher) corruption.

Also, the PRS measures the magnitude of political risk across countries through the political risk rating (PRR). The PRR has many components that include political leadership, military presence in politics, external conflicts, organized religion in politics, racial and national tension, law and order, political terrorism, civil war, and political party development. The PRR ranges between 0% and 100%, with higher

value indicating that a country is lesser politically risky and lower value illustrating that a country is experiencing higher political risk. Specifically, 0%-49.9% = Very High Risk; 50%-59.9% = High Risk; 60%-69.9% = Moderate Risk; 70%-79.9% = Low Risk; 80% and above = Very Low Risk.

The PRR of ECOWAS countries is presented in Table 1.3. Two countries (Gambia and Ghana) appear to be the least politically risky among ECOWAS countries because their rating hovered around 60%-69.9% (moderate risk) during 2004-2011. Other than these two countries, only Burkina Faso and Sierra Leone maintained an average rating of 50.9%-60% (between high risk and moderate risk) during the same period. The remaining ECOWAS countries were rated as either very high risky (0%-49.9%) or high risky (50%-59.9%).

Table 1.3
ECOWAS Countries ICRG Political Risk Rating

Country	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Burkina Faso	59.5	65	65	61.5	61	60	59	53
Cote D'Ivoire	41.5	53	41.5	44	44	43	43	47
Gambia	69	68	69	66	65.5	65	61.5	61.5
Ghana	63	61	71	67.5	66.5	66.5	63.5	66
Guinea	51.5	50	47	43.5	44	43	40	46.5
Guinea Bissau	57	51	57	56	57.5	56.5	53	52.5
Liberia	46	45	56.5	54.5	56	57.5	56	53
Mali	59.5	64	62	59	58.5	59	58.5	57.5
Niger	58	61	58.5	58.5	54	53	48	49.5
Nigeria	42.5	46	47	43.5	45.5	46	45.5	46
Senegal	58.5	58	60.5	59.5	58	55.5	55.5	51.5
Sierra Leone	65	40	64	61.5	60.5	61	61.5	59
Togo	53.5	52	52.5	53.5	53.5	53	53	50.5

Source: Political Risk Service Group; Note: A higher (lower) value indicates lesser (higher) political risk.

The foundation for research on corruption was laid in early studies on rent-seeking behaviour (Krueger, 1974; Rose-Ackerman, 1978). The studies argued that a government agent (or official) that has been delegated to control permits and licenses for example, can behave like a monopolist and therefore charge rents (Emerson, 2005). Corruption usually takes many forms such as bribery, extortion, nepotism, influencing, peddling, fraud, and embezzlement (Klitgaard, 1998), and public sector corruption is perceived to be the greatest single obstacle to economic development (Blackburn & Forgues-Puccio, 2007). In a report co-authored by Daniel Kaufmann (Director of global programmes at the World Bank), it was revealed that bribery around the world stood at approximately US$1 trillion (or £494 billion), with the burden falling mostly on the bottom billion persons living in extreme poverty (BBC, 2007). Similarly, it is estimated that corruption costs the African continent around US$150 billion a year, compared to the US$22.5 billion developed countries gave in aid to Sub-Saharan Africa (SSA) in 2008 (Hanson, 2009), suggesting that rather than relying on foreign aid, African countries need to fight corruption in order to attain higher growth and development.

Recently, the Global Financial Integrity (GFI) (2012) report showed that illicit capital outflows which stem from corruption (as well as crime, tax evasion, and other illicit activity) cost developing countries (including ECOWAS) the sum of US$5.86 trillion during the 2001-2010 period. The report went further to say that the growth of illicit financial flows for the African region grew by 23.8% during the period. Of the total sum developing countries lost to the illicit activity, ECOWAS richest

country (Nigeria) lost US$129 billion and ranked among top ten countries (7th position) in terms of the magnitude of illicit capital outflows. Other than Nigeria, many ECOWAS countries were reported to have lost several millions of dollars. Thus, for countries facing problems of scarce resources, losing such huge funds further reduces their ability in closing saving-investment gap and promoting economic growth.

Corruption can affect aggregate economic performance including savings through a number of ways. For instance, corrupt government officials usually transfer the assets they acquire illegally abroad (capital flight) for the fear of being detected, arrested, prosecuted and in the process lose the assets to the state. The national savings is therefore reduced by the equivalent of the capital flight (Lessard & Williamson, 1987; Rodriguez, 1987; Swaleheen, 2008).

In the public sector of many poor countries, corruption hinders the growth of tax revenue (Chand & Moene, 1997), since funds that would have gone to government's treasury or coffers end up in private pockets of government officials or bureaucrats, thus limiting government's ability to implement projects that would help to reduce poverty and underdevelopment (Ghura, 2002). In addition, top government officials connive with the private sector or businessmen in providing false information relating to taxes and in the process short changing government (Blackburn, Bose & Haque, 2010). For instance, the Liberian parliament ordered the arrest of the head of the country's National Investment Agency (NIA) on account that he (Richard

Tolbert) unlawfully granted a tax waiver on an investment valued at US$150 million (McConnell, 2008).

Similarly, officials of the Gambia Revenue Authority (GRA) were said to be engaged in sharp practices and poor assessment of tax payments resulting in revenue losses estimated to be over two billion Gambian Dalasis (AfricaNews, 2012). The low level of government revenue (relative to expenditure) to a larger extent accounts for the frequent annual deficit-budgeting (public dissavings) operated in most ECOWAS countries and the attendant low national savings. Oto-Peralías, Romero-Ávila and Usabiaga (2013) pointed out that inadequate government revenue that accompanies corruption is responsible for huge fiscal deficits in countries where corruption is relatively high. In fact, the African Development Bank (ADB) statistics pocketbook (various years) reveals that most ECOWAS countries recorded deficits in the past few years.

Corruption does not create an enabling atmosphere for competition (Emerson, 2005) because firms that are not qualified and competent can always bribe government officials and those saddled with the responsibility of monitoring and evaluating government contracts (and programmes) execution in order to win contract awards. This reduces the quality of public services and infrastructure since firms handling government contracts can deliver substandard projects. Sometimes, roads constructed do not meet specified engineering standards. Bose, Capasso and Murshid (2008) suggested that at higher level of corruption the quality of public infrastructure

is compromised. IRIN (2008) revealed that most companies that get contracts award in Guinea pay bribes (and are incompetent), leaving the country with poorly constructed roads and buildings that in turn are managed by incompetent people. Similarly, contrabands (banned foreign goods) find their ways through the borders of ECOWAS countries because customs officials easily compromise and engage in corruption. Recently in Burkina Faso, the Director General of the Customs Services (Ousmane Guiro) was relieved of his appointment and arrested for embezzling the sum of US$3.8 million (AllAfrica, 2012). Furthermore, corruption makes it possible for foreign oil firms operating in oil producing ECOWAS countries (like Nigeria) to spill oil and flare gas with impunity, thus violating environmental standards set up by regulatory authorities, and in the process denying many their means of livelihood.

Moreover, corrupt government officials usually support investment in new projects where contracts can be inflated and private gains maximized, rather than maintaining existing infrastructures or completing on-going projects (Tanzi & Davoodi, 2002). For instance, foreign governments accused the former President of Senegal (Abdoulaye Wade) for spending US$70 million on the African Renaissance Monument (ARM) whose initial budget was US$25 million (Ly, 2010). In addition, preferences are given to projects that guarantee huge bribes and/or kickbacks even if the socio-economic benefits from such projects are negligible. To this end, Gupta, de Mello and Sharan (2002) opined that authorities use discretionary power to favour defense or military spending including arms purchase that takes a larger share of the GDP and government expenditure, while contract awards are done in secrecy.

Boutreux (2010) reported that mining licenses and contracts are awarded without following due process, while agreements are done in secrecy in Guinea. This ensures that mining firms (most of them foreign) make huge profits at the expense of the poor country.

Corruption also accounts for the high cost of doing business in many poor countries because businessmen have to bribe government officials in order to register their businesses, collect licenses and permits, to mention just few. Since corruption is a tax on private investment (Shleifer & Vishny, 1993; Wei, 2000), it has a disproportionate impact on transaction costs including reducing profitability (Everhart, 2010; Goorha, 2000). Thus, corruption has adverse effects on private investment (Asiedu, 2006; Asiedu & Freeman, 2009; Mo, 2001; Smarzynska & Wei, 2002; Wei, 2000) and economic growth (Gyimah-Brempong, 2002; Mauro, 1995).

Also, the Business Anti-Corruption Portal (2011) observed that enforcement of commercial contracts and settlement of commercial disputes, obtaining public utility services, import licenses, among other things in Mali reqiure payment of bribes. For those unwilling to cooperate, they may have to spend weeks or months before they are attended to or have their request/application turned down. Majority of the entrepreneurs (or investors) that cannot afford to pay bribes are compelled to join the working class, earning very low wages as a result of the high labour supply (Ahlin, 2001; Foellmi & Oechslin, 2007; Blackburn & Forgues-Puccio, 2007), leading to higher poverty and income inequality including declining savings.

Corruption reduces investment in human capital like education because opportunities to maximize private gain are less (Mauro, 1995). Many ECOWAS countries devote a meager of their annual budget to education, with Nigeria the sixth largest oil exporter giving less than 10% of its annual budget to the education sector over the years. This reduces people's access to education, lowers their productivity and income earning capacity as well as savings. In countries where corruption is endemic, it encourages rent-seeking behaviour while discouraging skills acquisition, innovation and entrepreneurship. Thus, it is very common to see rich families giving preference to public sector employment like government ministries and agencies with a view to sustaining their rent-seeking activities (Dabla-Norris & Wade, 2002). Moving from one ECOWAS countries to another, children and family members of top government officials and politicians easily find their way to 'Juicy' public or government owned corporations (where corruption is rife) or get appointment as cabinet members. For instance, the former Senegalese President Abdoulaye Wade appointed his son Karim as a Minister (Ly, 2010). Similarly, a former Interior Minister (Désiré Tagro) in Cote D'Ivoire was accused of and investigated for influencing the recruitment of members of his ethnic group into the National Police Academy (Oved, 2010).

In corrupt societies, only the few close to the corridor of power have access to the nation's resources, while the poor are denied the access to government's programmes (such as social amenities, subsidies, and transfers) intended to get them out of poverty. Sometimes, sick patients are required to pay for services such as health even though it is meant to be free. In addition, funds set aside for the

provision of these services are embezzled or misappropriated by government officials (Blackburn & Forgues-Puccio, 2007). Also, the masses lack access to income generating opportunities as government officials prefer to investment in capital-intensive projects rather than labour-intensive projects that will contribute meaningfully to their socio-economic wellbeing (Leite & Weidmann, 1999), leading to adverse effects on income distribution and poverty (Gupta *et al.*, 2002).

Also, corruption discourages the flow of foreign investment to a country because it raises the cost of doing business (Wei, 2000). This limits the country's ability in reducing the saving-investment gap, creating job opportunities, raising incomes and savings. In economies where corruption persists (and there is lack of good governance), people's trust in the government wanes overtime and this affect their choices including savings and investment decisions. Aizenman (2005) pointed out that, distrust may force people to refrain from increasing their savings (or investment) even at higher real interest rates (or returns) since they are not certain that government's (future) policies will be implemented in the best interest of the people. The situation becomes aggravated when savings and investment are taxed arbitrarily and in an unpredictable manner (Aizenman, 2005). The declining propensities to save and invest lead to low national output and incomes including falling standard of living, all of which in turn result in low savings.

More so, Chinn and Ito (2007) advanced an important reason why the existing legal system may minimize or breed corruption, and therefore affect savings and

investment decisions. The authors argued that if the legal system efficiently reduces corruption, promote law and order, and guarantee property rights and contracts, it will encourage among other things savings and investment. But if the legal system is unable to prevent break-down of law and order, minimize corruption and guarantee property rights and contracts, it will adversely affect private choices such as savings and investment.

Thus, corruption reduces government revenue and investment in public projects that would enhance economic growth, reduce poverty and income inequality including lowering unemployment. Moreover, corruption encourages capital flight and rent-seeking, impedes the growth of small and medium enterprises (SMEs) and discourages entrepreneurship and skills acquisition, as well as raising the costs of doing business. These and many more tend to lower national incomes and savings.

Political instability also remains a serious challenge to the ECOWAS. Political instability can be viewed in two ways (Alesina & Perotti, 1996; Alesina, Ozler, Roubini, & Swagel, 1996). The first one asserts executive instability and refers to frequent changes in government via constitutional or unconstitutional approach (for example, *coup d'état*). The other takes the form of social unrest and/or political violence. Once instability ensues within the political environment, policy makers are usually left with the option of making not only sub-optimal and short-term macroeconomic policies but also switching policies, thus creating volatility that

comes with adverse consequences on the economy (Aisen & Veiga, 2013; Alesina *et al.*, 1996).

Earlier, Edwards (1996) argued that higher degree of political instability tends to lower government savings, implying that if the probability of changing the government or party in power is high, the incentive to save (by the government in power) will be low. The author emphasized that, since it takes some time before savings translate to investment, production and consumption, the projects/programmes initiated by the government or party in power today will probably be completed and their benefits realized in the future when opposition party would have assumed power. In this case, the credit of such projects/programmes will usually go to the opposition, even though they were initiated by the party previously in power. Also, political polarization (which refers to the differences in political parties preferences) affects government decisions to save. If the preferences of the party in power are the same as those of the opponents seeking power, then the party in power will have the urge to save. However, if the preferences of the party in power and opponents are not the same (higher degree of political polarization) then the tendency to save by the party in power will be low (Edwards, 1996).

Furthermore, political and institutional instability may increase a state's discretionary power, and therefore encourage the violation of individual's property rights. Moreover, government actions in an unstable political environment may affect stability of basic rules such as lack of enforcement of property rights and

guarantee of contracts (Svensson, 1998), including savings decisions (Da Silva, 1998). In addition, political instability might increase the perceived uncertainties and risks associated with savings and investment. For instance, higher political instability may prevent people from spending the returns (incomes) earned from their savings (or investment), thus discouraging future savings or reducing the propensity to save (Fielding, 2003). Political instability also destroys existing physical capital and displaces human capital, as well as limiting job opportunities and personal savings (Le, 2004). Also, higher political risk leads to capital flight (Le & Zak, 2006), leading to lower national savings.

Despite the negative effects of political instability, many ECOWAS countries had no peace from the 1960s when they attained independence to the late 1980s due mainly to military coups (Edi, 2006), civil wars and ethno-religious conflicts that have continued unabated. In fact, the ECOWAS region has experienced frequent changes in government (elected or military) more than any other region on the African continent as a result of military coup in Togo (January 1963), Burkina Faso (January 1966), Nigeria (January and July 1966), Ghana (February 1966), Sierra Leone (1967) and Mali (November 1968). It is not surprising therefore, that 11 ECOWAS countries had military rulers in 1985 (Asante, 1986; Edi, 2006; Emeka & Wright, 1990; Mwakigagile, 2001).

There were also civil wars that left lasting impact in Liberia (1989-96 and 1999-2003), Sierra Leone (1991-2002), Guinea Bissau (1998) and Côte D'Ivoire (2002-

2007 and 2010-2011) (Zounmenou & Loua, 2011). Recent political instability (military coups) in Niger (2010) and Guinea Bissau and Mali (2012), and ethno-religious crises in Cote D'Ivoire, point to the fact that low and unfavourable economic outcomes arising from poor governance and corruption can lead to executive instability or worsen the political uncertainties facing countries in the region. The consequences of rising political instability include among other things non-enforcement or violation of property rights and lack of guarantee of contracts, capital flight, disruption of production activity and declining investment, falling incomes and low savings.

The foregoing discussion suggests that savings rates are relatively low in the ECOWAS, and this makes it difficult for governments in the region to raise investment in strategic sectors of their respective economies. This may have contributed to the region's low GDP growth rates, high unemployment rates, high poverty and inequality, and underdevelopment. In addition, the trend and magnitude of corruption and political instability suggest that these factors may have led to the unimpressive savings performance through among other things reduction in government revenue and investment in key sectors including human capital development; capital flight; encouragement of rent-seeking rather than promotion of innovation and skills acquisition including private investment growth; declining foreign capital inflows; rising income inequality and poverty including unemployment; disruption of production activity, displacement of human capital and destruction of physical capital. Therefore, complementing the efforts of governments

in the mobilization of domestic savings in the growth process of ECOWAS countries is very important.

1.2 Statement of the Problem

The ECOWAS has not only failed to mobilize adequate savings required to spur economic growth and development, it is also considered one of the most corrupt and politically unstable regions in world. In fact, ECOWAS savings rates have fluctuated and lagged behind those of other developing regions overtime. For instance, ECOWAS savings rates were 12.9% in 1980, 10.7% in 1990, 9.9% in 2000, and 17.1% in 2010. These values were lower compared to those of LAC (20.6% in 1980, 19.2% in 1990, 15.4% in 2000 and 20.9% in 2010), South Asia (17.4% in 1980, 21.7% in 1990, 24.6% in 2000 and 32.6% in 2010), and EAP (36.3% in 1990, 34.4% in 2010 and 46.4% in 2010). Although, ECOWAS countries have relied heavily on foreign savings to complement inadequate domestic savings, they have witnessed decline in international capital inflows due to factors such as lending constraints in international capital markets (Elbadawi & Mwega, 2000; Summers, 1988), corruption (Brunetti, Kisunko, & Weder, 1998; Wei, 2000) and political instability (Asiedu, 2006). All of these have further reduced the countries' ability to fill the already widened saving-investment gap or to substantially raise investment, including increasing and sustaining the growth of their respective economies.

Also, the TI and PRS reports on corruption for several years indicate that ECOWAS countries are very corrupt. For example, the TI's CPI for individual ECOWAS

country (with the exception of Cape Verde) was below 5 out of a maximum value of 10 during the 1996-2012 period. In same vein, the PRS corruption index for almost all the countries was lesser than 3 out of a maximum of 6 from 2004 to 2011, suggesting that the countries are very corrupt. Moving from one country to another, there are evidences of pervasive corruption particularly in the government sector. Some of these include alleged offering of bribe by Benin's telecom service provider (TITAN) to influence the re-election of incumbent President (Mathieu Kérékou) in order to get more favour if the President was re-elected, diversion of US$9.7 million meant for investment in offshore financial markets by the Director General of the Social Security Office (Idrissa Zampaligre) and embezzlement of US$3.8 million by the Director General of the Customs Service (Ousmane Guiro) in Burkina Faso; and misappropriation of US$50 million meant for Trafigura toxic waste victims by a former Interior Minister (Désiré Tagro) in Cote D'Ivoire.

Other cases of corruption in the region include issuance of drivers' licenses to families of government officials for free while those who are qualified to drive do not possess licenses, and US$2.7 million state's funds spent by President Yahya Jammeh on his 10th anniversary for taking over power in a military coup in Gambia; confirmation of payments estimated at US$20 million to about two thousand ghost workers for a period of two years by the Deputy Auditor General in Ghana; aiding of drug trafficking by military personnel in Guinea and Guinea Bissau, offering of bribes by businessmen to government officials to get their contracts applications approved including payment of bribes by officials of the national oil company to the

parliament to get oil contracts passed in Liberia; misappropriation of US$4 million Canadian development aid in Mali; and embezzlement of US$3.3 million by the budget Minister and two senior officials in Niger.

Elsewhere, the Senegalese President's son (Karim Wade) was accused of demanding US$200 million bribe from a cell phone service provider (Millicom) or risks its operating license revoked, and President Wade and his entourage spening US$1.6 million on summer vacation in Switzerland and France in 2009, while top military officers diverted and spent US$1.9 million British government's grants on plasma television and hunting rifles in Sierra Leone. In Nigeria, high rank government officials and cabinet members have also been fingered in several corruption cases including demanding for bribe by members of parliament from an oil importer in order to remove his company from the list of those indicted in the oil subsidy scandal running into several millions of dollars, request for bribe by members of parliament from a former education Minister in order to approve his ministry's budget, and diversion of public funds for personal use by many state Governors.

Another problem faced by the ECOWAS over the past decades is political instability arising mainly from military coups including ethnic and religious crises. For instance, there were military coups and/or counter coups in Burkina Faso (1980, 1982, 1983, and 1987), Mauritania (1980 and 1984), Liberia (1980 and, 1989), and Nigeria (1966, 1983, and 1985). Also, between 2009 and 2012, the military staged coup in Guinea Bissau, Mali and Niger. In addition, civil wars occurred in Liberia

(1989-96 and 1999-2003), Sierra Leone (1991-2002), Guinea Bissau (1998) and Cote D'Ivoire (2002-2007 and 2010-2011). Interestingly, the PRR demonstrates that most ECOWAS countries are facing serious political crises. For instance, whereas Gambia and Ghana have been rated as moderate risk (60%-69.9%), the remaining countries were rated as either very high risk (0%-49.9%) or high risk (50%-59.9%) from 2004 to 2011.

The high levels of corruption and political instability may have contributed to a greater extent the region's low savings rates. For instance, corruption reduces government tax revenue (Chand & Moene, 1997; Ghura, 2002) and therefore encourages deficit budgeting or public dissaving (Oto-Peralías *et al.*, 2013); discourages foreign direct investment (FDI) (Asiedu & Freeman, 2009; Wei, 2000); decreases economic growth (Gyimah-Brempong, 2002); encourages capital flight (Hutchcroft, 1997; Rose-Ackerman, 1999; Swaleheen, 2008); reduces investment in human capital (Mauro, 1995); raises poverty and inequality (Gupta *et al.*, 2002); hinders the growth of SMEs (Tanzi & Davoodi, 2002); forces prospective employers to join the working class rather than encouraging them to create jobs (Blackburn & Forgues-Puccio, 2007); leading to low national savings.

On the other hand, political instability creates volatility that has negative consequences on the economy (Aisen & Veiga, 2013; Alesina *et al.*, 1996); increases the risk associate with savings (Fielding, 2003); lowers government's urge to save (Edwards, 1996); encourages the violation of individual's property rights and lack of

guarantee of contracts (Da Silva, 1998; Svensson, 1998); destroys existing physical capital, displaces human capital, limits employment opportunities and reduces personal savings (Le, 2004); encourages capital flight (Le & Zak, 2006); leading to declining national savings. Thus, corruption and political instability tend to reduce the capacity of a nation and its people to save.

Furthermore, most studies on savings have focused on developed regions/countries such as the Organization for Economic Cooperation and Development (OECD) (Callen & Thinmann, 1997; De Serres & Pelgrin, 2003; Haque, Pesaran, & Sharma, 2000; Hondroyiannis, 2006), and Group of Seven (G7) countries (Hüfner & Koske, 2010). Whereas some studies looked at developing countries and included African countries (Masson, Bayoumi, & Samiei, 1998), others focused primarily on African countries (Elbadawi & Mwega, 2000; Kelly & Mavrotas, 2003; Mualley, 2011). Also, many studies conducted in the ECOWAS region focused on individual country without any basis for generalization of the outcome or findings of such studies for the entire region (see Nwachukwu & Egwaikhide, 2007; Nwachukwu & Odigie, 2011; Olusoji, 2003).

In addition, there appears to be dearth of empirical studies conducted to examine the impact of corruption and political instability on savings particularly in the ECOWAS region. To our knowledge, the only study (Adewuyi *et al.*, 2010) that focused on the ECOWAS region did not include corruption and political instability in the savings model. Also, studies that focused on savings and political instability considered only

a few ECOWAS countries (see Edwards, 1996; Venieries & Gupta, 1986). Similarly, studies linking savings to corruption left out many ECOWAS countries (Swaleheen, 2008).

Lastly, studies that investigate whether the effects of corruption and political instability on savings depend on income levels (or whether income moderates the effect of corruption and political instability on savings) are almost non-existent. Given that income level varies across countries, it is possible that the impact of corruption and political instability on savings is not the same for countries with different income levels. Since low income countries tend to be more corrupt (Blackburn, Bose & Haque, 2010; Mauro, 1995; Triesman, 2000), politically unstable (Mauro, 1995) and have low savings rates (as indicated by World Development Indicators), the impact of political instability and corruption on savings may depend on income levels, so that for low income ECOWAS countries the adverse effect of both factors (corruption and political instability) on savings would be higher. On the contrary, at high income levels countries tend to be politically stable (Adelman & Morris, 1968; Alesina *et al.*, 1996; Helliwell, 1994), and less corrupt (Montinola & Jackman, 2002; Van Rijckeghem & Weder, 2001; Schumacher, 2013), so that the impact of the corruption and political instability on savings should be lesser. Thus, given the level of corruption and political instability, we expect savings to be relatively higher at high income levels than at low income levels.

The foregoing discussion therefore raises certain questions, which include:

(i) does corruption affect savings rates in the ECOWAS?

(ii) does political instability affect savings rates in the ECOWAS?

(iii) does the effect of corruption on savings rates depend on income level in the ECOWAS?

(iv) does the effect of political instability on savings rates depend on income level in the ECOWAS?

1.3 Objective(s) of the Study

Following the questions raised above, the general objective of this study is to examine the effects of corruption and political instability on savings in the ECOWAS countries. The specific objectives of the study are:

(i) to examine the effect of corruption on savings rates in the ECOWAS.

(ii) to examine the effect of political instability on savings rates in the ECOWAS.

(iii) to examine whether the effect of corruption on savings rates depend on income level in the ECOWAS.

(iv) to examine whether the effect of political instability on savings rates depend on income level in the ECOWAS.

1.4 Justification of the Study

The importance of this study derives from the desire of ECOWAS governments to reduce among other things poverty, income inequality, unemployment, and barriers

to economic development. This implies that key sectors of the economy such as agriculture, energy and power, transport, health, communication and education, have to grow at higher rates. To achieve this goal, huge funds are needed to invest in the sectors. Unfortunately, most governments in the region cannot provide the needed funds due to inadequate government revenue. Moreover, domestic savings rates have continued to decline and/or fluctuate across the countries. In addition, ECOWAS countries have not been able to attract the desired level of foreign capital to reduce the saving-investment gap due to international capital markets lending constraints (Elbadawi & Mwega, 2000; Summers, 1988) and corruption (Brunetti *et al.*, 1998; Wei, 2000) including political instability (Asiedu, 2006). Therefore, it becomes very important to look inward and mobilize domestic savings to accelerate economic growth, reduce poverty and inequality, unemployment, including raising the overall welfare of the citizens.

This research work is timely and justifiable for several reasons. First, it focuses on the ECOWAS, one of the least developed regions in the world. Second, the region has lagged behind its counterparts in the past four decades in terms of savings rates and continues to face difficulties in attracting international capital in order to reduce saving-investment gap. Third, most ECOWAS countries are reported to be experiencing high level of corruption and political instability as the corruption perception indices and political risk rating have revealed. Fourth, past (empirical) studies on savings and its determinants in the ECOWAS region focused only on individual country and lacked the basis for generalization of any findings from the

studies (Adewuyi *et al.*, 2010). Also, most of the studies did not deem it important to investigate the effect of corruption and political instability on savings (see Nwanchukwu & Egwaikhide, 2007; Nwanchukwu & Odigie, 2011; Olusoji, 2003; Wafure & Abu, 2009). More so, the recent study by Adewuyi *et al.* (2010) that analyzed the determinants of savings rates in ECOWAS failed to include corruption and political instability in the savings model.

Fortunately, Collier (1999) submitted that during years of civil wars (political instability) GDP per capita declined continuously due to factors that include destruction of capital stock, dissaving and capital flight. Similarly, Le (2004) emphasized that political instability destroys not only existing physical capital but also displaces human capital, including reducing employment opportunities and personal savings. Also, Edwards (1996) and Fielding (2003) suggested that political instability tends to reduce savings, while Swaleheen (2008) contended that corruption can have an adverse effect on savings. Moreover, the studies conducted on savings and political instability (Edwards, 1996; Venieries & Gupta, 1986), and savings-corruption relationship (Swaleheen, 2008) left out many ECOWAS countries considered to very corrupt and highly politically unstable in their analysis.

Furthermore, given differing income levels across countries, this study examines whether the impact of corruption and political instability on savings depend on income levels. For high income countries the negative impact of corruption and political instability may be lesser and such countries can save. However, the adverse

effects of corruption and political instability on savings may be very high in low income countries such as ECOWAS and therefore make it difficult for them to save.

This study is important because it has shed more light on the measures to be taken by policy makers and governments to encourage the mobilization of domestic savings in order to spur and sustain economic growth in the ECOWAS region. Also, it is expected that this study will rekindle the discourse or debate on the role of corruption and political instability on savings. Additionally, this study focuses on the ECOWAS region because of the general perception that Africa is structurally different from the rest of the world, African policy makers believe that lessons from LAC and East Asia are not applicable to the continent because it is structurally different, and African leaders can learn from one another (Asiedu, 2006). Lastly, focusing on the ECOWAS region reduces the heterogeneity found in many cross-national studies (Gyimah-Brempong, 2002).

1.5 Scope of the Study

This study examines the effects of corruption and political instability on savings, and also investigates whether the effects of corruption and political instability on savings depend on income levels in the ECOWAS region (consisting of 15 countries - Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo). The region has been chosen because it has recorded lower savings rates compared to other developing regions of the world in the past four decades. Couple with these, are the high levels

of corruption and political instability in the region as reflected by the corruption and political instability indicators. The study covers the period of 1996-2012 (and excludes Liberia due to unavailability of savings data). The period has been chosen because data for variables such as corruption perception index and political instability indicator are available from the year 1996. Other than the TI and ICRG indices, other measures of corruption and political instability were employed during estimation, to enable us check for consistency and robustness of the results. They include the Global Insight Business Conditions and Risk Indicators corruption and political instability indicators, as well as the Cingranelli-Richards Human Rights Database and Political Terror Scale indicator of political instability.

1.6 Plan of the Study

The thesis is arranged as follows. Chapter One consists of the introduction, statement of the problem, objective of the study, justification of the study, scope of the study, plan of the study, and overview of corruption, political instability and saving rates in ECOWAS countries. Chapter Two is the literature review. Chapter Three is the research methodology, and it comprises of theoretical framework, model specification, justification of variables, method of analysis, and sources of data. Chapter Four is for discussion of results. Chapter Five contains summary of major findings, policy implications, conclusion, limitation of the study and recommendation for future research.

1.7 Overview of Corruption, Political Instability and Savings Rates in ECOWAS Countries

Founded in 1975 and located in West Africa, the ECOWAS is a regional organization which comprises of 15 countries namely Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. The mission of ECOWAS is to promote economic integration in all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial issues, social and cultural matters. Although the primary objective of establishing the ECOWAS was the attainment of regional economic development, poor savings including political instability and public sector corruption remain threats to its goal of attaining regional and global economic power. This section highlights the available information on corruption and political crises including savings patterns across ECOWAS countries.

1.7.1 Corruption in the Economic Community of West African States

In many ECOWAS countries, government officials (or bureaucrats) exploit their positions in public office (through illegal or unauthorised means) to make and maximize personal gains. Usually, government transfers some responsibilities to bureaucrats who are expected to discharge these responsibilities without any fear or favour, and in line with existing civil service rules/regulations. However, such a delegation of authority gives bureaucrats some administrative discretion which may be used to capture economic rents through kickbacks and bribe collections

(Blackburn *et al.*, 2010). To the extent that bureaucrats connive with households and businesses to provide false information to government including evading taxes, leading to huge loss of resources available for productive investments (Blackburn *et al.*, 2010), and preventing a country from attaining the desired level of development needed to reduce income inequality and poverty (Gupta *et al.*, 2002).

Despite the adverse effects of corruption, most ECOWAS governments seem to lack the political will to tackle corruption head-on, as efforts aimed at reducing corrupt activities have yielded little (if at all any) success. The inability of these countries to adequately invest in the fight against corruption is attributable to government's scarce resources (Olken & Pande, 2011; Triesman, 2000). In 2001, ECOWAS countries gathered in Dakar, the capital of Senegal, and adopted the Protocol on the Fight against Corruption (Atuobi, 2007). Similarly, a final communiqué was drafted as a follow-up to the meeting of the Network of National Anti-Corruption Institutions in West Africa held in Bamako, the capital of Mali, between 12 and 15 October 2010. These meetings were held to find solutions to the lingering problems of corruption. However, corruption continues to rear its ugly head in most of the countries, as illustrated by the TI corruption perception index and ranking.

Available evidence suggests that corruption among government officials and political appointees remain very high in ECOWAS countries. For instance, in 2001, one of Benin's telecommunication service provider (TITAN) was accused of offering the sum US$2 million bribe to its agent (a close associate of the President)

in order to influence President Mathieu Kérékou re-election bid. Specifically, a larger percentage of the money was spent on the supply of the President's campaign T-shirts, and in return, TITAN sought for an increase in its share of the revenues accruing from Libercom, a subsidiary of state fixed-line company - the Benin Telecommunication (Sutherland, 2011). Similarly, government officials have also been fingered in corrupt practices in Burkina Faso. Recently, the Director General of the social security office (Idrissa Zampaligre) was sacked after he was accused of diverting the sum of US$9.7 million meant for investing in offshore financial markets (United States Department of State, 2007). In addition, the Director General of the Customs Service (Ousmane Guiro) was sacked and arrested for embezzling state's funds amounting to US$3.8 million (AllAfrica, 2012).

Although perceived to be less corrupt, Cape Verde contends with graft among police officers, while the tourism sector is not immuned from corruption related problems as contractors continue to steal sand from Santiago island beaches, one of the country's major revenue earners (Baker, 2009), thus reducing government revenue generation. Cote D'Ivoire like its peer has not done better, as its cocoa sector the major foreign exchange earner of the economy has been marred by massive corruption. For instance, a former Interior Minister and member of the former President Gbagbo's FPI party (Désiré Tagro) was investigated for misappropriating the sum of US$50 million meant for Trafigura toxic waste victims, and influencing the recruitment of members of his ethnic group into the National Police Academy. In addition, it was alleged that the Sagem contract for the production of new identity

cards and voters list estimated at US$100 million was tampered with and needed to be investigated (Oved, 2010).

In Gambia, many government officials saddled with the responsibility of issuance of licenses are reported to be offering the licenses to friends, family members (including their sons and brothers) for free of charge while many qualified drivers do not possess licenses (Tallinding, 2012). Also, high-rank security officers influence the recruitment exercise of the security services with the sole objective of ensuring that family members, friends, or relatives are selected by trainers (Tallinding, 2012). Moreover, President Yahya Jammeh allegedly used his office to secure the release of his friend Babanding who was apprehended for offering bribes to the United States Customs to facilitate the importation of military helicopters meant for the President.

Similarly, the President owned New Millennium airline was allegedly used by Baba Jobe (the President's associate) to facilitate his illegal businesses including gun-running and diamond smuggling during the civil wars in Sierra Leone and Liberia in connivance with Charles Taylor and Foday Sankoh (Hawa, 2008). Other forms of corruption levelled against the President include forcing public institutions to pay thousands of Dalasis (local currency) for media advertisement to praise and pray for him during functions like his so-called July 22nd Revolution and his son's naming ceremony (Hawa, 2008); and US$2.7 million state's fund spent on the 10th anniversary of Yahya Jammeh taking over power in a military coup on July 22nd 1994 (IRIN, 2004). Recently, officials of the Gambia Revenue Authority (GRA)

were said to be engaged in sharp practices resulting in tax revenue losses estimated to be over 2 billion Gambian Dalasis (Africanews, 2012).

More so, corruption in Ghana has been reported to be rife from the road to the agricultural sector, as millions of Ghanian Cedis (local currency) are either misappropriated or unaccounted for daily (Odoi-Larbi, 2012). The civil service, police service and state intervention programmes such as the School Feeding Programme (SFP) and National Youth Employment Programme (NYEP) are used as conduit pipe by government officials to siphon public funds. It was reported recently, that a supporter and financier of the ruling National Democratic Congress (NDC), Alfred Agbesi Woyome (a businessman) went to court to claim the sum of US$27 million under the pretence that he was awarded contract by the government which he has completed, but has not been paid. After investigation, the Ghana's Economic and Organised Crime Office (EOCO) discovered that Woyome had offered US$400,000 bribe to the then Chief State Attorney to rob the state of such an outrageous money (Odoi-Larbi, 2012). Earlier in March 2002, the Deputy Auditor-General confirmed that more than US$20 million was paid to almost 2,000 ghost workers whose names appeared on government pay-roll in the previous two years (Atuobi, 2007).

In Guinea, corruption is rampant among military personnel and Multinational Corporations (MNCs) who struggle to get their fair share of the huge mineral deposits in the country. Mining licenses and contracts are granted and/or awarded without following due process, while agreements are done in secrecy and in a

manner that the benefits going to the economy is negligible compare to the huge profits the mining firms realize in the end (Boutreux, 2010). Also, IRIN (2008) reported that protesters clashed with security forces on account of President Lansana Conte's releasing some of his allies who were detained on corruption charges in early 2007, while drugs traffickers offer top-rank military officers bribes to facilitate the movement of drugs, thus avoiding any risk of arrest or imprisonment. Also, corruption among other things has subjected Guinea Bissau to the whims and caprices of drug dealers especially from Latin America who use the country as a transit and base for their illicit trade (Horta, 2007). The military junta in the country has long legitimized corruption and to a larger extent support drug trafficking within and along the waters of Guinea Bissau, including warning honest officers not to make any attempts in stopping their illegal activities otherwise they will get killed. In fact, the military coup in early 2012 was attributed partly to corruption. The corruption situation in Guinea Bissau is similar to that of Guinea, and it remains one of the most corrupt nations in ECOWAS.

Furthermore, Liberia's mineral sector remains vulnerable to corrupters. For instance, Peter Coleman, a senior Senator representing the Grand Kru county a region known for its mineral deposits, pointed out that corruption is the bane of development in the county because there is little evidence to show that the county is richly endowed (Doe, 2012). Similarly, an international organization (Global Witness) observes that prior to the discovery of oil, corruption had been very high in the oil sector of Liberia and found that government officials are offered bribes by businessmen to get

their contracts applications approved. For example, the National Oil Company (NOCAL) was accused of paying bribes to legislators in order to get oil contracts passed (Butty, 2011), while the parliament requested for the arrest of the head of the National Investment Agency when it was discovered that he (Richard Tolbert) unlawfully granted a tax waiver on an investment valued at US$150 million (McConnell, 2008).

The Malian economy is one which has also been labelled very corrupt. Recently, it was reported that the Canadian development aid (grants) to the poor country was misapropriated or misused (CBCnews, 2011). In fact, investigations revealed that the sum of US$4 million had been misused, thus forcing the Fund to withold US$22.6 million grant meant for the country. Similarly, in 2011, the Business Anti-Corruption Portal revealed that enforcement of commercial contracts and settlement of commercial disputes, obtaining public utility services (like telephone, water connections) and import licenses, public procurement and transporting of goods in Mali as well as across its borders usually require paying bribes and/or facilitation payments. Also, the recent coup in Mali is traceable to the pervasive corruption among government officials with the rich getting richer while the average Malian has seen little if any improvement in his/her life (Moseley, 2012).

Niger Republic has also toed the path of its neighbour-countries as very corrupt. For instance, in 2011, Niger's budget Minister and two senior officials were accused of embezzling US$3.3 million, leading to their sack. Also, the previous administration

led by Mamadou Tandja was alleged to have misappropriated US$186 million state's funds which the present administration had promised to investigate (UNPAN, 2011). In addition, corruption among prison staff seems to be rampant, and prisoners can easliy offer bribes to the officials to leave the prison during the day only to return to serve their sentences in the evenings (Wikipedia, 2012). Besides, civil servants frequently demand for bribes to provide public services, while corrupt politicians walk freely on the streets because the judiciary is plagued with corruption and experiences excessive interferences from the government in the course of discharging their duties (BTI, 2012).

Elsewhere, Nigeria presents a classical state of corruption with various sectors of the economy having their fair share of the canker-worm. From mining and oil, to education, to aviaton and health sector, corruption cases have been reported. Both the parliament and executive arms of government including the judiciary have been found culpable in corruption related cases. Recently, a highly respected member of the Federal House of Representatives (Farouk Lawal) who chaired an adhoc committee set-up to investigate allegations that certain oil marketers collected monies (fuel subsidy) from the federal government of Nigeria to import fuel which they did not do, was in turn accused of asking for US$3,000,000 bribe (of which US$620,000 he had received) from a business mogul and owner of an oil marketing firm (Femi Otedola) in order to remove his company's name from the list of indicted firms (Obour, 2012).

Other reported cases of corruption in Nigeria include (but not limited to) the demand for bribe by a former Senate President Adolphus Wabara from a former Minister of education (Professor Fabian Osuji) so that the Senate can approve the amount the Ministry he (the Minister) oversees requested for during budget defense; arraignment of a former special adviser and Minister of aviation (Femi Fani-Kayode) for mismanagement several millions of dollars meant for the development of the aiports and the avaition sector; conviction of former Governors of Bayelsa State and Delta state; and arraignment of many former Governors by the Economic and Financial Crimes Commission (EFCC). Recently, a former Governor of the oil rich Delta State in Nigeria was sentenced by a London Court to 13 years in prison for stealing state's funds and money laundering, even though the Nigerian judiciary had given him a clean bill of health. More worrisome is the revelation that a serving Director in the civil service kept N2 billion cash belonging to tax-payers in his house (Jason, 2012). In addition, multinational corporations (MNCs) have been fingered in encouraging corruption in Nigeria notable among these firms are Sagem, Halliburton, and Siemens SA (Otusanya, Lauwo, & Adeyeye, 2012).

In Senegal, government officials and politicians are reported to be treating corruption cases with levity because quiet a number of them engage in sharp practices. For instance, the former President - Abdoulaye Wade decreed that the anti-corruption watch group he established had no powers to investigate him and his office following allegations that the his son (Karim Wade) had instructed Millicom, a company that provides cell phone services in the country to part with the sum

US$200 million or gets its operating license revoked, and subsequently revoking the license because the company did not comply (Hinshaw, 2010). Also, in August 2009, it was reported that President Wade and his entourage spent US$1.6 million on summer vacation in Switzerland and France, while in september the same year, the President approved the sum of US$200,000 gift for Alex Segura an official of the International Monetary Fund (IMF) who was leaving Senegal after the completion of his assignment in the country.

There are other allegations levelled against President Wade including travelling with an entourage of over 100 persons with two chartered planes which gulped several thousands of dollars to attend the Millenium Challenge Corporation Compact (MCC) in Washington; using public funds to finance purchases of properties in France and directing all the mayors of the community in which these properties are located to sell them and use the proceeds for the betterment of their societies following outcry by whistle blowers; and spending US$70 million on the African Renaissance Monument whose initial budget was US$25 million.

Although there is relative peace in Sierra Leone lately following the war that claimed many lives, a truth and reconciliation commission set up by the government found that one of the major causes of the war was high corruption that existed at every level of government, and therefore advised that to avoid a repeat of the war, corruption must be eliminated (Economist, 2009). Recently, the country's Anti-Corruption Commission (ACC) under the leadership of Abdul Tejan-Cole indicted

top officials of the secretariat and accused them of embezzling donated funds. Moreover, the WikiLeaks cable recently revealed that high-rank military personel diverted and used the grant from Britain put at US$1.9 million to purchase plasma televisions and hunting rifles (Pickings, 2011). Lastly, despite the efforts by the Togolese government to putting a stop to corruption, the Togo-Ghana border is reported to be a nightmare for travellers. Knowing fully that ECOWAS guarantee free movement for its citizenss within the member countries, immigration personnel at the border posts demand for payments ranging from ¢1,000 to ¢20,000 from users of the border. It is also reported that travellers who refuse to pay are usually beaten up by these officers, thus discouraging free movement of people and making trade between the countries to shrink. Unfortunately, those who possess passport often pay more than those without passport. This tends to undermine the attainment of the goals establishing the ECOWAS (Heritage, 2006).

Looking at the TI corruption perception index (CPI) and ranking, one can imagine the extent of corruption in ECOWAS countries. As stated earlier, a higher CPI indicates that a country is less corrupt, but a lower CPI illustrates higher level of corruption in a country. In the case of ranking which is a reflection of the CPI, a higher value shows worsening corruption condition, while a lower value implies improvement in the fight against corruption. For instance, Benin's CPI and ranking indicate that the country is among world's most corrupt nations. The country's ranking (and CPI) worsened from 77(3.2) in 2004 to 121(2.5) in 2006, before improving slightly to 96(3.1) in 2008. In 2009 and 2010, Benin's corruption status

deteriorated as its ranking and CPI stood at 106(2.9) and 110(2.8), respectively. However, in 2011, the country's status improved with a ranking of 100 and CPIof 3. Similarly, Burkina Faso's corruption status worsened as its ranking and CPI declined from 70(3.4) in 2005 to 79(3.2) in 2006, and further to 105(2.9) in 2007. In 2009, there was a slight improvement, as the country recorded 79(3.6), before falling again to 98(3.1) and 100(3), in 2010 and 2011, respectively.

The challenges notwithstanding, Cape Verde appears to have persistently ranked higher (with a higher CPI) than its peer, implying that it has done relatively better in the fight against corruption. For instance, Cape Verde's ranking and CPI were 49(4.9) in 2007, 46(5.1) in 2009 and 41(5.5) in 2011. But Cote D'Ivoire's ranking and CPI have been rather discouraging. For instance, the ranking and CPI worsened from 71(2.7) in 2002 to 133(2.0) in 2004, 154(2.1) in 2009, and 154(2.2) in 2011. Similarly, Gambia's ranking and CPI reveal that corruption is on the rise, as both moved from 90(2.8) in 2004 to 121(2.5) in 2006, and 158(1.9) in 2008. However, Gambia has recorded some improvement lately, with its ranking and CPI put at 106(2.9) in 2009, 91(3.2) in 2010 and 77(3.5) in 2011.

Despite of the cases of corruption cited earlier, Ghana seems to be the second most successful country with a relatively low corruption problems after Cape Verde, and it appears to have maintained that position. For instance, Ghana's ranking and CPI were 64(3.6) in 2004, 69(3.7) in 2007, and 62(4.1) in 2010. Guinea's level of corruption remain the worst in the region with its ranking hovering around 160-170

since 2006, while the highest CPI attained by the country was 2.1 in 2011. In the same manner, Guinea Bissau's ranking ranged between 147-162 since 2007, while the maximum CPI it attained was 2.2.

Moreover, the ranking and CPI indicate that between 2005 and 2008, Liberia was one of the most corrupt countries, ranking well below 100. Since 2009, its ranking has improved rising above 100 with a CPI not less than 3. The massive corruption in Mali is reflected in its ranking and CPI. For instance, Mali's ranking of over 100 since 2007 (excluding 2008) shows how bad the situation is in the country. Similarly, the country's CPI has remained below 3 except in 2008. In addition, Niger, Nigeria and Sierra Leone have consistently ranked below 100, while their CPI is yet to reach the average. Although previously ranked above 100 up to 2009, Senegal's ranking has fallen below 100 and its CPI less than 3 since the year 2010. Lastly, Togo has not in any way performed better than other countries in the region because its ranking and CPI reveal a huge failure on the part of the authorities who have done little or nothing to tackle corruption. In fact, Togo has ranked below 100 since 2006.

Thus, available evidence suggest that corruption in the public sector remain high in ECOWAS countries, with many government officials and political appointees using their administrative discretion to maximise private gain through collection of bribes and embezzlement or diversion of public funds, to mention just few. The implications of corruption include inadequate government revenue (Ghura, 2002),

poor economic growth (Gyimah-Brempong, 2002; Mauro, 1995; Ugur & Dasgupta, 2011), declining productivity (Bentzen, 2012), discouraging foreign capital inflows (Wei, 2000), encouraging capital flight (Swaleheen, 2008), widening income inequality and poverty (Gupta *et al.*, 2002), and as a result low savings.

1.7.2 Political Instability in the Economic Community of West African States

Political instability is a common characteristic of ECOWAS countries and it has continued to pose serious threat to the attainment of the objectives the ECOWAS set out at its inception. Although political instability can take many forms such as change of government via *coup d'état*, civil unrest, violence etc., military coups have become the greatest danger facing the region. In fact, undemocratic/unconstitutional changes of government seem to be the norm rather than the exception (Akenroye, 2012). Among other things, frequent coups in the ECOWAS have been linked to the absence of economic opportunities, youth unrest, organized crimes, piracy, endemic corruption that could paralyze state apparatuses, more spending on military arms than public spending for basic services, failure of the ruling class to respect the rule of law and democratic principles which make many presidents to want to remain in power forever, abuse of human rights, military interference in politics, and absence of institutional reforms (Akenroye, 2012). Earlier, Zounmenou and Loua (2011) submitted that the major threats facing ECOWAS and its people include military intervention in politics, constitutional or electoral manipulation, international criminal networks, religious intolerant, communal violence, and natural disasters.

In an attempt to put a stop to unwarranted and unconstitutional change in government, ECOWAS countries agreed on a number of protocols including the Protocols on the Mechanism for Conflict Prevention, Management, Resolution, Peacekeeping and Security; the Protocols on Democracy and Good Governance Supplementary to the Protocols relating to the Mechanism for Conflict Prevention, Management, Resolution, Peacekeeping and Security; as well as the ECOWAS Conflict Prevention Framework (ECPF). In addition, the peace-keeping arm of the organization, ECOWAS Peace Monitoring Group (ECOMOG) was created to help forestall peace whenever the need arises. Despite all the efforts, the region is yet to achieve the desired peace and harmony. In fact, beginning from 1960 through the 1970s when most ECOWAS countries attained independence, there have been incidents of coup and counter-coup staged mainly by military officers in almost all the countries.

Between 1960 and 1989, West Africa turned out to be the most politically unstable region in Africa has it hosted 60% of the *coup d'état* on the continent. For instance, there were military takeovers in Burkina Faso (1980, 1982, 1983, 1987), Mauritania (1980, 1984), Liberia (1980, 1989), and Nigeria (1983, 1985). More so, in 1985, 11 ECOWAS countries had military regimes (Asante, 1986; Edi, 2006; Emeka & Wright, 1990; Mwakigagile, 2001). In addition, civil wars with lasting impact occurred in Liberia (1989-96 and 1999-2003), Sierra Leone (1991-2002), Guinea Bissau (1998) and Cote D'Ivoire (2002-2007 and 2010-2011) (Zounmenou, & Loua, 2011).

Although, the military has often cited corruption, worsening economic condition among other things as the justification for staging coup, a critical look at the ECOWAS region reveals that military administrations/governments performed worse compare to democratic governments. Once the military seizes power, they partially or completely suspend the constitution and dissolve the assembly/legislature including restricting freedom of the press. Couple with these is the arrest and imprisonment of erring journalists and political opponents. The military have also been found to be highly corrupt and wasteful in terms of management of state's resources, as well as incapacitated in reducing poverty or improving the socio-economic welfare of the people. While it is important to note that since late 1990s military coups have reduced considerably, ethnic and religious violence including boundary disputes are observed frequently in ECOWAS countries like Nigeria, Cote D'Ivoire, and Mali to mention just few. The major incidents of coup (as documented in the Encyclopaedia of Nations) are discussed below.

In the early 1960s, military coups and/or counter-coups appeared to be a 'demonstration effect' with one military takeover following another in a number of ECOWAS countries including Togo (January 1963), Burkina Faso (January 1966), Nigeria (January and July 1966), Ghana (February 1966), Sierra Leone (1967) and Mali (November 1968). Although most of the military takeovers during the 1960s were against civilian governments, the July 1966 coup in Nigeria was a counter-coup or retaliation of the January 1966 coup. In fact, the January 1966 coup in Nigeria was considered an attempt by the Igbo-tribe in the eastern part (predominantly

Christians) to get rid of prominent personalities from Northern Nigeria (mainly Muslims) because two political figures from the region namely - Sir Abubakar Tafawa Balewa the Premier of Nigeria and Ahmadu Bello the Premier of Northern Nigeria were killed in the coup. It was not surprising that the counter-coup of July same year claimed lives of many military officers of the Eastern Nigeria origin.

In the 1970s and 1980s as well as early 1990s, many ECOWAS countries had military governments or military-turned civilian governments with the Presidents being former military officers. In the latter case, most country leaders who emerged through coup remained as military leaders for a while, dissolving national legislature, suspending and banning all political parties and political activities, barring some strong opponents from contesting as presidential candidates, and then conducting controversial elections which they eventually won through electoral frauds and manipulation of the constitution. For instance, having declared himself the President of Burkina Faso after the 1966 coup, Sangoulé Lamizana banned and suspended all political parties and activities, including suspending the constitution and the assembly. All of these ensured that he conducted elections in 1978 and eventually emerged as the President.

Similarly, the current Cote D'Ivoire's President - Alassane Ouattara was barred from contesting the presidential elections in 1995 by the then President - Henri Konan Bédié who saw him as a threat to the realisation of his ambition. Bédié alleged that Ouattara was a foreigner from Burkina Faso and not eligible to contest the

presidential elections. In the same vein, when Robert Guei staged a coup that ousted Bédié and became the President, he banned his predecessor (Bédié) and Ouattara from contesting future presidential elections. Also, between 1966 and 1969 in Ghana, political activities were suspended following a military coup that ousted President Kwame Nkrumah. Moreover, political activities and parties were banned in Nigeria after military coups in 1966 and 1983.

The story has always been the same across ECOWAS countries, when military overthrows civilian governments they immediately suspend the constitution and party activities, and dissolve the assembly. The attitude of many incumbent Presidents to remain in office longer than the constitutionally required term also contributes to political crises in the ECOWAS region. For example, having spent the constitutionally required terms and serving as Niger's president for ten years, Mamadou Tandja decided to remain in office for another term beyond 2009 when he was expected to leave office. In an attempt to achieve this goal, Tandja called for a referendum amidst protests and advised from the ECOWAS to rescind his decision. But in February 2010, a group of military officers led by General Salou Djibo invaded the presidential palace and overthrown Tandja. They kept good their promise by conducting elections and handing over power to a civilian Mahamadou Issoufou. In neighbouring Nigeria, President Olusegun Obasanjo was alleged to have made efforts to alter the provisions of the constitution which stipulates a maximum of two terms of four years each for an elected President. The "third term bid" as it was coined then suffered a setback following agitations by Nigerians and opposition

parties, making Obasanjo to leave office after the completion of his second and final term in 2003.

Also, the December 2010 presidential elections in Cote D'Ivoire saw Alassane Ouattara defeating the incumbent President Gbagbo and consequently declared winner. But Gbagbo denounced the results of the elections and refused to leave office or transfer power to Ouattara. Violence erupted and many were killed while the crisis lasted. Both the African Union (AU) and United Nations (UN) warned that the country was heading for another civil war. In April 2011, Laurent Gbagbo was arrested with the help of French forces, and Ouattara was installed as the President. Although some countries have experienced relative stability but the manner in which certain Presidents are not willing to embrace ideal democratic principles by serving their terms of office and leaving at the appropriate time signals danger ahead. For instance, following the 1987 coup in Burkina Faso, Captain Blaise Compaoré became the President, and went on to win four consecutive elections (1991, 1998, 2005, and 2010) through unethical means.

Similarly, Yahya Jammeh has being the President of Gambia since staging a coup and ousting President Dawda Jawara in July 1994, who had earlier spent about twenty five years (1970-1994) in the presidency. In fact, it was alleged that Jammeh once said that he will remain in office as the President as long as God destine him to be. Moreover, in Senegal President Abdoulaye Wade who assumed office in 2000 sought for a third term presidency after completing his final term. Unfortunately,

Wade contested the controversial 2012 presidential elections but was defeated by Macky Sall who has since been installed has the President. Elsewhere in Togo, towards the expiration of his final term of office in 2003, President Étienne Éyadéma manipulated and influenced the parliament to amend the constitution in 2002, and in the process removing a clause that allowed a President to be re-elected only once, and thus creating opportunity for the late President to seek a third term in the June 2003 presidential elections.

Whereas it is commendable that military interference in politics has reduced since the late 1990s, much is left to desire as there appears to be traces of uncertainty in many democratic states arising mainly from ethno-religious crisis, poor governance and corruption, unemployment, low standard of living to mention just few. The ICRG political risk rating illustrates that except for few countries such as Gambia and Ghana, and to a lesser extent Burkina Faso and Sierra Leone, political uncertainties/risks remain very high in ECOWAS countries. For instance, Burkina Faso's PRR hovered around 60.0% - 67.0% during 1999-2009, implying that the country has had a fairly stable political environment. But a combination of ethnic and religious crises including the recent incident where the incumbent President (Gbagbo) decided not to transfer power to the winner of the last presidential elections makes Cote D'Ivoire highly politically risky. In fact, since 2002 the country's PRR has consistently been less than 50.0% (except in 2005, when it was 53.0%).

More so, Gambia's PRR which ranged between 65.0% and 71.0% (the highest in the ECOWAS) has declined considerably, averaging at 61.5 in 2010-2011. This again signals problems because one-man has being the President of the country since 1994 and seems not prepared to relinquish power sooner. Ghana appears to be one of the most politically stable countries in the ECOWAS. For instance, Ghana's PRR has remained above 60.0% since 1999, peaking at 71.0% in 2006. Whereas Guinea recorded a minimum of 50.0% during 1999-2005, its PRR has declined to less than 50.0% since 1996, suggesting that the political situation in the country has worsened. Similarly, Guinea Bissau's PRR has being declining since 2008 from 57.5% to 56.5% in 2009, 53.0% in 2010, and 52.5% in 2011.

Furthermore, the recent stability that has returned to Liberia is reflected in its PRR. For instance, its PRR has increased from less than 50.0% in 1999-2005 to over 50.0% in 2006-2011. In the case of Mali, the PRR has been declining from 66.0% in 1999 to 64.0% in 2005, 58.5% in 2008 and 57.5% in 2011, thus reflecting the recent coup that took place in 2012. Also, the intervention of the military in Niger's politics in 2009 against the government of Tandja is reflected in its PRR. For instance, from 61.0% in 2000, Niger's PRR fell to 58.0% in 2003 before climbing to 61.0% in 2005. By 2008 the PRR had dropped to 54.0%, and dipped further to 49.5% in 2011. Given the crises (ethnic and religious) in Nigeria, its PRR has been very poor. In fact, Nigeria's PRR remains below 50.0% in 1999-2011, making it one of the most politically risky countries in the ECOWAS region. Senegal's PRR shows that it has marginally done better than countries like Nigeria, Guinea and Guinea Bissau. In

fact, Senegal has always recorded a PRR of at least 50.0%, including achieving 60.0% occasionally. Other than 2005, Sierra Leone recorded a PRR of approximately 60.0% during 2004-2011 an indication of relative stability. Lastly, Togo's PRR ranged between 50.0% and 53.5% during 1999-2011, except in 2001 when it was 56.0%.

Thus, ECOWAS countries appear to be highly politically unstable, particularly during 1960-1990s, as the military did not create the atmosphere for the sustenance of democracy through *coup d'etat* and intervention in politics. The military has always given reasons such as corruption, inefficient public institutions, electoral fraud, worsening economic conditions and near-collapse of state among other things for staging coup or taking over not only civilian/democratic government but also military administration. Unfortunately, the military has been found to be worst and to a large extent responsible for the poverty and underdevelopment of the ECOWAS region. While it is often celebrated that military coup is almost a thing of the past and any attempt by the military to seize power will be resisted by regional bodies like ECOWAS, AU and UN, ethnic and religious violence, boundary disputes, as well as elected and sitting Presidents who always disregard electoral principles and manipulate the constitution to remain in office longer than the constitutionally required term also pose serious threat to the region's political stability. Earlier, it was stated that political instability comes with negative consequences which include increasing uncertainties and risks associated with investment and savings because people do not have the assurance that they will earn returns/income on their

investment or savings. Couple with this, are capital flight, destruction of physical capital and displacement human capital, including decline in employment opportunities and savings. Thus, political instability tends to limit people's capacity to earn income and save.

1.7.3 Savings Rates in the Economic Community of West Africa States

As mentioned earlier, the ECOWAS region has recorded low savings rates compare to other developing regions of the world. Similarly, it was suggetsed that the low savings may have been partly accounted for by massive corruption and political instability that have ravaged the region beginning from the 1960s when a number of the countries became independent and has continued unabated. The failure of most ECOWAS countries to curb corruption and ensure a politically stable environment (via sustenance of democracy), meant overall economic performance (and savings) remained at low levels. Figure 1.8 shows the savings rates across ECOWAS countries. It appears that individual ECOWAS country has experienced declining and fluctuating savings rates similar to the region's average.

For instance, Benin's savings rates (GSR) were 13.6% in 1977, 4.2% in 1980, 10.5% in 1995, 10.1% in 2005, and 15% in 2010. Similarly, Burkina Faso's did not fare better has its GSR also fluctuated from one period to another during the same period. For instance, the country's GSR stood at 7.7% in 1977, 9.3% in 1980, 18.6% in 1985, 15.9% in 1990 and 8.3% in 2005. Interestingly, Benin and Burkina Faso GSR fell below ECOWAS average (except in 1985 and 1990 when Burkina Faso had

higher GSR). Cape Verde appears to have done better than most countries in the region in terms of savings mobilization. Although, the country's GSR exhibited pattern similar to those of ECOWAS, it maintained its dominance over the latter.

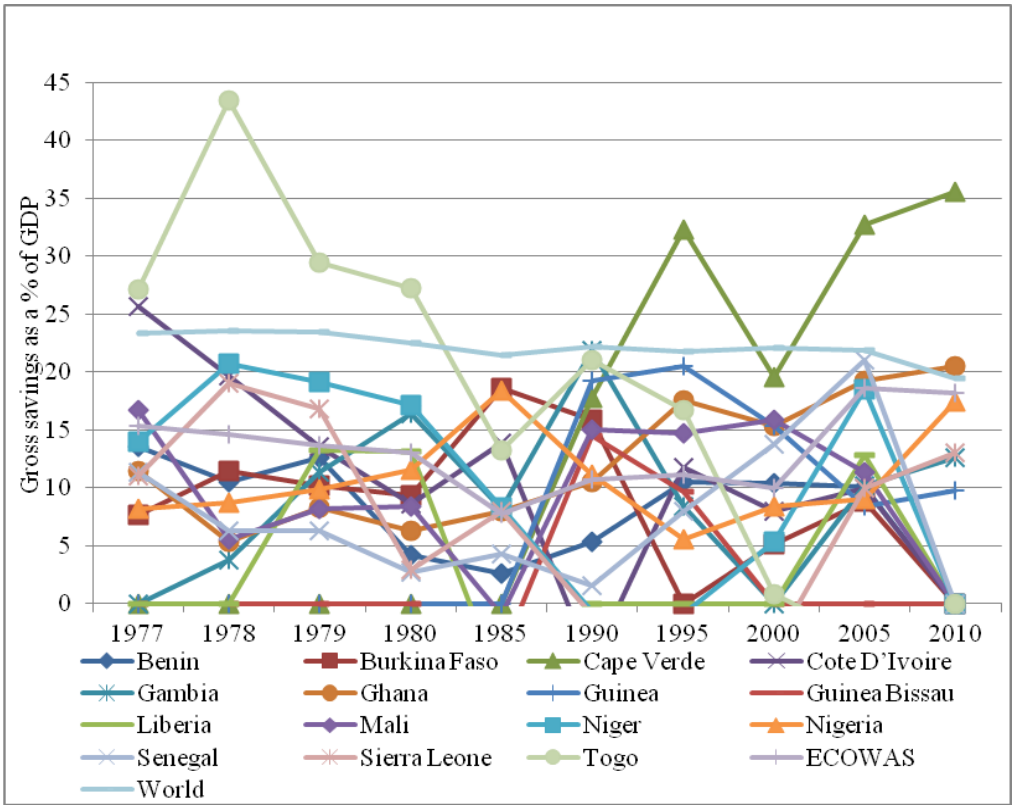

Figure 1.4
Savings Rates Across ECOWAS Countries

Although Cote D'Ivoire's GSR was relatively high compare to many countries in the region, it declined over time from 25.7% in 1977 to 8.6% in 1980, and -5.1% in 1990. The GSR was 11.8% in 1995, 8.0% in 2000, and 10.0% in 2005. Also, Cote D'Ivoire's GSR was higher than the region's average in 1977, 1978, 1979, 1985, and 1995. Gambia's GSR pattern was not different from others as it was 3.8% in 1978, 16.4% in 1980, 8.2% in 1985, 21.9% in 1990, -0.2% in 1995, 9.5% in 2005, and

9.4% in 2010. Moreover, Gambia recorded a lower GSR compare to the region's average except in 1980 and 1990. In Ghana, GSR has remianed high despite the occasional fluctuations. For instance, Ghana's GSR was 11.5% in 1977, 6.3% in 1980, 17.6% in 1995, 15.3% in 2000, 19.2% in 2005, and 20.6% in 2010.

Despite showing an impressive performance in the early years, Guinea's GSR has continued to decline. For instance, the GSR was 19.2% in 1990, 20.5% in 1995, 15.4% in 2000, 8.0% in 2005, and 7.1% in 2010. More interesting is the fact that, at higher value Guinea's GSR was higher than ECOWAS average, and at lower values Guinea's GSR was below those of ECOWAS. In Guinea Bissau, GSR was -4.3% in 1985, 14.5% in 1990, 9.7% in 1995, 5.9% in 2000, 10.7% in 2005, and 13.8% in 2010. For comparison, Guinea Bissau's GSR was lower than ECOWAS average except in 1990. Although Mali had a higher GSR compared to the region's average in 1977, 1990, 1995, and 2000, its GSR also fluctuated, declining from 16.7% to 8.2% in 1979 and further to -1.0% in 1985. The GSR stood at 15.0% in 1990, 14.7% in 1995, 15.9% in 2000, and 11.4% in 2005. Between 1977 and 1980, Niger had a relatively high GSR compare to the region's average. Unfortunately, the GSR declined consistently to 8.3% in 1985, -0.6% in 1990 and -0.9% in 1995. But the GSR returned to a rising trend increasing to 5.3% in 2000 and 18.5% in 2005.

Nigeria has not been able to mobilize adequate savings compare to smaller countries in the ECOWAS region. Even though there was persistent rise in Nigeria's GSR from 8.2% in 1977 to 9.9% in 1979 and 18.4% in 1985, the trend reversed in 1990

with GSR falling to 11.1% and further to 5.6% in 1995. The GSR has since maintained a rising trend since 2000 when it moved from 8.41% to 9.0% in 2005 and 17.5% in 2010. Morever, Nigeria's GSR surpassed ECOWAS average only in 1985, 1990 and 2010. In Senegal, GSR declined continously from 11.3% in 1977 to average at 6.3% in 1978-1979, and further to 4.3% in 1985. Although the GSR fell to 1.6% in 1990, it rose to 8.0%, 13.8% and 21.1% in 1995, 2000 and 2005, respectively.

In addition, Senegal's GSR fell short of ECOWAS average except in 2000 and 2005. Furthermore, Sierra Leone's GSR ranked among the highest in the region particularly in 1977, 1978 and 1979. But the country's GSR declined markedly to -1.0% in 1990, -3.3% in 1995 and -3.7% in 2000, making it to rank lowest during those years. For comparison, Sierra Leone had a higher GSR than ECOWAS in 1978 and 1979. Elsewhere in Togo, the GSR doubled the region's average consistently up to 1990 and was higher in 1995. But Togo's GSR nose-dived to 5.0% in 2000 and 4.9% in 2005. Thus, the savings rates of individual ECOWAS country exhibited patterns similarly to the region's average between 1977 and 2010. This dismal performance followed the poor ranking/rating and indices of the countries by the TI and ICRG in terms corruption and political instability.

1.8 Summary of Chapter

The ECOWAS region has recorded little success in savings mobilization, and its savings rates were below those of other developing regions during 1970-2010. Also,

ECOWAS is considered one of the most corrupt and politically unstable regions in the world. Furthermore, little has been done to investigate the effects of corruption and political instability on savings particularly in the ECOWAS, while the few studies on savings-political instability (Edwards, 1996; Venieries & Gupta, 1986) and savings-corruption (Swaleheen, 2008) left out many ECOWAS countries considered to be very corrupt and politically unstable in their analyses. Moreover, past studies did not investigate whether the effects of corruption and political instability on savings depend on income levels.

CHAPTER TWO
LITERATURE REVIEW

In this chapter, an attempt was made to review both theoretical and empirical literature on savings. Thus, our discussion would begin with the review of life cycle theory and permanent income theory. Next is the review of literature on savings and the interest variables (corruption and political instability), then savings and other potential determinants of savings considered in this study, and finally, empirical studies on savings and its determinants.

2.1 Theories of Consumption and Savings

The starting point for most empirical studies on savings is the life cycle theory and permanent income theory. Theoretically, individual consumer's utility level is assumed to be a function of consumption. In addition, savings is often treated as a derivative or residual after decisions relating to consumption have been made.

2.1.1 Permanent Income Theory

The Permanent Income Theory (PIT) developed by Friedman (1957) alleges that it is not current income but permanent income of consumer (which includes non-human wealth, personal attributes, occupation, location of the occupation, and so on) that affects consumption. Also, choices made by consumers regarding their consumption patterns are largely determined by changes in permanent income rather than the changes in temporary income. Another assumption of the PIT is that transitory or

temporary changes in income have a little effect on consumers spending behaviour while permanent changes in income can have large effects on consumers spending. This suggests that it is individual's real wealth, not his/her current real disposable income that is the main determinant of consumption. In addition, measured income and measured consumption consist of both the permanent (anticipated and planned) component and the transitory (windfall gain/unexpected loss) component.

Permanent income is dependent on individual's assets categorized into tangible non-human (such as shares, bonds, and property) and human (for example, education) assets. These go a long way in affecting the individual's ability to earn income. Given his assets, an individual can make an estimation of his anticipated lifetime income. More so, transitory income is obtained from the difference between measured income and permanent income. Friedman (1957) concluded that individual will consume a constant proportion of his permanent income; low income earners have a higher propensity to consume; while high income earners have a higher transitory element to their income and a lower average propensity to consume.

Also, Friedman argued that the average propensity to consume is affected by three factors. First, is the decline in the farm population which has led to an increase in urbanization, thus raising consumption. Second, is the size of families which he noted has continued to fall. This in turn has contributed to rising savings and declining consumption. Third, is the increased spending by government on social security which has reduced the urge to save more but increased the propensity to

consume. The author concluded that the overall effect of these relationships is that consumption increases in relation to permanent income.

2.1.2 Life Cycle Theory

Modigliani and Brumberg developed the Life Cycle Theory (LCT) in 1954, having observed that individuals make consumption decisions based on the resources available to them over their lifetime and current period. The authors noted that individuals build up assets during their productive (working) lives or years, and make use of their stock of assets later at retirement. During the working years, individuals plan towards retirement by saving and accumulating assets, and occasionally changing their consumption level depending on their needs at that particular time. In explaining the LCT, Ando and Modigliani (1963) argued that individuals accumulate wealth during their productive years and save (or make provisions) for their retirement, since income is expected to fall at retirement. An important assumption of the LCT is that an individual chooses to maintain a stable lifestyle. Thus, to achieve this goal, he/she will not save so much today and then embark on reckless spending in the future, but instead maintains a given level of consumption in every time period.

In the first phase, individuals earn low income when they are young, while their consumption is relatively higher. In order to meet their consumption needs they will borrow. In the second phase (middle age), individuals earn high income relative to their consumption, they will repay their past debt and then save (or invest) the

remainder. The third phase is when individuals retire and their income level falls to almost zero. During this (retirement) period, they would draw on their past savings (dissave) or fall back on the returns from their investment in order to finance their consumption at old age. Thus, the LCT gives income level and income growth, as well as the age structure of the population a special role in explaining savings rate (Deaton, 1992; Dirschmid & Glatzer, 2004; Modigliani, 1986). It has also been argued that the life cycle framework can be modified to include other factors that can affect savings (Browning & Crossley, 2001).

Both the LCT and PIT often referred to as forward looking theories, assume that individuals are forward-looking and are concerned about their lifetime consumption (Jappelli, 2005; Pistaferri, 2009; Rao & Sharma, 2007). Hence, they explain consumption and savings relative to expected future income. Also, the theories assume that since income fluctuates overtime, one way to smoothen lifetime consumption is through savings. In addition, they assume that an individual's consumption is determined by anticipated lifetime income rather than current income, so that short-term savings represents the difference between current income and average lifetime resources. Thus, if an individual's current income falls short of average expected lifetime income, he/she will borrow in order to finance his/her consumption needs. On the other hand, if an individual's current income rises above average expected lifetime income, he/she will repay back his debt and save/invest the remainder.

It important to mention that the consumption theories frequently employed in macroeconomic research on consumption and savings decisions did not mention the direct role of unemployment expectations in current consumption (Carroll, 1992a). However, the Buffer-stock theory of consumption and savings that evolved from the works of Zeldes (1989) and Deaton (1991) and further popularized by Carroll (1992a) argues that unemployment is an important determinant of current consumption. In explaining the Buffer-stock theory, Carroll opined that high unemployment expectations which raise uncertainty about future earnings will force consumers to hold assets in order to safeguard their consumption against fluctuations in income streams. In addition, consumers are assumed to be impatient and prudent.

Consumers' impatience arises from the fact that if incomes were certain, they would borrow against future earnings so as to finance current consumption. Also, consumers are prudent because they will not spend all their resources, but save for precautionary purposes (Kimball, 1990). Moreover, given a targeted wealth stock, the interplay between impatience and prudence will determine whether consumers would save or dissave. For instance, Carroll (1992b) submitted that if current wealth is less than the targeted wealth, then prudence will exert more influence than impatience so that consumers will attempt to save. On the other hand, if current wealth is higher than the target wealth, impatience dominates prudence and consumers will try to dissave.

2.2 Theories Linking Savings to Corruption and Political Instability

Although there is dearth of research linking savings to corruption and political instability, a few theories have emerged attempting to establish a connection between the factors (corruption and political instability) and savings.

2.2.1 Savings and Corruption

Corruption can influence savings in a number of ways. For instance, scholars have suggested that for the fear of being detected, arrested and prosecuted, and in the process lose their assets to the state, corrupt government officials usually transfer wealth they acquired illegitimately abroad (capital flight). The national savings is therefore reduced by the amount of capital flight (Lessard & Williamson, 1987; Rodriguez, 1987; Swaleheen, 2008). Jain (1988) viewed capital flight in the context of agency problem in a country. The author opined that the leadership (agent) vested with the power to borrow funds from abroad to invest in the domestic economy on behalf of the population (principal), might borrow more than what is required and appropriate part of the funds. The low return on investment will lead to further capital flight (Swaleheen, 2008). Chinn and Ito (2007) argued that corruption may affect savings and investment decisions. The authors argued that, if the legal system is able to reduce corruption, promotes and guarantees property rights and contracts, it will promote saving and investment behaviour and vice versa. Aizenman (2005) indicated that lack of good governance (which may result from corruption) tends to reduce public trust in government, and goes a long way in affecting individual's savings and investment decisions. Furthermore, the author argued that rising real

interest rate may not induce people to raise their savings or investment especially if incomes or returns are taxed arbitrarily and in an unpredictable manner.

Corruption among government officials and political appointees reduces government revenue because money that ought to have gone to government treasury ends up in private pockets. This reduces government's ability to execute projects that would reduce poverty and underdevelopment (Ghura, 2002). The inadequate revenue relative to rising government expenditure is partly responsible for the deficit financing operated annually in many ECOWAS countries. The African Development Bank statistics pocketbooks reveal that many ECOWAS countries had budget deficits in the past few years. Thus, if gross national savings is the summation of private savings and public savings (budget deficits or budget surplus), declining public savings will lead to a decline in the gross national savings.

In addition, corruption can affect savings via inadequate government investment in human capital. Mauro (1995) argued that corrupt government officials do not support investment in education since opportunities for bribes are less, leading to many been denied the access to education. The implications of lack of education include high unemployment, declining labour productivity and income, as well as low savings. Also, corruption in public sector increases unnecessary bureaucracy associated with business registration, licenses collection and permits, thus discouraging investment and production, and impeding the growth of many businesses, especially the SMEs (Tanzi & Davoodi, 2002). For entrepreneurs or investors that are unable to pay

bribes, they are forced to join low wage occupations (Ahlin, 2001; Foellmi & Oechslin, 2007; Blackburn & Forgues-Puccio, 2007). These in turn lead to high unemployment, low production and incomes, and as a result low savings.

Moreover, corruption promotes rent-seeking but discourages skills acquisition. For instance, wealthy families prefer employment in government ministries and agencies (where corruption is high) in order to sustain rent-seeking (Dabla-Norris & Wade, 2002), while it is difficult for qualified but less privileged members of the societies to find job in such agencies. In corrupt societies resources are usually concentrated in a few hands, particularly government officials and those closer to the government, and in the process raising income inequality and poverty. Gupta *et al.* (2002) concluded that corruption contributes to inadequate provisions of public goods (roads, healthcare, subsidies, transfers, etc.,) leading to income inequality and poverty. These in turn reduce people's ability in meeting their consumption needs and to a greater extent to save.

2.2.2 Savings and Political Instability

Political instability tends to have a lasting impact on savings. Da Silva (1998) and Svensson (1998) opined that political (and institutional) instability may increase a state's discretionary power, to the extent that property rights and contracts will no longer be guaranteed. These in turn affect individual choices and decisions including savings. In shedding light on the link between political instability and savings, Edwards (1996) emphasized that higher probability of changing government or party

in power tends to reduce government savings. He argued further that, since savings translates to investment, production and consumption only after sometime, the projects or programmes initiated by the present government or party in power will be completed and its benefits felt at a later date when opposition party might have assumed office. In this case, the opposition (now in power) may be credited for such projects and benefits.

Similarly, Edwards (1996) asserted that political polarization, the differences in political parties' preferences, also has some impact on government's saving behaviour. For instance, if preferences of the party in power are the same as their opposition, then the party in power will have the urge to save, even if the probability of changes in government in high. Moreover, political instability increases the risk/uncertainty associated with savings (Fielding, 2003). In as much as political instability prevents individuals from spending the returns/income from their savings/investment, the tendency to save/invest in the future will decline. More so, political risk encourages capital flight (Le & Zak, 2006). As pointed out earlier, national savings is reduced by the amount of capital flight. Finally, political instability destroys physical capital and displaces human capital, leading to higher unemployment and lower savings (Le, 2004).

2.3 Theories Linking Savings to Other Macroeconomic Variables

Apart from the interest variables (corruption and political instability), there are other potential determinants of savings cited in the literature. They include demographic

factors, financial variables, macroeconomic uncertainty, agricultural production, fiscal policy, income level and income growth, and external factors. The theoretical linkages between savings and these determinants are discussed below.

2.3.1 Savings and Demographic Variables

The role of demographic variables in savings has been theoretically established. For instance, in the LCT, Modigliani (1970) argued that since consumers are aware that income earnings vary with age, they will attempt to smooth-out their lifetime consumption in the face of any variations in their future earnings. In addition, individuals will have a negative savings when they are young and old because income level will be very low, but will have a positive savings during their working (and productive) years. In the same vein, since consumption in the Keynesian model depends on income, a rational consumer would attempt to reduce the effects of variations in income on his present and future consumption. Therefore, a young consumer who expects his income to rise in the future would borrow to meet his consumption needs in the present. He would pay his debt and save more during periods of high income (middle age) so that he can maintain his consumption level at retirement. More importantly, both the LCT and PIT assume that individuals maximize the present value of lifetime utility subject to income constraint. Moreover, since individuals are net savers during working years and dissavers at retirement, if the working population increases relative to non-working or old population, savings will increase (Metin-Ozcan & Ozcan, 2000).

Besides the age structure of the population, urbanization can also influence savings. For instance, Edwards (1996) argued that, as societies experience increases in urbanization, the need for savings for precautionary purpose will reduce as a result of provisions of safety nets in the cities by governments including the availability of financial institutions credit facilities. But in rural areas, incomes tend to be low and fluctuate overtime. The fluctuations in income in turn compel people to save in order to reduce the uncertainty about their future earnings. On the other hand, the low income levels lead to declining savings.

2.3.2 Savings and Fiscal Policy

Also, government fiscal policy (that is, revenue generation and expenditure policies) is theoretically linked to savings. The Ricardian Equivalence (RE) theory explains that any decrease (increase) in government savings will be match by an equal increase (decrease) in private savings, and as such will have no effects on national savings. In explaining the RE, Athukorala and Sen (2004) opined that if government issues bond to finance its budget deficits (dissaving), the private sector will increase its savings in anticipation of a future increases in taxes to service the bonds. Similarly, government social security program or pension scheme might have some impact on savings. In explaining the LCT, Evans (1983) and Metin-Ozcan, Gunay and Ertac (2003) emphasized that higher social security benefits will discourage private savings since the desire to save for retirement and precautionary purposes is reduced.

2.3.3 Savings and Income level/Income Growth

Both income level and income growth tend to influence savings. The subsistence-consumption theories suggest that, in societies where income is high savings rates tend to be higher compare to societies with low income levels (Ogaki, Ostry & Reinhart, 1996). The authors also suggested that at very low income levels, rising real interest rates may still not promote saving behaviour among the poor. But the effect of income growth on savings is not very clear. For instance, the PIT assumes that individuals are forward-looking and anticipate a future increase in their permanent income, so that they will dissave against future earnings. However, within the LCT, income growth will have a positive influence on savings because it (income growth) raises the savings of the working population relative to dissaving of the old people who are out of the labour force (Metin-Ozcan *et al.*, 2003).

2.3.4 Savings and Financial Variables

Financial development or depth is also crucial in savings mobilization. A well developed financial sector possesses characteristics that include absence of credit ceilings, interest rate liberalization, easy entry of foreign financial institutions, enhanced prudential guidelines and supervision, as well as development of the capital market (Nwachukwu & Egwaikhide, 2007). As the financial market develops (or deepens) and is supported by improved prudential regulations of financial institutions, it will offer a wider variety of financial instruments through which savings can be mobilized in addition to providing more security to savers (Agrawal, Sahoo, & Dash, 2008). Also, financial development can reduce liquidity constraints

and increase the ease with which people can borrow from financial institutions, leading to higher consumption but lower savings. However, higher liquidity constraints (such as unavailability of bank credit) will force people to increase their savings. Furthermore, financial development leads to improvement in banking facilities and infrastructure such as an increase in the number of bank branches. The expansion of banking facilities in turn will encourage savings (Lewis, 1954).

It has also been suggested that the rate of interest is important in explaining savings. For instance, the LCT asserts that rising interest rate raises the opportunity cost of current consumption, so that a rational consumer will reduce consumption and raise savings in the current period (substitution effect). However, if consumer is a net lender, an increase in the rate of interest will lead to higher income and consumption, and a reduction in savings (income effect). If the substitution effect is larger than the income effect, interest rate will have a positive effect on savings (Athukorala & Sen, 2004; Nwachukwu & Egwaikhide, 2007).

2.3.5 Savings and Macroeconomic Uncertainty

Inflation rate (a measure of macroeconomic uncertainty) may influence savings because higher uncertainty about the future can compel people to save on precautionary grounds. Athukorala and Sen (2004) pointed out that since it is difficult to predict the rate of inflation in the long run than short run, the impact of inflation may not always be neutral. The authors argued further that inflation can influence savings through its impact on real wealth. Therefore, in an attempt to

maintain a target level of wealth or liquid assets relative to income, individuals will increase their savings at higher rates of inflation. Moreover, since inflation raises the uncertainty about future income streams particularly for households in developing countries, people are compelled to save for precautionary purpose. This suggests that at higher rates of inflation people would attempt to hedge against risk by increasing their savings (Metin-Ozcan *et al.*, 2003; Skinner, 1988; Zeldes, 1989).

2.3.6 Savings and External Factors

External factors such as terms of trade can also affect savings. Most empirical studies on the relationship between savings and terms of trade are rooted in Harberger (1950) and Laursen and Metzler (1950) theories. The theories assume that consumers are myopic in their expectations. In addition, worsening terms of trade (reduction in the price of domestically produced goods or exports relative to imports) tends to reduce real income and savings. But Athukorala and Sen (2004) suggested that the effect of changes in terms of trade on savings can be positive or negative depending on whether consumers perceived worsening (improvement in) terms of trade as temporary or permanent. If consumers perceive worsening terms of trade as permanent, they will increase their savings in the current period so as to maintain their real standard of living in the future.

On the other hand, if they perceive terms of trade as temporary, consumers will increase their consumption expenditure so as to offset the decrease in the purchasing power of domestic goods in order to keep real expenditure constant. Furthermore,

Loayza, Schmidt-Hebbel and Servén (2000) argued that a rising external savings (terms of trade improvement) may be offset by a partial decline in domestic private savings, because external savings tends to act as a substitute for domestic private savings. Moreover, external debt service may reduce national savings because certain percentage of the national income/output (exports) is devoted to servicing accumulated debt or past borrowings.

2.4 Empirical Literature

Following the works of Athukorala and Sen (2004), Athukorala and Tsai (2003), and Metin-Ozcan *et al.* (2003), the potential determinants of savings are grouped under the categories of government fiscal policy variables, income and growth variables (including agriculture share in GDP), financial variables (financial deepening/development, bank facilities/density, credit to private sector, real interest rate), external variables (terms of trade and debt service), demographic variables (life expectancy, age dependency, population growth, and urbanization), and macroeconomic uncertainty variables (inflation rate). Also, included are the interest variables namely - corruption and political instability.

2.4.1 Corruption Variables

Although there are numerous studies on the impact of corruption on certain economic variables (such as tax revenue, income distribution, poverty, economic growth and investment, etc.), little has been done to examine the effect on corruption on savings. But scholars have suggested that corruption leads to capital flight

(Hutchcroft, 1997; Rose-Ackerman, 1999; Swaleheen, 2008), and as a result, a decline in national savings (Lessard & Williamson, 1987; Rodriguez, 1987; Swaleheen, 2008). Swaleheen (2008) examined savings and corruption relationship across countries. Using the Generalized Method of Moments (GMM) technique, the author found that higher corruption leads to lower national savings rates. Dietz, Neumayer and De Soysa (2007) employed static fixed effects and dynamic Arellano-Bond estimators to examine the impact of three measures of institutional quality (that is, corruption, bureaucratic quality and the rule of law) in interaction with a measure of resource abundance on genuine savings across countries. The results indicate that lesser corruption reduces the negative impact of resource abundance on genuine savings.

2.4.2 Political Instability Variables

The impact of political instability on savings has not been adequately investigated (Da Silva, 1998). But the few studies that examined the relationship between savings and political factors indicate that political instability has a negative effect on savings (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). For instance, Fielding (2003) investigated the effect of political instability on macroeconomic performance in Israel since 1987. Using several indicators of political instability, the author discovered a significant and negative impact of political instability on the savings performance of the Israeli economy. Edwards (1996) employed the instrumental variable technique (IV) to examine the effect of political instability on government savings in 36 countries from 1970 to 1992. The results demonstrate that

political instability has a negative influence on public savings. Earlier, Venieries and Gupta (1986) conducted a cross-national study by introducing income distribution and socio-political instability in the savings function. The authors discovered that socio-political instability has an adverse effect on the savings ratio. However, Radelet *et al.* (1997) failed to establish any relationship between political factors and saving rates in 72 countries from 1970 to 1992.

2.4.3 Government Policy Variables

One of the important determinants of saving behaviour is government fiscal policy (that is, government revenue generation and expenditure policies, including government social security scheme/program such as pension scheme). Researchers have examined the effects of social security, government budget deficits (dissaving) or budget surplus (public savings), and government spending or consumption on savings. In a study done by Adelakun (2011) to investigate the key drivers of private savings in Nigeria during the period 1970-2007, the author confirmed that public savings does not crowd out private savings. Similarly, Nwachukwu and Odigie (2011) examined the determinants of private savings in Nigeria from 1970 to 2007, and illustrated that public savings does not crowd out private savings. However, Adewuyi *et al.* (2010) confirmed that budget deficits do have a negative impact on gross domestic savings in the ECOWAS during the period 1980-2006. Khan and Abdullah (2010) discovered a significant impact of government fiscal balance on private and national savings in Malaysia. Chaudhry, Faridi, Abbas and Bashir (2010) employed Johansen co-integration and vector error correction model (VECM) to

examine the determinants of gross national savings in Pakistan. They discovered that government spending has a positive impact on the national savings in the long-run, while public loans have a negative effect on savings.

Wong and Tang (2010) applied a dynamic panel model to a dataset for 55 countries, and found that public savings crowd out private savings. Van Rijckeghem (2010) examined the key determinants of corporate savings, household savings and total savings, by separately analyzing macro-data for 1988-2009 period and household budget survey for the period 2004-2008 in Turkey. The author concluded that fiscal consolidation has a negative impact on private savings, while social security also exerts some influence. Agrawal and Sahoo (2009) showed that public sector savings crowd out private savings in Bangladesh. DiPietro (2009) employed a cross country regression analysis to investigate the effects of government size and government effectiveness on national savings rates. The results illustrated that government variables (government size and effectiveness) influence saving behaviour. Bulir and Swiston (2009) investigated the existence of RE for both developed and emerging market economies. The authors found that the offset coefficient is almost twice as high in emerging market economies as in developed countries counterparts.

Moreover, Eyraud (2009) confirmed that increases in public savings result in decreases in South Africa's private savings. Ang and Sen (2009) confirmed that expected pension benefits promote saving behaviour in India, while it reduces savings in Malaysia. Touny (2008) showed that budget deficits do have a negative

effect on domestic savings in Egypt. Paul and Anbarasu (2008) found that public savings crowd out private savings in India. Nwachukwu and Egwaikhide (2007) illustrated that public savings does not crowd out private savings. Ferrucci and Miralles (2007) found saving rates to be influenced by fiscal spending (relative to GDP) in emerging market economies. Hondroyiannis (2006) employed a panel data analysis and confirmed that government budget constraint and financial pressure on social security systems have a positive impact on savings in 13 European countries.

Harjes and Ricci (2006) employed the fully modified least squares (FMOLS) to investigate the determinants of private savings for a period of 30 years in South Africa. The authors found that overall government balance has a significant negative effect on private savings. Karunarathne and Abeysinghe (2005) investigated the relationship between mandatory pension savings and voluntary household savings in Sri Lanka. The authors confirmed a significant negative effect of mandatory employees' provident fund (EPF) savings on non-EPF private savings. Mohd (2004) employed the co-integration and VEC techniques to investigate the determinants of savings in Malaysia during the 1964-2001 period. The results illustrate that social security retirement wealth has a significant impact on savings rates. Dirschmid and Glatzer (2004) employed the error correction model (ECM) to estimate a savings function for Austria, and confirmed that personal savings is affected by social security expenditure and the general government budget balance. Athukorala and Sen (2004) reported that public savings crowd out private savings in India. Schrooten and Stephan (2004) employed a Generalized Method of Moments (GMM)

estimator to analyze the determinants of private savings among 15 member states of the European Union (EU). The results indicate that fiscal policy has a significant influence on private savings, thus suggesting the existence of RE in Europe.

Nasir and Khalid (2004) investigated the saving and investment behaviour in Pakistan. The authors revealed that budget deficits and government investment do not have a significant impact on savings. Nguyen (2004) examined the impact of ageing population on savings and pension schemes in a world with uncertainty of life expectancy. The author found that pension schemes tend to lower per capita savings, be it pay-as-you-go or fully funded. Stephan and Schrooten (2003) employed the GMM estimator to examine the drivers of savings rates by focusing on two groups – the EU member countries and the candidate countries. The authors discovered that public savings crowd out private savings. Athukorala and Tsai (2003) examined the determinants of household savings during the period 1952-1999 in China. The authors found that public savings crowd out private savings only partially, while increased availability of social security provisions reduces private savings.

Metin-Ozcan *et al.* (2003) empirically examined the impact of a number of policy and non-policy variables on private savings rates during the period 1968-1994 in Turkey. The authors confirmed that government savings does not tend to crowd out private savings, and therefore submitted that the RE does not hold strictly in Turkey. Olusoji (2003) employed an error correction approach to investigate the determinants of private savings in Nigeria. The author discovered that private savings is

significantly affected by government budget deficits. Kelly and Mavrotas (2003) examined the effect of different measures of financial sector development on private savings for a group of 17 African countries, taking into consideration heterogeneity issues. The authors found that changes in government savings is completely offset by changes in private savings in majority of the countries studied. Schrooten and Stephan (2003) conducted a study to examine whether saving behaviour in EU accession countries is accounted for by the same forces as it is in market economies. Employing fixed-effects models to analyze a panel dataset that cover the 1990-1999 period, the authors confirmed that public savings crowd out private savings.

Paiva and Jahan (2003) analyzed the determinants of private savings between 1965 and 2000 in Brazil, and confirmed a high degree of offset between private and public savings. Hallaq (2003) examined the determinants of private savings over the 1976-2000 period in Jordan. The author revealed that higher government savings reduces private savings in less than one-to-one fashion, while social security and welfare public expenditures have a positive impact on private savings. De Serres and Pelgrin (2003) examined the main determinants of private savings rates for a panel of 15 OECD countries between 1970 and 2000. The authors found that private savings rates are influenced by public sector savings rates but the degree of offset is partial.

Granville and Mallick (2002) used the Auto-Regressive Distributed Lag model (ARDL) to investigate the influence of capital market reform on savings in the United Kingdom by paying attention to the pension reforms. The authors confirmed

that aggregate savings respond positively to changes in pension savings, while increase in occupational pension savings is offset by a decrease in other forms of savings. Marchante, Ortega and Trujillo (2001) assessed the differences in personal savings rates among the Spanish regions at the NUTS II level during the period 1986-1994, and discovered a significant negative impact of direct tax burdens on aggregate personal savings rates. Chowdhury (2001) analyzed the relationship between savings and its determinants in Bangladesh, and observed a negative influence of public savings rate on saving behaviour. Bérubé and Côté (2000) employed the co-integration approach to examine the structural determinants of the personal savings rates in Canada for a period of 30 years. The authors revealed that personal savings is positively related to the ratio of the overall government fiscal balance-nominal GDP.

Metin-Ozcan (2000) investigated the determinants of private savings in the Arab countries, Iran and Turkey. The author discovered that higher public savings crowd out private savings. Haque *et al.* (2000) examined the extent to which conclusions of cross country studies of private savings are robust by allowing for possible heterogeneity of saving behaviour across countries and the inclusion of dynamics. The authors found that government budget surplus to GDP ratio and government consumption to GDP ratio are the major determinants of savings in post World War II era in industrial countries. Hussein and Thirlwall (1999) analyzed the key determinants of differences in the domestic savings ratio among 62 countries using a panel dataset for the period 1967-1995. The authors found total domestic savings to

be affected by government savings. In addition, tax revenue to GDP ratio exerts a strong negative impact on domestic savings ratio. Strauß (1999) employed the co-integration approach to examine the balance of the current account and private savings relationship from 1974 to the recent past in the United States (US). The author discovered that higher public savings result in lower private savings. Aron and Muellbauer (1999) confirmed that higher dividend tax significantly affect corporate savings in South Africa during the period 1960-1997.

Burnside, Schmidt-Hebbel and Servén (1999) examined the determinants of saving behaviour in Mexico during the period 1980-1995. The authors found a negative relationship between private savings and public savings. Farquee and Husain (1998) found little evidence to support a significant and common link between compulsory savings (provident fund) and total savings in Singapore and Malaysia. Lopez-Mejia and Ortega (1998) studied the main determinants of the sharp decline in Colombia's private savings (that led to the worsened external current account deficits in the 1990s). The authors concluded that tax increases were responsible for the decline in private savings. Masson, Bayoumi and Samiei (1998) assessed the impact of a number of potential determinants of private savings using both time series and cross-section data in a sample consisting of industrial and developing countries. The authors confirmed a partial offset of public savings changes on private savings. Dayal-Ghulati and Thimann (1997) used panel estimations to examine the determinants of savings in a sample of Southeast Asian and Latin American

countries during the 1975-1995 period and illustrated that fiscal policy (pension arrangement) accounted for the impressive saving performance in Southeast Asia.

Cárdenas and Escobar (1997) analyzed the determinants of savings using the framework of an inter-temporal model in Colombia. The authors indicated that a large proportion of the recent decline in private savings was due largely to higher current government consumption (government expenditures) and higher taxation. Doménech, Taguas and Varela (1997) employed the structural vector auto-regression (SVAR) approach to analyze a panel dataset containing budget deficits and national savings for OECD, with the primary objective to testing the RE hypothesis. The authors indicated that Ricardian Equivalence did not hold for the sample studied because private savings compensated for only a small fraction of public dissavings.

Callen and Thinmann (1997) empirically examined the determinants of household savings in 21 OECD from 1975 to 1995 with special focus on the effect of public policy on household saving behaviour. The authors confirmed that higher dependence on direct income taxes (as against indirect taxes), net government transfers to households and public savings have a dampening impact on household savings. Radelet, Sachs and Lee (1997) examined the determinants of national savings rates for a sample of 72 countries, by using a panel data from 1970 to 1992. The authors found that government savings has a positive effect on national savings, while increases in government pension payout lead to lower savings rates. Jappelli and Pagano (1996) examined the relationship between government incentives and

household savings in Italy. The authors discovered that household savings is strongly related to the social security system.

Alessie, Kapteyn and Klijn (1997) employed micro-data to investigate the displacement impact of social security and pension wealth on household savings. The authors confirmed a complete displacement of household savings by social security wealth, while pension has a partial displacement effect on household savings. Edwards (1996) examined the determinants of saving rates in Latin American countries by including some demographic, structural political and policy related variables. The author found that public savings crowd out private savings, and private savings is affected by social security expenditure. Similarly, Edwards (1995) employed the instrumental variables (IV) estimation method to assess the determinants of savings using a panel data for 36 countries during the period 1970-1992. The author found that government-run social security scheme has a negative impact on private savings, and public savings crowd out private savings. Hahn (1994) examined the factors that account for Korea's impressive saving behaviour since 1971. The author discovered that government budget deficits contribute negatively to Korea's savings rates.

Yamada, Yamada and Liu (1990) examined the impact of social security retirement benefits on personal savings and retirement behaviour in Japan, using data covering the period 1951-1982. The authors found that higher social security retirement benefits tend to reduce personal savings. Crockett (1989) found that income taxes as

well as public and private pensions have a negative impact on aggregate savings. Munnell (1976) analyzed the impact of social security and pensions on private savings within the framework of life cycle hypothesis. The author discovered that social security and pensions have a negative impact on private savings. Feldstein (1976) employed time series data to analyze the effect of social security on savings, and discovered that social security scheme (such as pension) has a negative effect on savings. Gupta (1970) confirmed a negative influence of indirect taxes on personal savings in developing nations.

2.4.4 Income and Income Growth Variables

Income level and income growth are also important determinants of savings. Some scholars have conducted empirical research to assess the impact of income level and income growth on savings. For example, Monokrousos and Thomakos (2011) employed co-integration techniques and a VECM to examine the main determinants of private sector commercial bank deposits in Greece. The authors found a strong positive relationship between bank savings and the income level (captured by the level of GDP). Farhan and Akram (2011) employed various approaches including co-integration, error correction model and ARDL, and concluded that both in the short and long-run, income levels do have a significant positive effect on saving behaviour in Pakistan from 1985 to 2009. Mualley (2011) employed the ordinary least squares (OLS) technique to analyze the major determinants of savings using data that cover the period 1990-1999 in 35 African economies. The author confirmed a significant positive effect of per capita income on savings in Africa.

Horioka and Terada-Hagiwara (2012) used a panel co-integration method to analyze the determinants of domestic savings rates in 12 developing Asian countries over the period 1966-2007. The authors found income to be an important determinant of domestic savings rates. Adelakun (2011) discovered that disposable income growth has a significant and positive effect on savings rate in Nigeria during 1970-2007 period. Gough (2011) empirically analyzed the determinants of United States household savings rates from 1964 to 2006, and found that real personal disposable income has a significant and positive effect on savings rate. Slacalek and Sommer (2011) assessed the influence of household wealth on United States savings from 1966:Q2 to 2009:Q3. The authors found that household wealth is a major determinant of household savings.

Nwachukwu and Odigie (2011) employed the Error Correction Model (ECM) to investigate the determinants of saving behaviour in Nigeria using time series data covering 1970-2007 period, and discovered that growth rate of disposable income has a significant and positive impact on savings rates. Adewuyi *et al.* (2010) examined the determinants of gross domestic savings in the ECOWAS, using panel data covering 1980-2006 within the life cycle theory. The authors found that growth rate of gross domestic income has an insignificant positive impact on the gross domestic savings, while the gross domestic income per capita has a significant negative influence on the gross domestic savings.

Khan and Abdullah (2010) found both long run and short run positive and significant impact of income per capita on national and private savings in Malaysia. Khan and Hye (2010) employed the ARDL co-integration techniques to analyze the determinants of household savings for the period 1988-2008, and confirmed that income per capita and agricultural sector share in GDP have a positive and significant impact on household savings in Pakistan. Hüfner and Koske (2010) employed the panel co-integration framework, and allowing for heterogeneity both in the long-run and short-run to investigate the determinants of household savings rates in the G7 countries. The authors found a significant income effect on household savings rates. Kim (2010) used regression analysis to investigate the determinants of personal savings in the United States during the 1950-2007 period, and confrimed that personal income affects personal savings.

Study by Van Rijckeghem (2010) suggested that household wealth plays a crucial role in household saving behaviour in Turkey. Agrawal and Sahoo (2009) employed the ARDL technique and the forecast error variance decomposition (FEVD) method to examine the determinants of domestic savings rates and the private savings rates in Bangladesh. The authors reported a significant positive impact of income growth on private and domestic savings rates. Wafure and Abu (2009) employed the ECM to analyze the determinants of gross national savings in Nigeria for the 1981-2007 period. The authors' results indicate that increases in real income per capita lead to higher national savings. Kibet, Mutai, Ouma, Ouma and Owuor (2009) employed the Ordinary Least Squares (OLS) technique to ascertain the factors that affect savings

among households involving teachers, entrepreneurs and farmers in rural areas of Nakuru District. The results indicate that household income is a major determinant of household savings.

Ang and Sen (2009) conducted a comparative analysis of the evolution of private savings in both India and Malaysia. The authors found that income growth has a positive impact on private savings. Leigh and Posso (2009) employed panel data analysis to examine the impact of income inequality on savings rates for 11 developed countries over the period 1921-2002. The authors showed that inequality at the top end of the distribution is not a major determinant of national savings rates. Touny (2008) analyzed the determinants of domestic savings during the period 1975-2006, and observed a positive and significant relationship between per capita income growth and domestic savings in Egypt. Salotti (2008) investigated the determinants of aggregate household savings in a sample of 18 developed countries between 1980 and 2005, with a primary focus on household wealth (financial and tangible/housing). The author confirmed a significant negative wealth effect on household savings, but insignificant in the case of United States.

Paul and Anbarasu (2008) examined the determinants of private savings in India, and discovered that private savings rates is an increasing function of both income level and growth rate of disposable income. Forgha (2008) studied the determinants of consumption and savings in Cameroon from 1970 to 2007 using co-integration error correction technique and two stage least squares (2SLS) technique. The results reveal

that disposable income has a positive effect on bank savings in Cameroon. Agrawal *et al.* (2008) confirmed that income promotes saving behaviour in five South Asian countries, namely - India, Pakistan, Bangladesh, Sri Lanka and Nepal. Gutiérrez (2007) analyzed the determinants of saving behaviour in a sample consisting of nine Latin American countries. The author did not find any correlation between national savings and level of income (per capita GDP) as well as income distribution. Uremadu (2007) employed the OLS technique to analyze the relationship between financial savings and its potential determinants in Nigeria. The author concluded that GDP growth per capita income has a positive impact on savings.

Nwachukwu and Egwaikhide (2007) employed the ECM to examine the determinants of private savings in Nigeria. The authors confirmed that private savings rate rises with the level of disposable income but reduces with the rate of growth of disposable income. Reinhardt (2007) revealed that per capita income and income growth have a positive relationship with savings in some developing countries, while they have a negative relationship with savings in Latin American countries. Hondroyiannis (2006) estimated a savings function for 13 European countries, using a panel dataset analysis. The author found private savings to be affected positively by changes in growth of real disposable income. Bersales and Mapa (2006) employed the instrumental variable (IV) estimation and the Generalized Least Squares (GLS) to estimate household savings rates function in Philippines, and found income level to be an important determinant of household savings rates.

Orebiyi and Fakayode (2005) used a multiple regression to identify the savings mobilization determinants of the farmer cooperators in Kwara state of Nigeria. The authors submitted that household income is an important determinant of savings mobilization. Kwack and Lee (2005) investigated the influence of income growth, uncertainty and demographic factor on real savings in Korea from 1975 to 2002. The authors discovered a positive impact of income growth on aggregate savings rate, but a negative impact of income growth on household savings rate. Mohd (2004) found savings rate to be significantly affected by income growth in Malaysia during 1964-2001 period. Li and Zou (2004) examined the relationship between income inequality and savings in OECD countries and Asian countries. The authors found a positive and significant relationship between savings rate and income inequality in the sub-samples of OECD countries and Asian countries, but discovered a weak negative association between income inequality and savings rate for a complete world sample.

Dirschmid and Glatzer (2004) employed an ECM to investigate the determinants of private savings in Austria, and found a positive impact of income growth on personal savings. Horioka and Wan (2007) conducted a dynamic panel analysis of the determinants of the household savings rate within a life cycle framework from 1995 to 2004 in China, and reported a significant impact of growth rate of income on household savings. Athukorala and Sen (2004) examined the determinants of private savings in India within the life cycle hypothesis. The authors' results illustrate that

private savings rate is an increasing function of both income level and the rate of growth of disposable income.

Schrooten and Stephan (2004) employed a GMM estimator to analyze the determinants of private savings among 15 member states of the EU. The authors discovered that income growth leads to an increase in private savings. Nasir and Khalid (2004) discovered a positive influence of growth on savings in Pakistan. Stephan and Schrooten (2003) revealed that private savings is significantly influenced by income growth in EU member countries and the candidate countries. Athukorala and Tsai (2003) illustrated that the level of household disposable income and the rate of growth of household disposable income have a significant positive effect on household savings rates in the 1952-1999 period in China. Metin-Ozcan *et al.* (2003) revealed that income level has a significant positive effect on private saving rate, but growth rate of income has a statistical insignificant effect on private savings rate during the period 1968-1994 in Turkey.

Olusoji (2003) confirmed that income has a significant impact on private savings in Nigeria. Schrooten and Stephan (2003) indicated that private savings rises with income and income growth in EU accession countries. Paiva and Jahan (2003) illustrated that increases in per capita GDP are likely to increase savings at low income levels, while it reduces savings at higher income levels between 1965 and 2000 in Brazil. Hallaq (2003) found that GDP growth rate and GDP per capita income have a positive effect on private savings during the 1976-2000 period in

Jordan. De Serres and Pelgrin (2003) revealed that growth rate of labour productivity has a positive impact on private savings rates in 15 OECD countries between 1970 and 2000. Chigumira and Masiyandima (2003) found real income to be a key determinant of savings in Zimbabwe. Marchante *et al.* (2001) discovered that wealth has a negative influence on aggregate personal savings rates, while per capita gross disposable personal income has a significant and positive impact of on aggregate personal savings rates among the Spanish regions at the NUTS II level between 1986 and 1994.

Schrooten and Stephan (2001) analyzed the determinants of aggregate private savings using panel dataset and fixed-effects model for a group of Central Eastern European Countries (CEEC) in transition. The authors found a stronger impact of income on both aggregate and private savings. Chowdhury (2001) discovered that income level and share of agriculture in GDP have a positive effect on savings rate in Bangladesh. The Economic Commission for Europe (2001) conducted a study to ascertain the determinants of savings in transition economies. The estimated regression results show a significant association between income per capita and private savings.

Bérubé and Côté (2000) found the ratio of household net worth to personal disposable income to have a significant positive impact on personal savings rate in Canada for a period of 30 years. Metin-Ozcan (2000) discovered that real per capita income has a positive impact on private savings in the Arab countries, Iran and

Turkey. Strauß (1999) illustrated that private savings is positively influenced by current income and negatively affected by stock market wealth of private households from 1974 to the recent past in the United States. Harris, Loundes and Webster (1999) employed the ordered probit estimation technique to investigate the determinants of household savings in Australia. They reported that current income is the most important determinant of savings. Shiimi and Kadhikwa (1999) employed a co-integration analysis and ECM to determine the short run and long run effects of the determinants of saving and investment in Namibia, and indicated that real income significantly affects savings.

Aron and Muellbauer (1999) investigated the determinants of private savings in South Africa, by separately examining personal and corporate sector saving behaviour between 1960 and 1997. The authors indicated that wealth has a negative impact on personal savings. Burnside *et al.* (1999) illustrated that income growth has an insignificant effect on saving behaviour in Mexico in 1980-1995 period. Masson *et al.* (1998) indicated that increases in GDP per capita increase savings at low income levels (relative to the United States) but reduce savings at higher income levels.

Farquee and Husain (1998) applied a co-integration method to estimate a private savings function for Indonesia, Malaysia, Singapore and Thailand. The authors confirmed that rising per capita income to a lesser degree is an important determinant of savings in the long-run in all the countries considered in their study.

Dayal-Ghulati and Thimann (1997) suggested that rising income per capita is responsible for high savings rates in Southeast Asia during the 1975-1995 period. Cárdenas and Escobar (1997) confirmed that national savings partially responds to temporary changes in output, thus supporting the permanent income hypothesis in Colombia. Khan, Din, Ghani, and Abbas (1997) empirically examined the determinants of private, domestic, and household savings in Pakistan. The authors revealed that private savings is positively and significantly related to rising per capita income.

Callen and Thinmann (1997) found household savings to be positively related to income growth but negatively affected by the level of income in 21 OECD countries from 1975 to 1995. Radelet *et al.* (1997) found that national savings rates were positively and significantly affected by lagged GDP per capita, while growth has an insignificant impact on national savings rates in a sample of 72 countries during the 1970-1992 period. Jappelli and Pagano (1998) confirmed a strong positive correlation between growth and aggregate savings in Italy.

Edwards (1996) employed the IV estimation method to assess the determinants of savings using a panel data for 36 countries during the period 1970-1992. The author found that per capita growth is an important determinant of both private and public savings. Ajakaiye and Odusola (1995) estimated a saving function for Nigeria. The authors indicated that income growth has a positive and direct relationship with savings in Nigeria. Hahn (1994) found high growth rates of disposable income to

have a significant and positive effect on savings rates in Korea since 1971. Soyibo and Adekanye (1992) analyzed the impact of the policies of regulation and deregulation on savings mobilization in Nigeria. The authors confirmed current GDP to be a significant determinant of savings. Collins (1991) confirmed that savings responds slowly to changes in income per capita in poorer countries, while savings tends to reduce with rising real growth rate in middle-income countries. Gupta (1970, 1975) confirmed a positive influence of income per capita on savings in developing countries.

2.4.5 Demographic Variables

There are several studies on the impact of demographic variables (that include age dependency, life expectancy and urbanization) on savings. In an attempt to ascertain the determinants of savings in Pakistan, Farhan and Akram (2011) applied co-integration and ECM techniques, including the ARDL model to annual data covering 1985-2009 period. The authors found that age dependency ratio has a strong negative impact on savings in the long-run. Also, Horioka and Terada-Hagiwara (2012) employed a panel co-integration method to analyze the determinants of domestic savings rates in 12 developing Asian countries over the 1966-2007 period, and reported a significant influence of age dependency ratio on savings rates. Gough (2011) revealed that higher percentage of United States population that is college educated has a strong negative impact on savings rate, while non-working population has a dampening impact of savings rate.

Khan and Abdullah (2010) found a significant effect of young age and old age dependency on private and national savings in Malaysia. Also, Khan and Hye (2010) indicated a significant negative effect of dependency ratio on household savings in Pakistan. Wong and Tang (2010) applied a dynamic panel model to a dataset for 55 countries, and confirmed that age dependency has a negative influence on private savings. But Van Rijckeghem (2010) found a neutral effect of demographic variable on private savings in Turkey. Agrawal and Sahoo (2009) revealed that a decline in dependency rate has a positive influence on private and domestic savings rates in Bangladesh. Eyraud (2009) confirmed that ageing of the population is responsible for the decrease in South Africa's private savings. Kibet *et al.* (2009) illustrated that dependency ratio significantly influence household savings in rural areas of Nakuru District in Kenya.

Van Rijckeghem and Üçer (2009) examined the factors that led to the reduction in private savings in Turkey, and concluded that demographic variables will have positive effect on future savings rate in Turkey. In their paper, Ang and Sen (2009) found that increase in age dependency leads to poor saving behaviour in India and Malaysia. De Nardi, French and Jones (2009) estimated a structural model to assess the impact of heterogeneity in life expectancy on the elderly savings. The authors confirmed that the differences in life expectancy (that are related to factors such as income, gender, and health) have a strong impact on savings. They also suggested that the risk of outliving individual's expected lifespan has a considerable amount of impact on the elderly saving behaviour. Graff, Tang and Zhang (2008) examined the

influence of demographic factors on savings (including investment and the external balance) by applying semi-structural equations to a panel dataset of 74 countries during the period 1980-2004. The authors found a statistical significant impact of demographic factors on savings. Agrawal *et al.* (2008) findings indicated that higher dependency ratio tends to reduce savings in South Asian countries.

Horioka (2007) investigated the impact of population ageing on household, private, government, and national saving rates. The author found that population ageing dampens household, private, government, and national savings rates. However, Gutiérrez (2007) failed to establish the existence of a significant relationship between saving behaviour and dependency ratio in nine Latin American countries. Yasin (2007) studied the impact of demographic structure on private savings in a sample of 14 emerging markets economies, using annual data that cover the period 1960-2001. The author discovered a significant positive relationship between the national savings ratio and the percentage of the working, and a negative association between savings ratio and children population groups in most of the countries considered in the study. Ferrucci and Miralles (2007) discovered that demographic factors significantly affect saving behaviour in emerging market economies, while Doshi (2007) concluded that one must consider human capital investments when assessing life expectancy and/or population growth's impact on savings.

Hondroyiannis (2006) indicated that savings is positively affected by old-age dependency ratio in 13 European countries. Bersales and Mapa (2006) discovered

that household savings rate is significantly influenced by the percentage of young dependents and percentage of the elderly in Philippines. Davis (2006) assessed the effect of ageing on the structure of financial markets in a sample consisting of 72 countries. The author indicated that ageing reduces private savings. Kwack and Lee (2005) confirmed a negative influence of young age dependency and old age dependency on savings in Korea from 1975 to 2002. Mohd (2004) revealed that labour force participation rate exert some influence on savings in Malaysia between 1964 and 2001. Freire (2004) investigated the impact of HIV/AIDS (uncertainty of life) within the life cycle theory with an infinite horizon at the aggregate level and the consumption utility function in South Africa. The author predicted a drop in future savings unless there is a national policy to combat HIV/AIDS.

Schultz (2004) analyzed the relationship between age composition and savings rates in 16 Asian economies from 1952 to 1992. The author concluded that age composition (captured in several ways) has no significant impact on savings rates. Nguyen (2004) examined the impact of ageing population on savings and pension schemes in a world with uncertainty of life expectancy. The authors contend that the impact of demographic changes on savings will depend on the type of adjustment that is taking place. Athukorala and Tsai (2003) confirmed that both old dependency and young dependency ratio have negative influence on the savings rate during the period 1952-1999 in China. Metin-Ozcan *et al.* (2003) showed that life expectancy has a negative influence on private saving rate in Turkey, thus lending support to the

life-cycle hypothesis. Paiva and Jahan (2003) also indicated that demographic variables are significant in explaining saving behaviour in Brazil from 1965 to 2000. Hallaq (2003) illustrated that dependency ratio has a significant negative impact on private savings during 1976-2000 period in Jordan. De Serres and Pelgrin (2003) found that demographic structure of the population (measured by the old-age dependency ratio) has a negative influence on private savings rate in 15 OECD countries between 1970 and 2000. Chowdhury (2001) found a negative effect of dependency rate on private savings in Bangladesh. Harris *et al.* (1999) confirmed that demographic variables significantly explain household savings in Australia. Masson *et al.* (1998) showed that demographic variables are important determinants of private savings rates.

Farquee and Husain (1998) indicated that demographic shifts have a very strong influence on the savings trends in the long-run in Indonesia, Malaysia, Singapore and Thailand. Cárdenas and Escobar (1997) showed that rising age dependency has a significant negative impact on private savings in Colombia. Khan *et al.* (1997) confirmed that private savings rises with falling dependency burden in Pakistan. Callen and Thinmann (1997) indicated that higher old age dependency ratio has a negative effect, while rising young age dependency ratio has an insignificant influence on household savings in 21 OECD countries from 1975 to 1995. However, Radelet *et al.* (1997) found that young age dependency ratio has a significant negative effect but old age dependency has an insignificant influence on savings rates in 72 countries during 1970-1992 period. The authors also submitted that at low

levels of life expectancy, high life expectancy leads to higher saving rates. Husain (1996) investigated the long-run determinants of saving behaviour in Pakistan. The author suggested that demographic variable (growth rate of population) has no negative influence of saving behaviour in Pakistan.

Johansson (1996) investigated the factors responsible for the sustained growth in private savings since 1970 in Indonesia. The author found that private savings rate rises with falling dependency ratio. Edwards (1996) revealed that whereas private savings respond to changes in demographic variables, government savings do not. Husain (1995) employed co-integration method to investigate the long run determinants of saving behaviour in Pakistan from 1970 to 1993. The author revealed that demographic factors do not have any effect on savings in Pakistan. Collins (1991) examined the determinants of savings in 10 developing countries using a panel data set. The author submitted that household savings tend to respond slowly to age distribution in poorer countries, while higher dependency rates tend to reduce savings in middle-income countries. Yamada *et al.* (1990) showed that declining labour force participation of the elderly (captured by earlier retirement) promotes personal saving behaviour in Japan during the period 1951-1982.

In addition, some studies have been carried out to investigate the impact of urbanization on savings. For instance, Eyraud (2009) confirmed that increase in urbanization resulted in decrease in South Africa's private savings. Narayan and Al-Siyabi (2005) showed that urbanization rate significantly affect national savings in

Oman. Moreover, Burnside *et al.* (1999) discovered that urbanization has a significant negative influence on savings. Similarly, Cárdenas and Escobar (1997) confirmed that private savings is negatively related to increases in urbanization in Colombia.

2.4.6 Financial Variables

Many empirical studies have been done to examine the effects of financial variables (such as financial development/deepening, financial liberalization, real interest rate, bank density/number of bank branches, and credit availability/liquidity constraint) on savings. For instance, Adelakun (2011) did an empirical study to ascertain the main drivers of private savings in Nigeria and confirmed an insignificant negative effect of financial sector development on private savings. In the same vein, Nwachukwu and Odigie (2011) showed that financial depth has an insignificant negative effect on savings in Nigeria over the 1970-2007 period. Similarly, Bakare (2011) assessed the influence of financial sector liberalization and its allocation on private saving in Nigeria. The author confirmed a negative relationship between financial sector liberalization and its allocation and savings. Horioka and Terada-Hagiwara (2012) applied the panel co-integration method to investigate the determinants of savings rates in 12 developing Asian countries during the 1966-2007 period. The authors found that the level of financial sector development exerts some influence on domestic savings rates.

Ang (2010) examined the major factors responsible for Malaysia's impressive savings performance within the life cycle hypothesis. The author confirmed that financial deepening promotes private savings, while financial system liberalization has a negative impact on private savings. Khan and Hye (2010) also revealed that financial liberalization has a negative effect on the household savings both in the short-run and long-run in Pakistan. Van Rijckeghem (2010) confirmed that financial deepening reduces corporate savings via credit availability in Turkey. Wafure and Abu (2009) found that financial deepening (captured by broad money, M2 to GDP ratio) has a long run significant positive effect on gross national savings in Nigeria from 1981 to 2007.

Ang and Sen (2009) showed that financial liberalization impedes private savings in both India and Malaysia. Touny (2008) found that domestic savings is positively and significantly affected by financial market development in Egypt. Uremadu (2007) showed that financial savings is positively correlated with money supply in Nigeria. Hondroyiannis (2006) indicated that capital market deregulation resulted in decrease in savings in 13 European countries. Harjes and Ricci (2006) reported that financial liberalization has a negative influence on private savings in South Africa. Victorious and Abiola (2004) showed that financial liberalization influence aggregate savings rate in Nigeria. Schrooten and Stephan (2004) showed that financial depth (measured by M2/GDP) has a positive impact on private savings in 15 member countries of the EU.

Metin-Ozcan *et al.* (2003) discovered that financial depth or development has a positive effect on private savings rate in Turkey. Kelly and Mavrotas (2003) examined the effect of different measures of financial sector development on private savings for a group of 17 African countries, taking into consideration heterogeneity issues. The authors showed that in most of the countries studied, financial sector development has a positive association with private savings. Schrooten and Stephan (2003) revealed that institutional reforms promote saving behaviour in EU accession countries. Paiva and Jahan (2003) found financial deepening to increase private savings in Brazil during 1965-2000 period. Kelly and Mavrotas (2003) employed a dynamic econometric technique to examine the determinants of private savings, with a primary focus on the role of financial sector development in Sri Lanka. The authors discovered that financial sector development has a significant positive impact on private savings.

Chigumira and Masiyandima (2003) assessed the impact of financial sector reform on savings and credit availability to SMEs and the poor in Zimbabwe. The authors submitted that the reform enhanced savings mobilization through the increase in deposit rates, emergence of new financial institutions and products including the increase in real incomes. Mansori (2001) indicated that the decline in OECD savings is partly explained by the liberalization process. Chowdhury (2001) revealed that financial reform has a negative effect on private savings in Bangladesh. The Economic Commission for Europe (2001) concluded that financial depth has a positive relationship with private savings in transition economies. Metin-Ozcan

(2000) confirmed a positive and significant influence of financial deepening on private savings in the Arab countries, Iran and Turkey.

Hussein and Thirlwall (1999) illustrated that financial deepening has a positive and significant impact on domestic savings ratio in 62 countries during the period 1967-1995. Aron and Muellbauer (1999) confirmed that financial liberalization has a negative influence on personal savings in South Africa from 1960 to 1997. Dayal-Ghulati and Thimann (1997) showed that financial deepening is a principal determinant of savings in Southeast Asian countries from 1975 to 1995. Khan *et al.* (1997) confirmed that improved financial deepening has a significant positive impact on private savings in Pakistan. Bonser-Neal and Dewenter (1999) examined the association between financial system development (captured by the stock market development) and gross private savings rate in 16 emerging markets from 1982 to 1993. The authors reported the existence of a positive association between savings and stock market liquidity. Radelet *et al.* (1997) found that higher national savings rates are associated with financial development for a sample of 72 countries from 1970 to 1992. Husain (1996) discovered that financial deepening has a positive impact on private savings in Pakistan. Jappelli and Pagano (1998) suggested that the deregulation of the credit and insurance markets has a strong impact on savings in Italy.

Edwards (1996) indicated private savings are affected by financial sector development while government savings are not. Similarly, Edwards (1995) showed

that financial development has a strong positive influence on private savings in 36 countries from 1970 to 1992. Husain (1995) revealed that financial depth and development promotes saving behaviour in Pakistan during the 1970-1993 period. Liu and Woo (1994) discovered a positive relationship between the degree of capital market imperfection and the private saving rate, and a negative association between financial market sophistication and private saving rate. Celasun and Tansel (1993) revealed a positive effect of financial liberalization on private saving.

Some scholars have also investigated the influence of banking facility (captured by the spread of banking facilities or number of bank branches) on saving behaviour. For example, Ang (2010) confirmed a significant impact of bank density on saving behaviour in Malaysia. Agrawal and Sahoo (2009) discovered a positive influence of banking facility on private and domestic savings rate in Bangladesh. Wafure and Abu (2009) indicated that higher number of bank branches results to higher savings mobilization in Nigeria between 1981 and 2007. Paul and Anbarasu (2008) indicated that the spread of banking facilities has a positive influence on private savings. Forgha (2008) confirmed that higher number of financial institutions and bank branches has a positive association with savings in Cameroon. Agrawal *et al.* (2008) discovered that access to banking institutions encourages the mobilization of savings in South Asian countries. Bersales and Mapa (2006) confirmed that the number of banks has no significant impact on household savings rate in Philippines. Athukorala and Sen (2004) indicated that the spread of banking facilities has a positive influence on savings in India. In the same manner, Athukorala (1998) found bank density

index (population per bank branch) to be highly significant in explaining saving behaviour in India.

Many studies have also been done to evaluate the influence of commercial banks credit availability on savings. For example, Monokrousos and Thomakos (2011) investigated the impact of bank credit to private sector on commercial bank deposits, and discovered a significant positive relationship between the variables in Greece. Examining the role of credit availability on household saving, Slacalek and Sommer (2011) confirmed that credit availability is an important determinant of household savings. Van Rijckeghem (2010) found that credit availability partly accounted for the decline in private savings in Turkey. Eyraud (2009) empirically showed that availability of credit leads to a decline in South Africa's private savings. Kibet *et al.* (2009) concluded that access to credit has a significant impact on household savings in rural areas of Nakuru District. Van Rijckeghem and Üçer (2009) investigated the determinants of private savings in Turkey. The authors found that increase in credit availability contributes to the reduction in private savings. Hondroyiannis (2006) illustrated that liquidity constraint (domestic credit availability) has a negative impact on savings in 13 European countries.

Athukorala and Tsai (2003) concluded that improved credit availability has a dampening impact on savings rates during the period 1952-1999 in China. Metin-Ozcan *et al.* (2003) discovered that availability of private credit tends to reduce private savings rate during 1968-1994 in Turkey. Kelly and Mavrotas (2003) found

that liquidity constraint has a significant negative impact in only a few countries among the 17 African countries considered in their study. Hallaq (2003) showed that private savings is positively related to the development of Jordanian consumer's credit market from 1976 to 2000. Marchante *et al.* (2001) indicated that access to credit has a negative influence on personal savings rates among the Spanish regions at the NUTS II level from 1986 to 1994. Burnside *et al.* (1999) confirmed an insignificant influence of credit availability on saving behaviour in Mexico from 1980 to 1995. Radelet *et al.* (1997) suggested that higher credit availability to the public sector leads to a decline in national savings rates in a sample of 72 countries from 1970 to 1992.

The relationship between savings and real interest rate has been examined by many scholars. For instance, Adelakun (2011) confirmed a positive impact of interest rate on savings in Nigeria. Similarly, Nwachukwu and Odigie (2011) discovered that real interest rate on bank deposits has a positive influence on savings rate in Nigeria. Moreover, Adewuyi *et al.* (2010) examined the determinants of gross domestic savings in the ECOWAS, using panel data covering 1980-2006 within the lifecycle framework. The authors discovered that savings deposit rate has a negative effect on the gross domestic savings. Khan and Abdullah (2010) examined the determinants of savings and discovered that rate of returns has a significant influence on private and national savings in Malaysia. Khan and Hye (2010) found a significant negative effect of real deposit rate on household savings in Pakistan from 1988 to 2008.

Chaudhry *et al.* (2010) found a long run positive influence of interest rate on national savings in Pakistan.

Hüfner and Koske (2010) investigated the determinants of household savings rates in the G7 countries, and discovered that interest rate significantly influences household savings rates. Agrawal and Sahoo (2009) discovered a positive interest rate effect on private and domestic savings rates. Furthermore, Wafure and Abu (2009) submitted that real interest rate has a significant positive effect on domestic savings rate in Nigeria. Touny (2008) empirically confirmed that real interest rate has a positive and significant influence on domestic savings in Egypt. Paul and Anbarasu (2008) revealed that real interest rate on bank deposits has a significant positive effect on savings in India. Forgha (2008) reported that interest-inflation rate differential has a negative relationship with bank savings in Cameroon. Agrawal *et al.* (2008) illustrated that real interest rate has a weak influence on savings rates in South Asian countries. Gutiérrez (2007) discovered that domestic interest rate is not related to savings in a sample of Latin American countries. Uremadu (2007) revealed that interest rate spread has a significant effect on savings, but real interest rate has a negative impact on savings in Nigeria.

Nwachukwu and Egwaikhide (2007) showed that real interest rate on bank deposits has a significant negative effect on private savings in Nigeria. Reinhardt (2007) found that real deposit rates have no association with savings in Latin America countries. Hondroyiannis (2006) illustrated that real interest rate has a positive effect

on savings in 13 European countries. Dirschmid and Glatzer (2004) indicated that real interest rate has a significant impact on personal savings in Austria. Horioka and Wan (2007) illustrated that household savings rate is influenced by real interest rate in China during the period 1995-2004. Athukorala and Sen (2004) discovered that real interest rate on bank deposits has a significant positive influence on private savings.

Schrooten and Stephan (2004) found an insignificant impact of real interest rate on private savings among 15 members of EU. Nasir and Khalid (2004) found a weak interest rate effect on savings in Pakistan. Athukorala and Tsai (2003) revealed that real interest rate has a significant and modest positive effect on savings in China from 1952 to 1999. Metin-Ozcan *et al.* (2003) found that real interest rate has a negative impact on private savings rate in 1968-1994 in Turkey. Hallaq (2003) submitted that real interest rate is insignificant in explaining private savings in Jordan. De Serres and Pelgrin (2003) confirmed that real interest rate has a negative impact on private savings rate in 15 OECD countries between 1970 and 2000. Chowdhury (2001) illustrated that real interest rate has a significant and positive impact on savings in Bangladesh. Bérubé and Côté (2000) discovered that real interest rate has a significant and positive influence on personal savings rate in Canada for 30 years. Hussein and Thirlwall (1999) found interest rate not to be an important determinant of domestic savings ratio among 62 countries from 1967 to 1995. Strauß (1999) indicated that short-term real interest rate has a positive impact on saving behaviour from 1974 in the United States.

Shiimi and Kadhikwa (1999) revealed that bank deposit rates exert little influence on savings in Namibia. Aron and Muellbauer (1999) indicated that real interest rate has a dampening impact on personal savings in South Africa between 1960 and 1997. Burnside *et al.* (1999) confirmed that rising real interest rate promote saving behaviour in Mexico in 1980-1995 period. Masson *et al.* (1998) revealed that interest rate has a positive but insignificant influence on private savings. In the same vein, Callen and Thinmann (1997) illustrated that real interest rate has an insignificant impact on household savings in 21 OECD countries during 1975-1995 period. Fry (1997) submitted that very low and very high real interest rates have negative effects on national savings via their effects on output growth. Ajakaiye and Odusola (1995) indicated that real deposit rate is positively related to savings in the regime of financial regulation, and negatively related to savings during the period of deregulation in Nigeria. Hahn (1994) showed that higher real interest rates lead to higher savings rate in Korea's since 1971. Soyibo and Adekanye (1992) confirmed that ex-post real interest rates affect savings in Nigeria.

Mwega, Ngola and Mwagi (1990) investigated the McKinnon-Shaw hypothesis that an increase in real deposit rate leads to increase in both financial and non-financial savings in Kenya, and confirmed that savings is deposit rates inelastic. Gupta (1987) compared the saving behaviour in Asia and Latin American countries. The author revealed that nominal interest rate on deposit and financial intermediation ratio affect savings positively in Asia but not in Latin America countries. Giovannini (1985) found that real interest rate has a negative effect in a sample of 18 countries, while

Giovannini (1983) discovered an insignificant influence of interest rate on savings. Fry (1978) found a significant impact of real interest rate on savings. Boskin (1978) confirmed a weak elasticity of domestic savings to changes in interest rates. Gupta (1970) investigated the determinants of personal saving in developing nations. The author found real interest rate to have a positive impact on savings.

2.4.7 Uncertainty Variables

Uncertainty [that includes macroeconomic uncertainty (captured by inflation)] variables are expected to influence savings, since higher uncertainty about the future can induce people to save for precautionary purpose. Some authors have attempted to examine the effect of inflation on saving behaviour. For example, Farhan and Akram (2011) found that inflation has a significant negative influence on savings in the long-run from 1985 to 2009 in Pakistan. In the same manner, Adewuyi *et al.* (2010) found that inflation has a negative and significant effect on gross domestic savings in the ECOWAS during the period 1980-2006. Moreover, Khan and Abdullah (2010) reported that inflation significantly affect private and national savings in Malaysia. Chaudhry *et al.* (2010) confirmed a positive and significant impact of consumer price index on national savings in the long run in Pakistan. Hüfner and Koske (2010) found inflation to be an important determinant of household savings rate in the G7 countries. Van Rijckeghem (2010) submitted that the decline in uncertainty (proxied by inflation) is responsible for the decline in private savings in Turkey. Touny (2008) illustrated that rising inflation leads to

higher domestic savings in Egypt, and Paul and Anbarasu (2008) discovered that inflation has a positive impact on private savings in India.

Uremadu (2007) indicated that inflation has a negative influence on savings in Nigeria. However, Nwachukwu and Egwaikhide (2007) reported that rising inflation leads to increases in private savings in Nigeria. Ferrucci and Miralles (2007) concluded that inflation stabilization has a considerable impact on savings in emerging market economies. Reinhardt (2007) observed inflation to be negatively related to savings in both Latin American and other developing countries, while inflation volatility has a positive association with savings in Latin American countries and insignificant negative influence for other countries included in his study. Hondroyiannis (2006) discovered a positive impact of inflation on savings in 13 European countries. Harjes and Ricci (2006) indicated that commodity prices have a positive effect on private savings in South Africa. Bersales and Mapa (2006) found an insignificant impact of inflation on savings in Philippines.

Mohd (2004) reported that inflation has a significant effect on savings in Malaysia from 1964 to 2001. Dirschmid and Glatzer (2004) showed evidence that inflation has an impact on savings in Austria. Horioka and Wan (2007) confirmed that inflation exert some influence on household savings rate between 1995 and 2004 in China. Athukorala and Sen (2004) found that inflation has a positive effect on savings in India. Metin-Ozcan *et al.* (2003) discovered a positive impact of inflation on savings rate in Turkey during the period 1968-1994 in Turkey. Olusoji (2003) discovered

that inflation rate exerts some influence on private saving in Nigeria. Hallaq (2003) revealed that inflation rate has an insignificant effect on private savings in Jordan. Chigumira and Masiyandima (2003) found that inflation significantly affects savings in Zimbabwe. Bérubé and Côté (2000) indicated that expected inflation has a positive and significant effect on personal savings rate in Canada for 30 years.

Metin-Ozcan (2000) revealed that higher inflation leads to higher private savings in the Arab countries, Iran and Turkey. Hussein and Thirlwall (1999) showed that inflation has a weak positive impact on domestic savings (which turns out negative overtime) in 62 countries during the period 1967-1995. Aron and Muellbauer (1999) submitted that inflation has a lasting influence on corporate savings in South Africa from 1960 to 1997. Burnside *et al.* (1999) showed that inflation has a positive impact on saving behaviour in Mexico. Callen and Thinmann (1997) indicated that inflation rate has an insignificant effect on household savings in 21 OECD countries during 1975-1995 period. Radelet *et al.* (1997) confirmed that increases in inflation lead to lower savings rates for a sample of 72 countries from 1970 to 1992. Hahn (1994) found that higher inflation rates lead to lower savings rate in Korea. Gupta (1970) confirmed a negative influence of prices on personal saving in developing nations.

Some studies have also explored the relationship between savings and other measures of uncertainty. For instance, Gough (2011) confirmed that uncertainty (captured by consumer sentiment index) has a significant negative influence on United States household savings rate. Harris *et al.* (1999) found that households'

level of economic optimism is also important in explaining households saving in Australia. Slemrod (1988) examined the impact of the fear of nuclear war and inter-country differences on savings rate in twenty 20 OECD countries during the period 1981-1984. The author discovered that the higher the fraction of the population that believes a world war is likely, the lower the net private savings rate.

2.4.8 External Variables

External factors such as terms of trade (TOT) and debt-service ratio are also considered to be important in explaining savings. Studies have also been conducted to evaluate the impact of external variables on savings. For instance, Adewuyi *et al.* (2010) examined the determinants of gross domestic savings in the ECOWAS, using panel data covering 1980-2006 within the life cycle theory. They found that terms of trade has a significant negative impact on gross domestic saving. Agrawal and Sahoo (2009) empirical study suggested that foreign savings has a lesser impact on both private and domestic savings rates. Eregha and Irughe (2009) found that foreign aid has an appreciable impact on domestic savings in Nigeria. Touny (2008) confirmed a negative impact of current account deficit on domestic saving in Egypt. Graff *et al.* (2008) submitted that foreign factors have a significant influence on saving in a sample consisting of 74 countries during 1980-2004 period. Paul and Anbarasu (2008) showed that terms of trade have a negative effect on private savings in India. Agrawal *et al.* (2008) revealed that foreign savings has a dampening effect on savings in South Asian countries.

Elsewhere, Gutiérrez (2007) indicated that terms of trade has no correlation with savings in Latin American countries, but Nwachukwu and Egwaikhide (2007) confirmed that terms of trade and external debt service ratio have a positive influence on private savings in Nigeria. Kwack and Lee (2005) discovered that foreign saving has a negative impact on savings rates in Korea from 1975 to 2002. Narayan and Al-Siyabi (2005) found that current account balance is an important determinant of national savings in Oman between 1977 and 2003. Chowdhury (2004) assessed the connection between terms of trade shock and savings by employing a dynamic panel model to estimate data for a sample containing 21 transition countries. The author observed that among other things the transitory component in the terms of trade exerts a stronger positive influence than the permanent component.

Athukorala and Sen (2004) indicated that the terms of trade do have a negative impact on private savings. Agenor and Aizenman (2004) studied the impact of permanent terms of trade shocks on private savings, using panel data that cover the 1980-1996 period. The authors showed that for non-oil commodity exporters of SSA, increases in the permanent component of the terms of trade tend to raise private savings. Schrooten and Stephan (2004) illustrated that foreign savings (measured by current account deficit) has a significant negative influence on private savings among 15 members of the EU, implying that the variables are substitutes. Victorious and Abiola (2004) investigated the factors that affect saving in Nigeria and confirmed that the foreign savings ratio influence aggregate saving ratio in

Nigeria. Nasir and Khalid (2004) indicated that trade has no significant influence on savings in Pakistan. Stephan and Schrooten (2003) confirmed that foreign capital (savings) has a negative and significant impact on domestic savings in EU member countries and the candidate countries.

Schrooten and Stephan (2003) empirically illustrated that foreign capital tends to reduce domestic savings in EU accession countries. Paiva and Jahan (2003) indicated that external terms of trade have a positive impact on savings rates in Brazil during the 1965-2000 period. Hallaq (2003) found an insignificant impact of terms of trade on private savings in Jordan. De Serres and Pelgrin (2003) revealed that terms of trade have a positive influence on private savings rates in 15 OECD countries between 1970 and 2000. Schrooten and Stephan (2001) discovered that foreign capital has a negative impact on domestic savings in CEEC in transition. Loayza *et al.* (2000) revealed that an increase of two percent of GNDI in the exogenous component of external borrowing reduces private savings by approximately one percent of GNDI in the long run. Chete (1999) indicated that high external debt ratio reduces domestic savings, but foreign aid has positive impact on domestic savings in Nigeria. Burnside *et al.* (1999) illustrated that terms of trade has a positive effect on saving behaviour in Mexico from 1980 to 1995.

Masson *et al.* (1998) revealed a partial offset of foreign savings changes on private savings in developing countries, and indicated that terms of trade has an insignificant positive impact on private savings. Edwards (1996) found that higher foreign savings

(reduction in the current account balance) leads to lower private and government savings rates. Similarly, Edwards (1995) illustrated that foreign savings has a negative impact on both private and public savings rates in 36 countries from 1970 to 1992. Ajakaiye and Odusola (1995) indicated that foreign savings has a positive relationship with savings in Nigeria. Similarly, Soyibo and Adekanye (1992) showed that domestic savings is affected by foreign savings in Nigeria. Gupta (1975) employed a simultaneous equation model to examine the relationship between foreign capital inflows, dependence burden, and savings rates in developing countries. The author discovered a negative effect of foreign capital inflows on savings rates in developing countries.

This study departs from the previous studies on savings for the following reasons. First, given the paucity of research on savings-corruption and savings-political instability relationships particularly in the ECOWAS (one of world's most corrupt and politically unstable regions, with poor savings rates), the study examines the effects of corruption and political instability on savings in the region. Second, unlike previous studies on savings and corruption (Swaleheen, 2008) and savings and political instability (Edwards, 1996; Venieries & Gupta, 1986) that left out many ECOWAS countries in their analysis, this study considers the entire ECOWAS region. Lastly, the study investigates whether the effects of corruption and political instability on savings depend on income levels in the ECOWAS region.

2.5 Summary of Chapter

This chapter reviews both theoretical and empirical literature on savings. A survey of the literature reveals that previous studies analyzed the determinants of savings, using mainly, the life cycle model. Moreover, most studies on savings and its determinants have been conducted in developed regions, but a few also focused on developing regions (SSA inclusive). Furthermore, only a few studies have examined the impact of corruption and political instability on savings. Interestingly, many ECOWAS countries were left out in their analysis (Edwards, 1996; Venieries & Gupta, 1986; Swaleheen, 2008). Lastly, studies that investigate whether the effects of corruption and political instability on savings depend on income levels are almost non-existent. Thus, the objectives of this study include examining the effects of corruption and political instability on savings, in addition to investigating whether the effects of corruption and political instability on savings depend on income levels in the ECOWAS.

CHAPTER THREE
RESEARCH METHODOLOGY

This chapter discusses the theoretical framework for the present study with a view to formulating the models that are used to analyze the relationship between savings and the interest variables (corruption and political instability), including other potential determinants of savings in ECOWAS countries. In formulating the savings models, we employed the ideas of LCT and PIT including the works of Edwards (1996) and Adewuyi *et al.* (2010).

3.1 Theoretical Framework

The framework for this study has its basis in the LCT and PIT which have been discussed in chapter two. Many savings models have been developed using the life cycle framework (see Adewuyi *et al.*, 2010; Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Metin-Ozcan *et al.*, 2003). In addition, the life cycle framework is increasingly been used in researches involving inter-temporal decision making process, and its modern version has been employed in building models of consumption, savings, education, human capital, marriage, fertility as well as labour supply, taking into consideration issues relating to uncertainty (Browning & Crossley, 2001). Additionally, the life cycle framework can be modified to accommodate the present reality (Browning & Crossley, 2001).

3.2 Model Specification

Given that savings is a derivative of consumption, any formulation of a savings model will start with a consumption theory (LCT or PIT). Thus, in line with the works of Edwards (1996) and Adewuyi *et al.* (2010), we assume that an individual who lives over time period (t) has a utility function of the form:

$$U = \sum_{t=1}^{T} U(C_t), \qquad U'(.) > 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

where,

C_t is the individual's (private) consumption in period t, $U(.)$ is an instantaneous utility function that is assumed to be strictly concave, and $U'(.) > 0$ is the first-order condition of utility, that is, the marginal utility which is positive.

Also, we assume that the individual has an initial wealth endowment (Z_0), and earns income (Y) over his/her lifetime, T (that is, $Y_1, Y_2, Y_3, Y_4, \ldots, Y_T$). Moreover, we assume that the financial system makes it possible for the individual to save or borrow at a given interest rate, and he/she has to repay the loans or debt incurred at the end of his lifetime. Thus, the individual's budget constraint (B) is represented as:

$$B = \sum_{t=1}^{T} C_t \leq Z_0 + \sum_{t=1}^{T} Y_t \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 3.2$$

Since the marginal utility of consumption is positive as we have shown in Equation 3.1, the individual's consumption expenditure is equivalent to his/her budget constraint. Therefore, the individual's optimization problem would be of the form:

$$D = \sum_{t=1}^{T} U(C_t) + \lambda(Z_0 + \sum_{t=1}^{T} Y_t - \sum_{t=1}^{T} C_t). \dots \dots \dots \dots \dots \dots 3.3$$

From Equation 3.3, the first-order condition for utility maximization is expressed as:

$$U'(C_t) = \lambda \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 3.4$$

Assuming that consumption and marginal utility of consumption (which depends of consumption) are constant over time, and we import this argument into the budget constraint Equation 3.2, it will give us an equation of the form:

$$C_t = 1/T \left(Z_0 + \sum_{t=1}^{T} Y_t \right) \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots 3.5$$

The consumption Equation 3.5 illustrates that the individual has the resources, which is a combination of his/her initial wealth (Z_0) and lifetime labour income ($\sum Y_t$) to finance his lifetime consumption. The equation also reveals that the individual devotes equal amount of his/her resources to consumption in each period of his lifetime, and his consumption in every time period depends on his/her current

income and lifetime income. The combination of both current income and lifetime income is what Friedman referred to as the permanent income (Adewuyi *et al.*, 2010). Now, we can derive the savings function from a simple income-consumption relationship. Suppose savings in the current period (S_t) is given as:

$$S_t = Y_t - C_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.6$$

If we substitute Equation 3.5 into Equation 3.6, the new savings equation is expressed as follows:

$$S_t = (Y_t - 1/T \sum_{t=1}^{T} Y_t) - 1/T\ Z_0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.7$$

The savings Equation (3.7) above has several implications. First, it shows that savings is high when current income is high relative to current average income, and savings turns out negative when permanent income exceeds current income. Second, savings today implies refraining from current consumption and increasing future consumption, suggesting that the opportunity cost of lowering consumption in the current period is the higher rate of interest that would be earned on savings in the future (Adewuyi *et al.*, 2010). If we import this argument into the budget constraint Equation 3.2, and given a constant rate of interest during the individual's lifetime period, T, the equation is transformed into the one below:

$$B = \sum_{t=1}^{T} 1/(1+r)^t\, C_t \le Z_0 + \sum_{t=1}^{T} 1/(1+r)^t\, Y_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.8$$

Equation 3.8 reveals that the present value (PV) of an individual's consumption during his/her lifetime is equivalent to the sum of his/her initial wealth and the PV of his/her labour income during his lifetime. Again importing this argument into the savings Equation in 3.7, we will obtain a new equation as follows.

$$S_t = [(Y_t / 1+r) - 1/T \sum_{t=1}^{T} (Y_t/1+r)] - 1/T\, Z_0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.9$$

Hence, it can be deduced from Equation 3.9 that savings tends to rise when the PV of current income rises relative to the PV of current average income. But the movement in the rate of interest to a large extent makes it somewhat difficult to conclude whether savings will rise or not, since the change (in the rate of interest) might result in either substitution effect or income effect. If the rise in the rate of interest results in higher substitution effect relative to income effect, savings will rise and vice versa. Moreover, the model illustrates that savings is determined by lifetime income, initial wealth endowment, and the rate of interest.

The savings Equation 3.9 appears to have originated from Friedman's PIT which was later developed into the LCT by Ando and Modigliani (1963), since both have the key assumption that forward looking individuals seek to maximize the PV of lifetime utility subject to budget constraint (Adewuyi *et al.*, 2010).

For the purpose of this study, the Equation 3.9 would be modified into a savings model that will include the interest variables (corruption and political instability). Scholars have argued that political instability (POL) can have a lasting impact on

savings. Edwards (1996) suggested that rising political instability such as higher probability of changes in government will lead to lower savings. Specifically, if there is frequent change in government, the party/government in power will have less urge to save. Given that savings translate into investment and consumption after sometime, opposition party/government may have assumed office before people start to benefit from the investment made by previous government. Thus, the government in power would be credited for the completion of projects that were initiated by previous government. Edwards (1996) also opined that the degree of political polarization (differences in political parties' preferences) has some impact on savings. If the preferences of the party in power are similar to those of opposition seeking power, the government in power will have the urge to save because they have some assurance that even if opposition assumed power, they will at least complete the projects initiated by them. On the contrary, if there is higher polarization or differences among the parties' preferences, then savings will be low.

Da Silva (1998) and (Svensson, 1998) indicated that political instability can encourage the non enforcement of property rights and lack of guarantee of contracts, such as like savings and investment, leading to lower savings/investment. Similarly, political instability can increase the perceived uncertainties/risks associated with savings because people may be prevented from enjoying the benefits from their past savings/investment (Fielding, 2003). Also, Le (2004) opined that political instability leads to displacement of human capital and destruction of physical capital, including contributing to high unemployment and low savings.

Also, Corruption (COR) can have an adverse effect on savings through capital flight. For instance, corrupt government officials who acquire wealth through illegitimate means, transfer their assets abroad (capital flight) because they know that the home country law will not protect them, but instead they face the risk of been detected, arrested and prosecuted, and in the process have such assets seized by the state (Rose-Ackerman, 1999; Hutchcroft, 1997; Swaleheen, 2008). It has been argued that national savings will fall by the equivalent of the capital flight (Lessard & Williamson, 1987; Rodriguez, 1987; Swaleheen, 2008).

Corruption also discourages investment in human capital such as education because the opportunity to maximize private gain is less (Mauro, 1995), drives many small scale businesses out of operation because they have to pay bribes to government officials to register their businesses, collect licenses and permits (Tanzi & Davoodi, 2002), discourages foreign investment in a country (Wei, 2000), and reduces the amount of social services (such as healthcare, road network, subsidies, transfers, etc.) required to alleviate poverty and inequality (Gupta *et al.*, 2002). These have wider implications which include high unemployment, low income and as a result low savings.

Also, the level of income (PCY) and income growth (GPCY) are important determinants of savings. The subsistence-consumption theories for instance, argue that savings rates tend to be higher in high income countries and lower in low income countries (Metin-Ozcan *et al.*, 2003). This is based on the fact that at high

income levels, households can easily finance their consumption and save the remainder. On the other hand, the PIT predicts a negative relationship between income growth and savings because forward looking consumers anticipate future increase in their permanent income, and therefore dissave against future earnings. But the LCT asserts that increases in income growth has a positive effect on savings since it (income growth) increases savings of the working population relative to dissaving of non-working population (Athukorala & Tsai, 2003; Metin-Ozcan *et al.*, 2003).

Also, since income level differs across countries, an attempt was made to ascertain whether the effects of corruption and political instability depend on income levels. Given that low income (poor) countries are highly corrupt and politically unstable (Mauro, 1995), including having low savings rates (World Development Indicators, various years), it is possible that the adverse effects of corruption and political instability on savings would be lesser at higher income levels, but higher at lower income levels. Thus, we introduced corruption-income interaction (COR*PCY) and political instability-income interaction (POL*PCY) in the savings models.

It has also been argued that the age structure of the population (DEP) can influence aggregate savings. Ando and Modigliani (1963) argued that individuals do not spend all they earn during their working years but also accumulate wealth and save or make provisions for retirement, when income is expected to fall. Therefore, if the number of working population is higher than non-working population, overall savings would

be higher and vice versa. It is noteworthy that the non-working and retired adults may not dissave for bequests purposes or keep some resources aside for their children, in the form of heritance.

Savings is also dependent on the rate of inflation (INF), a measure of macroeconomic uncertainty. Athukorala and Sen (2004) opined that the impact of inflation raises the uncertainty about future income streams, leading to higher savings for precautionary purpose, particularly for households in developing countries whose income prospects are much more uncertain than their counterparts in developed countries. But if income prospects are less uncertain, inflation may results in lower savings (Hondroyiannis, 2006). In addition, if individuals attempt to maintain a target level of wealth or liquid assets relative to income, savings will rise with inflation. Furthermore, Metin-Ozcan *et al.*, (2003) pointed out that inflation rate is expected to have a positive effect on savings, because people try to hedge against risk by increasing their savings. This view was supported by Skinner (1988) and Zeldes (1989).

Real interest rate (RIR) can also exert some influence on savings. The LCT predicts that at higher interest rate, the opportunity cost of current consumption is high so that individuals would reduce current consumption and increase their savings. This is the substitution effect. But if individual is a net lender, higher interest rate would lead to higher income and consumption, and consequently lower savings (income effect). If the substitution effect is larger than the income effect, there would be a positive

relationship between interest rate and savings (Athukorala & Sen, 2004; Nwachukwu & Egwaikhide, 2007).

In addition, agriculture (AGR) can contribute to changes in savings. If a higher percentage of the population engages (or are employed) in agriculture activity like in the case of ECOWAS countries, then many would face uncertainty in their future incomes. Skinner (1988) opined that greater uncertainty about future incomes compels consumers to set aside some resources on precautionary grounds.

Given that the aforementioned variables are theoretically linked to savings, they are included in the savings model. Unfortunately, due to unavailability of data on (initial) wealth for ECOWAS countries, the variable is not included in the final savings model. Studies have used house ownership or house price index (see Berube & Cote, 2000; Campbell & Watanabe, 2009) and financial wealth – the ratio of broader money supply (M3) to GDP (see Athukorala & Sen, 2004) as a measure of household's wealth. In particular, Berube and Cote (2000) opined that housing contributes significantly to household's net worth (wealth) which in turn reduces the tendency for savings out of individual's income.

Also, certain variables such as tax, Quasi-liquid liabilities, money supply, net current transfers, urbanization, net capital transfers, domestic credit, terms of trade, including population growth, that have been employed in previous studies were not considered in the present study due to its short coverage (1996-2012). Besides, data

on important variables (such as corruption and political instability, our variables of interest, for instance) were not available for some years in many ECOWAS countries. Furthermore, the selection of variables may be subject to criticism. But such a problem is unavoidable (Fama, 1981), and the variables (except corruption, political instability and interaction terms) used in this study have been employed in several studies on savings and its determinants. Thus, the general savings (GSR) model is specified as follows.

$$GSR = f(PCY, GPCY, INF, RIR, DEP, AGR, COR, POL, COR * PCY, POL * PCY)$$

3.2.1 Fixed Effects Model

Fixed effects (FE) model is used if one is interested in investigating the effects of variables that vary over time. The FE examines the relationship between predictor and outcome variables within an entity such as a country, person and so on. Each entity possesses its own characteristics which may or may not affect the predictor variables. For instance, a country's political system might have some bearing or impact on its aggregate savings. One of the assumptions of the FE is that there is a correlation between the entity's error and the predictor variables. Put differently, the FE assumes that something within the entity might affect or bias the predictor/outcome variables, which needs to be controlled. Thus, the FE eliminates the influence of the time-variant characteristics from the predictor variables, making it possible for one to evaluate the net impact of the predictors.

Another assumption of the FE is that time-invariant characteristics (such as culture, religion, gender, etc.) are peculiar to a particular entity and therefore should not be correlated with other entity's or entities' characteristics. Since each/individual entity differs from others, its error term and constant (which captures individual characteristics) should not be correlated with others. However, if the error terms are correlated the FE is not appropriate, and any conclusion or inference drawn from it will be misleading. A suitable model to use in this case would be the random effects model. The FE model is specified as:

$$Y_{it} = \beta_1 \sum X_{it} + \alpha_i + u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.10$$

where:

Y_{it} is the dependent variable for country i at time t; X_{it} refers to all the explanatory variables for country i at time t; β_1 is the coefficient of X_{it}; α_i refers to all unobserved, time-constant factors in country i that affect Y_{it}. Also, α_i (i =1, 2, ….., n) is the unknown intercept for each entity (n entity-specific intercepts); u_{it} is the error term and refers to unobserved factors that change over time and affect Y_{it}.

Moreover, since the FE controls for all time-invariant differences between the entities, the estimated coefficients of the FE models will be unbiased. However, given that FE is developed to study the causes of variations within an entity, it is therefore not suitable to examine time-invariant causes of the dependent variables. In

the same manner, a time-invariant characteristic does not lead to such a change because it is constant for each entity.

3.2.2 Random Effects Model

The random effects (RE) model is employed if the differences across the entities (countries, individuals, etc) have some effects on the dependent variable. The RE assumes that variation across entities is random and uncorrelated with the predictor variables. In other words, the entity's error term is assumed to be uncorrelated with the predictor variables, and permits the inclusion of time-invariant variables such as race, culture, etc., in the model like any other independent variables. But these variables are absorbed by the constant term in the FE model. In using the RE, one is expected to specify the individual characteristics which might or might not affect the predictor variables. However, some variables might be unavailable, resulting in omitted variable(s) bias in the model. Fortunately, with the RE conclusion can be generalized beyond the sample employed in the model. The RE model is specified as:

$$Y_{it} = \beta_1 \sum X_{it} + u_{it} + \alpha_i + \varepsilon_{it} \quad \ldots\ldots 3.11$$

where u_{it} is between-entity error and ε_{it} the within-entity error.

Finally, to achieve the objectives of this study, we estimated three panel models: (i) savings model with political instability variables (ii) savings model with corruption variables and (iii) savings model with both corruption and political instability variables. The final panel models to be estimated are specified as follows.

Model 1: Pooled OLS with Political Instability

$$GSR_{it} = \delta_0 + \delta_1 PCY_{it} + \delta_2 GPCY_{it} + \delta_3 INF_{it} + \delta_4 RIR_{it} + \delta_5 DEP_{it} + \delta_6 AGR_{it} + \delta_7 POL_{it} + \delta_8 POL_{it} * PCY_{it} + U_{it} \quad \ldots 3.12$$

Model 2: Panel Data Model - Fixed Effects with Political Instability

$$GSR_{it} = \alpha_0 + \alpha_1 PCY_{it} + \alpha_2 GPCY_{it} + \alpha_3 INF_{it} + \alpha_4 RIR_{it} + \alpha_5 DEP_{it} + \alpha_6 AGR_{it} + \alpha_7 POL_{it} + \alpha_8 POL_{it} * PCY_{it} + U_{it} \quad \ldots 3.13$$

Model 3: Panel Data Model - Random Effects with Political Instability

$$GSR_{it} = C + \beta_1 PCY_{it} + \beta_2 GPCY_{it} + \beta_3 INF_{it} + \beta_4 RIR_{it} + \beta_5 DEP_{it} + \beta_6 AGR_{it} + \beta_7 POL_{it} + \beta_8 POL_{it} * PCY_{it} + U_{it} \quad \ldots 3.14$$

Model 4: Pooled OLS with Corruption

$$GSR_{it} = \delta_0 + \delta_1 PCY_{it} + \delta_2 GPCY_{it} + \delta_3 INF_{it} + \delta_4 RIR_{it} + \delta_5 DEP_{it} + \delta_6 AGR_{it} + \delta_7 COR_{it} + \delta_8 COR_{it} * PCY_{it} + U_{it} \quad \ldots 3.15$$

Model 5: Panel Data Model - Fixed Effects with Corruption

$$GSR_{it} = \alpha_0 + \alpha_1 PCY_{it} + \alpha_2 GPCY_{it} + \alpha_3 INF_{it} + \alpha_4 RIR_{it} + \alpha_5 DEP_{it} + \alpha_6 AGR_{it} + \alpha_7 COR_{it} + \alpha_8 COR_{it} * PCY_{it} + U_{it} \quad \ldots 3.16$$

Model 6: Panel Data Model - Random Effects with Corruption

$$GSR_{it} = C + \beta_1 PCY_{it} + \beta_2 GPCY_{it} + \beta_3 INF_{it} + \beta_4 RIR_{it} + \beta_5 DEP_{it} + \beta_6 AGR_{it} + \beta_7 COR_{it} + \beta_8 COR_{it} * PCY_{it} + U_{it} \quad \ldots 3.17$$

Model 7: Pooled OLS with both Corruption and Political Instability

$$GSR_{it} = \delta_0 + \delta_1 PCY_{it} + \delta_2 GPCY_{it} + \delta_3 INF_{it} + \delta_4 RIR_{it} + \delta_5 DEP_{it} + \delta_6 AGR_{it} + \delta_7 COR_{it} + \delta_8 POL_{it} + \delta_9 COR_{it} * PCY_{it} + \delta_{10} POL_{it} * PCY_{it} + U_{it} \quad \ldots 3.18$$

Model 8: Panel Data Model - Fixed Effects with both Corruption and Political Instability

$$GSR_{it} = \alpha_0 + \alpha_1 PCY_{it} + \alpha_2 GPCY_{it} + \alpha_3 INF_{it} + \alpha_4 RIR_{it} + \alpha_5 DEP_{it} + \alpha_6 AGR_{it} + \alpha_7 COR_{it} + \alpha_8 POL_{it} + \alpha_9 COR_{it} * PCY_{it} + \alpha_{10} POL_{it} * PCY_{it} + U_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.19$$

Model 9: Panel Data Model - Random Effects with both Corruption and Political Instability

$$GSR_{it} = C + \beta_1 PCY_{it} + \beta_2 GPCY_{it} + \beta_3 INF_{it} + \beta_4 RIR_{it} + \beta_5 DEP_{it} + \beta_6 AGR_{it} + \beta_7 COR_{it} + \beta_8 POL_{it} + \beta_9 COR_{it} * PCY_{it} + \beta_{10} POL_{it} * PCY_{it} + U_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.20$$

where:

it is the time period t in country i, U is the error term, while α_i, β_i, and δ_i, are coefficients to be estimated. Moreover, we employed several measures of corruption and political instability to check for consistency and robustness of the estimates.

3.3 Justification of Variables

GSR is the dependent variable. It refers to gross national savings as a percentage of GDP. Gross national savings in turn is measured as gross national income less consumption plus transfers (see WDI). Due to the difficulties in measuring private savings, authors such as Collins (1991) have used gross national savings as a share of income as a proxy for savings rates. The author argued that, despite the shortcomings of the measurement, alternatives (measures) are not superior. Another issue raised by Collins is that when taking decision on whether to focus on aggregate savings or to disaggregate savings by sector, one is wary of the conflicting views on

whether household savings should be treated as independent from both corporate and government savings. In addition, it is usually not easy to draw a line between households and corporations particularly in developing countries. More so, there is absence of accurate information on the size of the "informal" business sector in developing economies. Besides, the definitions and compositions of savings tend to vary from one country to another.

In the same manner, Schrooten and Stephan (2005) argued that it is almost impossible to obtain official data on private savings. However, the data can be derived via two methods. The first one is the summation of households and corporations savings, and the second is domestic minus public savings. But for ECOWAS countries, households and corporations savings data are usually difficult to come by. Similarly, whereas official data on domestic savings are readily available for most countries in the region, data on public sector dis(savings) captured by overall budget balance are neither available for certain countries (such as Cote D'Ivoire, Gambia, and Guinea Bissau) nor adequate for others (like Cape Verde, Guinea, Liberia, Niger, Nigeria, and Senegal). Hence, we use the gross domestic savings rates (from the WDI) as a proxy for savings rates.

Studies have employed the gross domestic savings rates as a measure of savings (see Bloom *et al.*, 2003; Bloom, Canning, Mansfield & Moore, 2007; Cook, 2005). Bloom *et al.* (2003) argued that it is pretty difficult to aggregate over individuals in

order to arrive at aggregate savings, and suggested that the measure of GSR can be used as an approximation of the true savings rates.

Although the authors mentioned above employed the LCT ideas which focus on individual's consumption or savings decisions, they extended the framework to the national level to study the determinants of aggregate savings rates. For instance, Bloom *et al.* (2003) examined the role of longevity on aggregate savings rates. Similarly, Bloom *et al.* (2007) investigated the effects of longevity (life expectancy) and social security systems on aggregate savings rates, while Cook (2005) focused primarily on the relationship between population growth and savings rates.

PCY is measured as the real GDP per capita divided by the total population. Many empirical studies reveal a positive effect of income per capita on savings (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003), and it has been found that high income countries tend to have higher savings rates (Metin-Ozcan *et al.*, 2003). Thus, we expect a positive relationship between PCY and savings rates.

GPCY refers to annual percentage growth rate of GDP. Some studies found a significant positive impact of GPCY on savings (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Hussein & Thirlwall, 1999; Nwachukwu & Odigie, 2011), but others discovered a negative association between the variables (see Kwack & Lee, 2005; Nwachukwu & Egwaikhide, 2007). Yet others established an insignificant relationship between GPCY and savings (see Adewuyi *et al.*, 2010;

Burnside *et al.*, 1999; Metin-Ozcan *et al.*, 2003). Thus, we expect an ambiguous relationship between GPCY and savings rates.

RIR is measured as the deposit (interest) rate adjusted for inflation rate. Some studies confirmed a positive impact of interest rate on savings (see Agrawal & Sahoo, 2009; Nwachukwu & Odigie, 2011). However, some authors revealed that RIR has a negative impact on savings (see Adewuyi *et al.*, 2010; Khan & Hye, 2010). Few studies have also reported an insignificant influence of interest rate on savings (see Boskin, 1978; Giovannini, 1983). Overall, we expect an ambiguous relationship between RIR and savings rates.

INF refers to annual percentage change in consumer price index. Some studies indicated a negative association between savings and the rate of inflation (see Adewuyi *et al.*, 2010; Farhan & Akram, 2011), while others confirmed a positive relationship between inflation rate and savings (see Chaudhry *et al.*, 2010; Touny, 2008; Van Rijckeghem, 2010). Thus, we expect the relationship between INF and savings rates to be positive or negative.

DEP refers to the share of population younger than 15 years plus population over 65 in total population. Studies have shown that age dependency has a negative impact on savings (see Farhan & Akram, 2011; Khan & Abdullah, 2010; Khan & Hye, 2010; Wong & Tang, 2010). Thus, we expect a negative relationship between DEP and savings rates.

AGR is measured as agriculture value as a percentage of GDP. Authors such as Ang and Sen (2009) and Muhleisen (1997) found a negative impact of the share of agricultural output in GDP on savings, while Chowdhury (2001) and Khan and Hye (2010), confirmed that agricultural sector share in GDP has a positive impact on savings. Thus, we expect a positive or negative relationship between AGR and savings rates.

POL has been captured by the number of politically motivated assassination, number of people killed in domestic mass violence as a fraction of total population, number of successful coups, or number of attempted but unsuccessful coups (Alesina & Perotti, 1996). However, due to unavailability of such (rich) data on ECOWAS countries, we proxied political instability by the ICRG political risk index that has been used in previous studies (see Erb, Harvey, & Viskanta, 1996; Hayakawa, Kimura, & Lee, 2011; Heaney & Hooper, 1999; Linder & Santiso, 2002). Two other indicators of political instability employed include Worldwide Governance Indicators (WGI) political stability and absence of terror indicators. The primary sources of the indicators are Global Insight Business Conditions and Risk Indicators (WMO), and Cingranelli-Richards Human Rights Database and Political Terror Scale (HMO). Whereas the ICRG index ranges between 0% and 100%, both WMO and HMO indices range between 0 and 1. Higher values indicate lesser political risk or instability and vice versa.

Political instability contributes to low savings by destroying physical capital, displacing human capital, including lowering employment opportunities and incomes (Le, 2004). Also, since instability raises the uncertainty about households' future income stream, they will set aside part of their income for precautionary purpose, leading to higher savings. The few studies conducted to assess the impact of political instability on savings confirmed a negative relationship between the variables (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Thus, we expect a negative relationship between POL and savings rates. In interpreting the results, a positive value of the POL coefficient means that higher rating/index (lesser political instability) is associated with higher savings. This is line with Erb, Harvey and Viskanta (1996) and Heaney and Hooper (1999).

COR is difficult to be measured or quantified. What is accepted as a norm in one society at a point in time may be considered as corruption in other societies. In addition, since most corrupt practices are seen as unlawful activities, they are done in secrecy. This makes is very difficult to measure or quantify them. Moreover, since there are few measurements of corruption, one can resort to the corruption perception indices (Gyimah-Brempong, 2002). Corruption is captured by the TI and ICRG corruption indices. The TI corruption index reveals the extent to which a country is perceived to be corrupt, and it ranges from 0 (very corrupt) to 10 (very clean). Similarly, the ICRG corruption index measures corruption within the political system (Asiedu, 2002) and it is ranges between 0 and 6. Higher values indicate lesser corruption and vice versa. Also, the Worldwide Governance Indicator (WGI) control

of corruption index was employed. The primary source of the index is Global Insight Business Conditions and Risk Indicators (WMO). The index ranges between 0 and 1, and higher values indicate lesser corruption and vice versa.

The TI and ICRG indicators have been used in previous studies (see Asiedu & Freeman, 2009; Blackburn *et al.*, 2010; Gyimah-Brempong, 2002; Swaleheen, 2011), while Samimi and Abedini (2012) employed the control of corruption index in their analysis. Many empirical studies have been conducted on the impact of corruption on certain economic variables such as tax revenue (Ghura, 2002); economic growth (Gyimah-Brempong, 2002, Mauro, 1995; Tanzi & Davoodi, 2002; Ugur & Dasgupta, 2011), economic productivity (Bentzen, 2012), investment growth (Asiedu & Freeman, 2009), foreign direct investment inflows (Wei, 2000) and income inequality and poverty (Gupta *et al.*, 2002).

All the studies showed that corruption has adverse (negative) impact on the variables. In a recent study, Swaleheen (2008) discovered that corruption has a negative effect on national savings. Thus, we expect a positive relationship between lesser corruption (higher corruption index) and savings rates. In line with Mauro (1995) and Wei (2000), Gyimah-Brempong (2002) advised that when interpreting, high values of corruption index mean lesser corruption. A positive value of the corruption coefficient for instance, implies that lesser corruption is associated with higher savings.

POL*PCY refers to political instability-income interaction. Although political instability tends to have adverse effect on savings, the magnitude of the effect will depend on a country's income level. Given the same level of political instability, the effect of political instability on savings would be larger in low income countries (such as ECOWAS) compare to their rich counterparts. For instance, at low income levels the ability to save is lesser. In addition, political instability will further reduce individual's ability to save through the destruction of physical capital, displacement of human capital, non enforcement of property rights and lack of guarantee of contracts, disruption of production, discouragement of domestic and foreign investment, high unemployment and low income. But in high income countries, the impact of political instability on savings will be lesser since income is high. Moreover, government can curb political instability such as protests, demonstrations, and violence through introduction of welfare benefits which include transfers and subsidies, increased wages and so on. Thus, we expect the effect of political instability on savings to be higher in low income ECOWAS countries, but lesser at high income levels.

COR*PCY refers to corruption-income interaction. Whereas corruption is expected to impact negatively of savings, the magnitude of its impact will depend on a country's income level. Given the same level of corruption, the negative impact of corruption on savings would be larger in low income countries (such as ECOWAS) relative to rich countries. For example, at low income levels corruption further reduces people's ability to save because it contributes to inadequate investment in

human capital, low productivity and high unemployment, declining domestic and foreign investment, falling production and poor growth, high poverty and inequality, capital flight as well as low income. However, the impact of corruption on savings in rich countries will be lesser because income is high. In addition, high income countries can increase the amount of social services including transfers and subsidies, raise investment and production, attract foreign investment, create jobs, and have the resources to invest in the fight against corruption relative to their poor counterparts. Thus, we expect the effect of corruption on savings to be higher in low income ECOWAS countries, but lesser at high income levels.

Although we expect both corruption and political instability to have an adverse effect on savings, the impact of political instability might outweigh that of corruption. Experience has shown that corrupt countries can still invest and produce, earn high income including having high savings rates as in the case of China. However, it may be difficult for politically unstable countries to save due to uncertainties and risks associated with savings and investment as well as production. In fact, Le (2004) submitted that political instability destroys physical capital and displaces human capital, leading to higher unemployment and lower savings.

3.4 Method of Analysis

This study employs a panel estimation approach to investigate the effects of corruption and political instability (including other factors) on savings in ECOWAS countries. The approach is believed to be more suitable because the study focuses on

a group of countries that make up the ECOWAS. The panel estimation technique is used for the following reasons. First, panel datasets provide solution to the problem of bias caused by unobserved heterogeneity, a problem usually associated with cross section data. Second, panel datasets show dynamics that are not easily discovered in cross section data. Third, panel datasets offer large numbers of observations and are usually rich in content. Fourth, panel datasets give more variability, less collinearity among variables, more degrees of freedom and more efficiency over time series (Baltagi, 2005). Thus, the savings models for ECOWAS countries (excluding Liberia for which data on savings are not available) would be estimated using panel estimation techniques which include Panel Corrected Standard Errors/Seemingly Unrelated Regressions and Two Stage Least Squares-instrumental variables.

3.4.1 Panel Corrected Standard Errors

A common feature of time series cross sectional data (TSCS) is that they display both contemporaneous correlations (autocorrelated errors) and heteroscedasticity (Beck & Katz, 1995). Specifically, time series data exhibit contemporaneous correlations while cross section data display heteroscedasticity. Therefore, any inferences drawn base on the standard errors generated by the OLS will be misleading. Although the Generalized Least Squares (GLS) method (Parks, 1967) is theoretically superior to the OLS, it is only applicable to TSCS if one has knowledge of the error process (the auto-correlation and heteroscedasticity parameters), which in reality is not feasible (Beck & Katz, 1995). A practical and better alternative is the Feasible GLS (FGLS). However, FGLS tends to underestimate the precise

variability of the estimator if the time period (T) is not quite higher than the cross sectional units (N), especially in small samples (Beck & Katz, 1995; Jonsson, 2005).

To avoid these problems, the Panel Corrected Standard Errors (PCSE) method which yields robust covariances has been suggested in the analysis of TSCS (Beck & Katz, 1995). Interestingly, the PCSE does not require T to be considerably higher than N and it has been found to perform better than the FGLS (Jonsson, 2005). It also accounts for the deviations from the spherical errors, leading to drawing meaningful inferences on the estimates from TSCS. The PCSE cross section/period with Seemingly Unrelated Regressions (SUR) has been employed in recent studies (see, Bjørnstad & Nymoen, 2008; Hanke & Hauser, 2008; Juttner, Chung, & Leung, 2006; Pineda, Cashin & Sun, 2010; Silaghi & Ghatak, 2011).

For instance, Silaghi and Ghatak (2011) employed the PCSE with cross section SUR to examine the impact of wages and unemployment rates on internal migration in 56 intra-regions of Romania from 1995 to 2005. Similarly, Juttner *et al.* (2006) used the same technique (PCSE) to study the effects of political and financial risks (including other factors) on bond index rates of return for a panel of 19 emerging market countries and 17 OECD countries during the period 1994:1-2003:3. Other authors such as Hanke and Hauser (2008) also employed the PCSE with period SUR to evaluate the effects of stock spam emails on stock market activities.

3.4.2 Two Stage Least Squares

The literature has suggested that income (GDP) per capita and/or income growth is endogenous to savings (Baldé, 2011, Callen & Thinmann, 1997; Loayza *et al.*, 1999; Sinha & Sinha, 1998), indicating that not only increases in income per capita or growth will lead to higher savings, but increases in savings will also lead to increases in income per capita or income growth. In this case, estimated coefficient using OLS would be bias. The bivariate causality between the variables will result in correlation between the control variables and the error term, thus violating the assumptions of the linear regression model (Baldé, 2011). Moreover, it is impossible to determine the effect of individual variable and to isolate its impact on savings, while the estimation of the relationship would result in a potential endogeneity bias.

The problem highlighted above can be solved using the Two Stage Least Squares-instrumental variables technique (TSLS), a robustness check on OLS, to estimate the relationship between the variables. The method helps to find variables that are highly correlated with the endogenous variable, but uncorrelated with the error term. Although, it is not easy to choose appropriate instruments in order to control for endogeneity, using lagged values of explanatory variables that are also endogeneous (internal instruments) can be helpful (Baldé, 2011). Callen and Thimann (1997) used lagged income and income growth as instruments in estimating a savings model. Thus, borrowing from the ideas of Baldé (2011) and Callen and Thimann (1997), income per capita and income growth lagged by one period were used as instruments in estimating our savings models. In addition, the White's method was employed to

solve heteroscedasticity problem. In line with Baldé, if the results of estimation of TSLS and OLS are similar, then it can be concluded that the OLS estimates are consistent and unbiased, endogeneity is not a problem in the estimated relationships, and there is no simultaneity between savings and income per capita/income growth.

In addition, various tests were conducted to select the most appropriate among the competing models (OLS, FE and RE). In the first case, an assumption of the OLS is that there are no time-specific effects in the cross section units over the period of time. However, the presence of effects in the estimates renders OLS estimators inappropriate in the prediction of the cross section units over the period of time. Thus, the redundant FE test was employed to test the null hypothesis of no effects in the estimates generated from the TSCS. Also, the Hausman test was employed to test the hypothesis that the RE estimation is correct and consistent, and preferred to the FE estimation. Under the null hypothesis, the difference of the estimates of both models (FE and RE) is very negligible. Therefore, an acceptance of the null hypothesis (H_0) implies that the RE estimates are correct and preferred, while a rejection of the H_0 indicates that the FE estimates are preferred.

3.4.3 Orthogonalization, Conditional Effect and Overall Effect

Given that this study uses interaction terms, it is important to discuss important issues that include orthogonalization normality, conditional effects and overall effects as they relate to interaction terms in regression analysis.

Explaining the difference between conditional effects and overall effects in estimated regression model is very crucial because researcher often make mistake when interpreting them (Jaccard & Turrisi, 2003). Suppose a regression model consists of a dependent variable 'Y' and explanatory variables 'X_1' and 'X_2', with b1 and b2 representing the coefficients of X_1 and X_2, respectively. The coefficient b_1 estimates the effect of X_1 on Y while taking into cognizance each level of X_2. Similarly, b_2 estimates the effect of X_2 on Y while taking into cognizance each level of X_1. Hence, the values of b_1 and b_2 would capture the overall effects of the estimated model.

Suppose an interaction term 'X_1X_2', which is calculated from X_1 and X_2 is now included in the model, and its coefficient denoted 'b_3'. In this case, the regression coefficients (b_1 and b_2) capture the conditional effects for the specific value of X_1 and X_2. The coefficient b_1 captures the effect of X_1 on Y when X_2 is zero, and b2 captures the effect of X_2 on Y when X_1 is zero. Thus, whereas b_1 and b_2 capture the overall effects in the model without the interaction term, they capture the conditional effects in the model consisting of the interaction term.

It is also noteworthy that explanatory variables are rarely orthogonal to each other, not to talk of the interaction term calculated from them in the model. This is a case of non-orthogonalized model. The implication of this is that the interaction term may be highly correlated with the variables from which it was calculated (Darlington, 1990). Although variables can be perfectly correlated, the more common case is one in which they are highly correlated (Greene, 2003; Harvey, 1977). A higher correlation

between the variables in turn leads to multicollinearity problem (with consequences of a high coefficient of determination, large standard errors and insignificant coefficients, and wrong signs of the coefficients).

One way to avoid high correlation among the variables and multicollinearity problem is to orthogonalize the interaction term with respect to the explanatory variables from which it was calculated. Authors such as Aiken and West (1991) suggested the following procedure to orthogonalize.

First, is to estimate a model consisting of only the original explanatory variables (for instance, X_1 and X_2). Second, is to fit a model that consists of the original explanatory variables and the interaction term (that is, X_1, X_2 and X_1X_2). Next, is to compare the two models using the F-test to test the hypothesis that the additional term (i.e. interaction term) does not add to the variation in the dependent variable (Y). This approach can be cumbersome as the number of interaction term increases. Besides, the interaction terms become highly correlated with the explanatory variables from which they were calculated or even with one another.

A practical and widely accepted approach to orthogonalization is to regress X_1X_2 on X_1 and X_2. Then, the residuals from the regression is saved, and then used to replace X_1X_2 in the model to be estimated. As expected, the residuals should have mean zero, and its correlation with $X_1$and X_2 should be close to zero. Once X_1X_2 is orthogonalized with X_1 and X_2, then one can proceed by fitting a full model. This

can be followed by conducting the standard t-test to ascertain which explanatory variable (X_1, X_2 or X_1X_2) significantly explains changes in the dependent variable.

3.4.4 Correlation Tests

Prior to estimation of the savings models, correlation tests were carried out on the different measures of corruption and political instability, including the macroeconomic variables employed in this study. It must be mentioned that the data for the interest variables (corruption and political instability) were obtained from different sources. For instance, data on the most prominent and widely used corruption index was obtained from the TI. In order to check for consistency and robustness of the results using the TI corruption index, the ICRG corruption index was employed. This is in line with previous studies (Swaleheen, 2011). The two indicators have been employed in previous studies (see Asiedu & Freeman, 2009; Blackburn *et al.*, 2010; Swaleheen, 2011). The TI corruption index ranges from 0 to 10, while ICRG index ranges from 0 to 6. Higher value indicates lesser corruption and lower value means higher corruption. The data on the third indicator or measurement of corruption (control of corruption index) was collected from the WGI. The primary source of the data is the Global Insight Business Conditions and Risk (WMO). The index has a range of 0 to 1, and higher value means lesser corruption and vice versa. The control of corruption indicator has been used in a recent study (see Samimi & Abedini, 2012). Although the various corruptions indices are calculated using different methodology and coverage, they have been found to be highly correlated with each other and also correlated with important

economic variables, suggesting that they are measuring the same thing and spuriousness is not a problem (Blackburn *et al.*, 2010).

In the case of political instability index (that is, political risk rating), the data was obtained from the ICRG. The index ranges between 0%-100%, with higher value implying a condition of lesser political risk (political instability) and vice versa. Other indicators such as the political stability and absence of violence indicator compiled by the WGI were used to check for the consistency and robustness of the estimates using the ICRG index. The primary sources of the data are the WMO and Cingranelli-Richards Human Rights Database and Political Terror Scale (HMO). The data ranges from 0 to1, with higher value indicating improvement in political stability.

3.5 Sources of Data

This research work used a panel dataset for ECOWAS countries excluding Liberia for which data on savings is not available. The data used were collected from the World Bank World Development Indicators (WDI), Worldwide Governance Indicators (WGI), Transparency International (TI), Political Risk Service Group, Central Bank of Nigeria (CBN), and African Development Bank (ADB). Specifically, data on savings rates (except for Nigeria which is collected from the CBN), income per capita, income growth, age dependency, inflation rate, interest (deposit) rate, and agricultural share in GDP were collected from the WDI. In the

case of corruption, the data were obtained from TI, PRS and WGI. Lastly, political instability data were collected from PRS and WGI.

3.6 Summary of Chapter

In chapter three, the theoretical framework for the study was highlighted. The framework was developed with a view to creating an understanding on the link between savings and the variables of interest (corruption and political instability) including other potential determinants of savings. The development of the framework was followed by the specification of models used to analyze the relationship between savings, corruption, and political instability, including other factors that may likely affect savings in ECOWAS countries.

CHAPTER FOUR
DISCUSSION OF RESULTS

This chapter is devoted to the presentation of results and discussion. The Panel Corrected Standard Error/Seemingly Unrelated Regression (PCSE/SUR) and Two Stage Least Squares (TSLS) techniques that take into account FE/RE were employed to analyze the effects of corruption and political instability on savings in ECOWAS countries. In addition, the study investigated whether the impact of corruption and political instability on savings depend on income levels in the ECOWAS. Lastly, the study examined the effects of other important variables that include income per capita, income growth, age dependency, inflation rate, real interest rate and agriculture on savings.

4.1 Descriptive Statistics

Prior to estimation of the savings models, the summary statistics was computed for all the variables employed in this study. The results presented in Table 4.1 reveal that the mean of the TI corruption index is 2.82 out of a maximum of 10, while the mean of the ICRG corruption index is 2.03 out of a maximum of 6. This suggests that ECOWAS countries are facing serious corruption problem. In the same vein, the WMO corruption index average is 0.37 (out of a highest value of 1). The low average of the corruption index reveals the extent to which ECOWAS countries are perceived to be corrupt. Gyimah-Brempong (2002) reported the existence of low average of the corruption index for African countries, and suggested that they are

perceived to be highly corrupt. It was stated in the introductory chapter that only Cape Verde performed fairly well in the fight against corruption, recording at least a TI corruption index of 5 in the past few years. Moreover, the mean of the ICRG political instability index is 55.6%. This again indicates that the region is highly politically risky or unstable. But a few countries such as Ghana and Gambia had a value of 60% and above during the period 1999-2011. In the same manner, the HMO and WMO political instability indicators reveal some level of instability in the region's political environment.

Also, we observe that the average income per capita (PCY) in ECOWAS is very low compared to other regions like EAP ($2070), ECA ($3782), LAC ($5510), and MENA ($2343). Although the average income growth rate (GPCY) of ECOWAS appears to be higher than those of ECA (3.94%) and LAC (3.16%), it is almost half of EAP's (8.14%). In addition, the mean of agricultural share in GDP (AGR) is fairly high compare to 13.6% for EAP, 11.2% for ECA, 5.87% for LAC, and 12.94% for MENA. This suggests that agriculture plays an important role in the ECOWAS region. Similarly, the average inflation rate (INF) for ECOWAS is relatively high compare to 5.17% in EAP, 5.76% in LAC, and 4.57% in MENA. Moreover, the region's average gross savings rates (GSR) is less than those of EAP (41.5), ECA (18.3), LAC (19.2), and MENA (27.96).

Table 4.1
Summary Statistics for Variables

	Mean	Std. Dev.	Min	Max	Obs
GSR	11.4	7.16	-14.6	35.6	219
TI	2.82	0.83	1.0	6.0	136
WMOc	0.37	0.14	0.0	0.63	218
ICRGc	2.03	0.59	0.0	3.0	168
HMO	0.6	0.22	0.0	1.0	224
ICRGp	55.6	7.93	37	71	168
WMOp	0.59	0.19	0.13	0.88	218
PCY	631.4	582.9	153.5	3838	238
GPCY	4.49	4.68	-28.1	27.5	238
DEP	46.5	2.47	36	53	238
INF	6.51	8.6	-3.5	50.7	233
RIR	0.52	6.59	-47	17	217
AGR	32	12.1	7.0	62	207

Note: TI = Transparency International; WMOc = Global Insight Business Conditions and Risk Indicators corruption index; ICRGc = International Country Risk Guide corruption index; WMOp = Global Insight Business Conditions and Risk Indicators political instability index; ICRGp = International Country Risk Guide political instability index; HMO = Cingranelli-Richards Human Rights Database and Political Terror Scale; GSR = Gross savings rates; PCY = Income per capita; GPCY = Income growth; DEP = Age dependency; INF = Inflation rate; RIR = Real interest rate; AGR = Agricultural share in GDP.

4.2 Correlation Analysis

A correlation analysis was computed for all the variables. The results presented in Table 4.2 show a high correlation between the pair - TI and ICRGc (r=0.79). This suggests that the TI and ICRG corruption indicators may be measuring the same thing. However, there is a weak correlation between WMOc and TI (r=0.28) on the one hand, and WMOc and ICRGc (r=0.16) on the other hand. This illustrates that the WMO corruption index and others (TI and ICRG) may not necessarily measure the same thing. In addition, the results for political instability indicators reveals a strong correlation between ICRGp and WMOp (r=0.75), ICRGp and HMO (r=0.76), as well as a moderate correlation between HMO and WMOp (r=0.53). Thus, these indicators

may be measuring the same thing. Furthermore, GSR has a positive correlation with TI and ICRG corruption indices, but a negative correlation with the WMO corruption index. Moreover, GSR has a positive correlation with all three measures of political instability (HMO, ICRG and WMO). Lastly, GSR has a positive correlation with the remaining variables, except GPCY and AGR.

Table 4.2
Correlation Matrix for Variables

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
A	1												
B	.27	1											
C	-.03	.28	1										
D	.33	.79	.16	1									
E	.06	.44	.53	.24	1								
F	.06	.65	.63	.34	.76	1							
G	.13	.65	.73	.28	.53	.75	1						
H	.10	.13	-.03	-.09	-.47	-.35	-.28	1					
I	-.03	.09	.11	-.23	.12	.18	.03	.11	1				
J	.10	-.05	.05	.13	.21	.01	.09	-.23	-.06	1			
K	.09	.02	-.11	-.23	.01	.12	-.11	-.15	.31	-.43	1		
L	.04	-.05	-.03	.16	.12	.10	.04	-.18	-.21	.23	-.50	1	
M	-.22	-.21	-.18	-.36	.23	.11	-.06	-.50	.31	-.18	.51	-.25	1

Note: A: GSR = Gross savings rates; B: Transparency International; C: WMOc = Global Insight Business Conditions and Risk Indicators corruption index; D: ICRGc = International Country Risk Guide corruption index; E: HMO = Cingranelli-Richards Human Rights Database and Political Terror Scale political instability index; F: ICRGp = International Country Risk Guide political instability index; G: WMOp = Global Insight Business Conditions and Risk political instability index; H: PCY = Income per capita; I: GPCY = Income growth; J: DEP = Age dependency; K: INF = Inflation rate; L: RIR = Real interest rate; M: AGR = Agricultural share in GDP.

Furthermore, a correlation analysis was computed for the interaction terms and the variables from which they were calculated, to ascertain if the inclusion of the individual interaction term leads to multicollinearity problem. The results presented in Table 4.3 indicate that in most cases, the corruption-income interaction term

(COR*PCY) is highly correlated with the income (PCY) variable, but weakly correlated with the corruption variable (COR). In the same manner, the political instability-income interaction term (POL*PCY) is strongly correlated with income, but weakly correlated with the political instability variable (POL). Having detected the presence of multicollinearity, the individual interaction term would be regressed on the variables from which it was calculated. Next, the series of residuals generated from the initial regression would replace the individual interaction term in the savings models to be estimated.

Table 4.3
Correlation Matrix for Corruption, Political Instability and Interaction Terms

Corruption-Income Interaction			
TI Index	COR*PCY	COR	PCY
COR*PCY	1.00		
COR	0.75	1.00	
PCY	0.96	0.64	1.00
ICRG Index	COR*PCY	COR	PCY
COR*PCY	1.00		
COR	0.34	1.00	
PCY	0.89	-0.04	1.00
WMO Index	COR*PCY	COR	PCY
COR*PCY	1.00		
COR	0.45	1.00	
PCY	0.94	0.19	1.00
Political Instability-Income Interaction			
WMO Index	POL*PCY	POL	PCY
POL*PCY	1.00		
POL	0.45	1.00	
PCY	0.95	0.25	1.00
ICRG Index	POL*PCY	POL	PCY
POL*PCY	1.00		
POL	0.04	1.00	
PCY	0.95	-0.22	1.00
HMO Index	POL*PCY	POL	PCY
POL*PCY	1.00		
POL	0.39	1.00	
PCY	0.91	0.06	1.00

Note: TI = Transparency International; ICRG = International Country Risk Guide; WMO = Global Insight Business Conditions and Risk; POL = Political instability; COR = Corruption; PCY = Income per capita; POL*PCY = Political instability-income interaction; COR*PCY = Political Instability-income interaction

4.3 Estimation Results for Savings and Corruption

In estimating the savings models, we employed different indicators of corruption. Table 4.4 shows the results of estimations and various tests conducted using the TI corruption index. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0002, suggesting

that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The result of the RE estimation shows that lesser corruption has a significant and positive effect on savings at 5%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.93%. This finding is line with previous studies (see Swaleheen, 2008). The results also demonstrate that income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0037% increase in savings rates. This finding lends support to the ones reported in previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Also, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.31% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, agriculture has a negative effect on savings at 10%. A 1% increase in agricultural share in GDP leads to 0.13% decrease in savings rates. This finding lends support to the outcome of previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.4
Estimation Results for ECOWAS Using the TI Corruption Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-15.092	115.434**	-15.092
	(19.099)	(40.0849)	(17.7581)
COR	1.9037**	1.2393	1.9037**
	(0.7844)	(1.3466)	(0.7798)
PCY	0.0037**	-0.0082**	0.0037**
	(0.0016)	(0.0022)	(0.0017)
COR*PCY	-0.0001	-0.0050**	-0.0001
	(0.0007)	(0.0009)	(0.0009)
GPCY	-0.0602	0.1473	-0.0602
	(0.2043)	(0.2195)	(0.220)
DEP	0.4764	-2.4232**	0.4764
	(0.3735)	(0.8275)	(0.3751)
INF	0.313***	0.2728	0.3139**
	(0.1132)	(0.2651)	(0.1353)
RIR	0.2155	0.1592	0.2155
	(0.1439)	(0.2775)	(0.1566)
AGR	0.1269	0.2736*	-0.1269*
	(0.0839)	(0.1647)	(0.0676)
R^2	0.41	0.61	0.41
Redundant FE Test	-	4.03	-
		(0.0002)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	7.67	6.81	7.67
	(0.0000)	(0.0000)	(0.0000)
Obs.	98	98	98

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

In an attempt to check the consistency and robustness of our results, we re-estimated the savings model using the ICRG corruption index, and presented the results in Table 4.5. The redundant FE test rejects the null hypothesis of no effects in the cross

section units over the period of time as the p-value is 0.0854, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The result of the RE estimation shows that lesser corruption has a significant and positive effect on savings at 10%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.61%. This finding is consistent with the one reported in previous studies (see Swaleheen, 2008).

The results also demonstrate that income per capita has a significant and positive effect on savings at 10%. A 1 dollar increase in income per capita leads to 0.005% increase in savings rates. This finding is in line with the ones reported in previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). In addition, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.54% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Moreover, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.46% increase in savings rates. This finding is in line with the ones reported in previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, age dependency has a significant and positive effect on savings at 10%. This finding is contrary to the outcome of previous studies (Ang & Sen, 2009; Kwack & Lee, 2005).

Table 4.5
Estimation Results for ECOWAS Using the ICRG Corruption Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-31. 96**	11.8611	-26.9912
	(16.2616)	(24.3045)	(20.7237)
COR	1.8475**	0.5594	1.6139*
	(0. 8227)	(1.2954)	(0.9069)
PCY	0.0048**	0.0042	0.0050*
	(0.0022)	(0.003)	(0.0026)
COR*PCY	0.0042	0.0054	0.0051
	(0.0028)	(0.0036)	(0.0034)
GPCY	0.1579	0.1739	0.1465
	(0.1198)	(0.1399)	(0.1225)
DEP	0.832***	-0.2892	0.6902*
	(0.2976)	(0.4903)	(0.3902)
INF	0.498***	0.4907*	0.537***
	(0.0991)	(0.2736)	(0.1803)
RIR	0.411***	0.4349	0.4592**
	(0.1175)	(0.2887)	(0.1946)
AGR	-0.188**	0.1279	-0.1436
	(0.0737)	(0.1288)	(0.0882)
R^2	0.39	0.48	0.22
Redundant FE Test	-	1.72	-
		(0.0854)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	8.82	5.13	3.99
	(0.0000)	(0.0000)	(0.0003)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

Also, we introduced the WMO corruption index in the savings models to further ascertain the consistency of our results. The results of estimations and tests conducted are presented in Table 4.6. The redundant FE test rejects the null

hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0000, implying that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation reveal that the coefficient of corruption-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income per capita reduces the effect of corruption on savings rates by 0.02 index point. This finding suggests that the effect of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings is larger in ECOWAS countries because of their low income levels.

Furthermore, income per capita has a significant and positive effect on savings at 1%. A 1 dollar increase in income per capita leads to 0.0053% increase in savings rates. This finding is line with the outcome of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Additionally, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.35% increase in savings rates. This finding is consistent with those of previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Also, real interest rate has a significant and positive effect on savings at 10%. A 1% increase in real interest rate leads to 0.25% increase in savings rates. This finding lends support to the ones reported in previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Furthermore, agriculture has a significant and negative

effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.19% decrease in savings rates. This finding is in line with the outcomes of previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.6
Estimation Results for ECOWAS Using the WMO Corruption Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-20.4014	43.3485**	-0.0236
	(13.3833)	(21.9328)	(18.1732)
COR	2.5353	-8.5534	-2.5892
	(3.0179)	(5.3976)	(3.9569)
PCY	0.007***	0.0004	0.0053***
	(0.0013)	(0.0020)	(0.0016)
COR*PCY	-0.0088	-0.0307**	-0.0174**
	(0.0071)	(0.0088)	(0.0085)
GPCY	0.1342	0.1769*	0.1377
	(0.0829)	(0.0972)	(0.0920)
DEP	0.6255**	-0.6721	0.2717
	(0.2531)	(0.4532)	(0.3530)
INF	0.367***	0.1906	0.3470**
	(0.0720)	(0.1699)	(0.1409)
RIR	0.3105***	0.0623	0.2510*
	(0.0819)	(0.1794)	(0.1508)
AGR	-0.1677**	0.0080	-0.1907**
	(0.0563)	(0.1080)	(0.0714)
R^2	0.52	0.65	0.34
Redundant FE Test	-	4.72	-
		(0.0000)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	22.24	14.13	10.5
	(0.0000)	(0.0000)	(0.0000)
Obs.	174	174	174

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

4.4 Estimation Results for Savings and Political Instability

In examining the effect of political instability on savings, we considered the three indicators of political instability discussed earlier. For instance, we included the ICRG political instability index in the savings models. The results of estimations and tests performed are presented in Table 4.7. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0001, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000.

The results of the RE estimation indicate that higher political stability has a positive and significant effect on savings at 5%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 0.13%. This finding is consistent with the outcomes of previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). The results also demonstrate that the coefficient of political instability-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.0008 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries because of their low income levels.

Another discovery from the estimation is that inflation rate has a significant and positive effect on savings at 10%. A 1% increase in inflation rate leads to 0.31% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.17% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.7
Estimation Results for ECOWAS Using the ICRG Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-1.6926	84.181***	13.4614
	(15.246)	(27.3159)	(18.4148)
POL	0.1460**	0.1579*	0.1314**
	(0.0642)	(0.0899)	(0.0773)
PCY	0.0043**	0.0026	0.0039
	(0.0021)	(0.0026)	(0.0025)
POL*PCY	-0.001**	-0.0009**	-0.0008**
	(0.0001)	(0.0001)	(0.0001)
GPCY	0.1438	0.1211	0.1170
	(0.1159)	(0.1208)	(0.1093)
DEP	0.1359	-1. 975**	-0.2055
	(0.2982)	(0.5685)	(0.3806)
INF	0.325***	0.2190	0.3085*
	(0.0950)	(0.2467)	(0.1612)
RIR	0.2140*	0.2042	0.2320
	(0.1230)	(0.2550)	(0.1726)
AGR	-0.218**	0.1471	-0.166**
	(0.0673)	(0.1105)	(0.0776)
R^2	0.45	0.59	0.34
Redundant FE Test	-	3.46	-
		(0.0001)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	11.54	8.19	7.33
	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

Apart from the ICRG political instability index, we used the WMO indicator of political instability in the estimation of the savings models. The results of estimations and tests conducted are shown in Table 4.8. The redundant FE test

rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0000, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation indicate that higher political stability has a positive and significant effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 9.90%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Income per capita is also shown to have a significant and positive effect on savings at 1%. A 1 dollar increase in income per capita leads to 0.005% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). In addition, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.43% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Moreover, real interest rate has a significant and positive effect on savings at 10%. A 1% increase in real interest rate leads to 0.30% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006).

Table 4.8
Estimation Results for ECOWAS Using the WMO Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-20.3131	66.3193**	-3.6276
	(12.7095)	(26.2509)	(20.2436)
POL	7.5721***	9.8484**	9.9014***
	(2.3526)	(3.8795)	(2.9860)
PCY	0.0066***	-0.0020	0.0050***
	(0.0012)	(0.0024)	(0.0018)
POL*PCY	-0.0015	-0.026***	-0.0078
	(0.0040)	(0.0059)	(0.0056)
GPCY	0.1125	0.1999*	0.1194
	(0.0807)	(0.1052)	(0.0941)
DEP	0.5348**	-1.4886**	0.1257
	(0.2477)	(0.5654)	(0.4197)
INF	0.4004***	0.4255**	0.4255***
	(0.0707)	(0.1684)	(0.1527)
RIR	0.3045***	0.2789	0.3017*
	(0.0802)	(0.1810)	(0.1631)
AGR	-0.151***	0.1583	-0.1008
	(0.0553)	(0.1018)	(0.0715)
R^2	0.54	0.66	0.31
Redundant FE Test	-	4.46	-
		(0.0000)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	24.41	14.9	9.44
	(0.0000)	(0.0000)	(0.0000)
Obs.	174	174	174

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

We move a step further by including the HMO political instability index in the savings model. The results of various tests and estimation are presented in Table 4.9. The redundant FE test rejects the null hypothesis of no effects in the cross section

units over the period of time as the p-value is 0.0001, indicating that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation illustrate that higher political stability has a positive and significant effect on savings at 10%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 3.74%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Also, the results reveal that income per capita has a significant effect on savings at 1%. A 1 dollar increase in income per capita leads to 0.0051% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Furthermore, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.35% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.16% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.9
Estimation Results for ECOWAS Using the HMO Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-1.6016	80.4405**	9.9356
	(13.5354)	(23.6285)	(19.0817)
POL	4.9179**	-1.0849	3.7391*
	(1.9669)	(2.7033)	(2.1595)
PCY	0.0055***	-0.0012	0.0051***
	(0.0013)	(0.0025)	(0.0017)
POL*PCY	-0.0039	-0.020***	0.0052
	(0.0039)	(0.0057)	(0.0050)
GPCY	0.0628	0.0983	0.0667
	(0.0846)	(0.10540	(0.0962)
DEP	0.2206	-1.611***	0.0329
	(0.2667)	(0.4783)	(0.3810)
INF	0.3281***	0.3522*	0.3481**
	(0.07230	(0.1873)	(0.1499)
RIR	0.2665***	0.2196	0.2595
	(0.08450	(0.19870	(0.1621)
AGR	-0.187***	0.1369	-0.1569**
	(0.0816)	(0.1026)	(0.0708)
R^2	0.51	0.62	0.31
Redundant FE Test	-	3.53	-
		(0.0001)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	22.47	12.7	9.79
	(0.0000)	(0.0000)	(0.0000)
Obs.	180	180	180

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

4.5 Estimation Results for Savings, Corruption and Political Instability

In this section, we attempted to simultaneously examine the effects of corruption and political instability on savings using the different indicators or measurement of the

variables. For instance, we combined the TI corruption index and the WMO political instability index in the savings model. The results of estimations and tests performed are shown in Table 4.10. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0000, indicating that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation illustrate that income per capita has a significant effect on savings at 5%.

A 1 dollar increase in income per capita leads to 0.004% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Furthermore, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.33% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, agricultural share in GDP has a significant and negative effect on savings at 10%. A 1% increase in agricultural share in GDP leads to 0.13% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.10
Estimation Results for ECOWAS Using the TI Corruption Index and the WMO Political Instability Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-16.788	135.75***	-16.778
	(19.1162)	(43.778)	(17.8852)
COR	1.7736	1.5624	1.7736
	(1.3502)	(1.3763)	(1.1393)
POL	2.3310	12.408***	2.331
	(4.7643)	(4.4797)	(3.3948)
PCY	0.0044**	-0.012***	0.004**
	(0.0017)	(0.0044)	(0.0018)
COR*PCY	0.0006	-0.0020	0.0006
	(0.0023)	(0.0019)	(0.0024)
POL*PCY	-0.0024	-0.0338**	-0.0024
	(0.0155)	(0.0147)	(0.0149)
GPCY	-0.0825	0.2680	-0.0825
	(0.2065)	(0.2033)	(0.2165)
DEP	0.4804	-3.035***	0.4804
	(0.3790)	(0.8960)	(0.3806)
INF	0.325***	0.2796	0.325**
	(0.1205)	(0.2553)	(0.1410)
RIR	0.2260	0.2323	0.2260
	(0.1483)	(0.2669)	(0.161)
AGR	-0.1267	0.2771*	-0.1267*
	(0.0862)	(0.1546)	(0.0705)
R^2	0.42	0.64	0.42
Redundant FE Test	-	4.74	-
		(0.0000)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	6.15	6.78	6.15
	(0.0000)	(0.0000)	(0.0000)
Obs.	97	97	97

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

Furthermore, we employed the TI corruption index and the HMO political instability index in the estimation of the savings models. Table 4.11 show the results of estimation including various tests conducted. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0001, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test indicates that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation show that income per capita has a significant effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0047% increase in savings rates. This finding lends support to the ones reported by previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). In addition, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.33% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006).

Table 4.11
Estimation Results for ECOWAS Using the TI Corruption Index and the HMO Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-14.7206	159.15***	-14.7206
	(19.5692)	(45.7994)	(18.0774)
COR	1.2239	0.7739	1.2239
	(1.2795)	(1.3348)	(1.1938)
POL	2.6318	-8.5894**	2.6318
	(3.9526)	(3.8060)	(3.1147)
PCY	0.0047**	-0.014***	0.0047**
	(0.0018)	(0.0044)	(0.0019)
COR*PCY	-0.0007	-0.003**	-0.0007
	(0.0019)	(0.0015)	(0.0018)
POL*PCY	0.0067	-0.0259**	0.0067
	(0.0115)	(0.0111)	(0.0111)
GPCY	-0.0853	0.0668	-0.0853
	(0.2057)	(0.2139)	(0.2199)
DEP	0.4599	-3.144***	0.4599
	(0.3831)	(0.9150)	(0.3781)
INF	0.325***	0.2634	0.325***
	(0.1146)	(0.2625)	(0.1384)
RIR	0.2229	0.1712	0.2229
	(0.1457)	(0.2746)	(0.1611)
AGR	-0.1138	0.2456	-0.1138
	(0.0917)	(0.1544)	(0.0971)
R^2	0.42	0.63	0.42
Redundant FE Test	-	4.28	-
		(0.0001)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	6.22	6.44	6.22
	(0.0000)	(0.0000)	(0.0000)
Obs.	97	97	97

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

The WMO corruption index and the WMO political instability index were also considered in our estimation. The results of estimation and tests conducted are presented in Table 4.12. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0000, indicating that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation indicate that lesser corruption has a significant effect on savings at 5%, but the coefficient does not have the expected sign.

Moreover, higher political stability has a significant and positive effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 13.38%. This finding is consistent with the outcomes of previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Also, the coefficient of corruption-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of corruption on savings rates by 0.03 index point. This finding suggests that the effect of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings is larger in ECOWAS countries because of their low income levels. The results also reveal that income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.004% increase in savings rates. This finding lends support to the ones reported by previous studies (see Athukorala & Sen, 2004;

Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Furthermore, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.36% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006).

Table 4.12
Estimation Results for ECOWAS Using the WMO Corruption Index and the WMO Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-16.4715	61.8411**	10.8151
	(12.8148)	(25.854)	(21.0097)
COR	-3.2740	-10.940**	-9.9706**
	(3.2041)	(5.3833)	(4.8467)
POL	9.970***	11.612**	13.377***
	(2.5923)	(3.9364)	(3.2977)
PCY	0.006***	-0.0011	0.004**
	(0.0012)	(0.0023)	(0.0019)
COR*PCY	-0.029**	-0.0150	-0.029**
	(0.0101)	(0.0139)	(0.0126)
POL*PCY	0.0106*	-0.0168*	0.0027
	(0.0056)	(0.0101)	(0.0092)
GPCY	0.1404*	0.1988*	0.1501
	(0.0796)	(0.1032)	(0.0943)
DEP	0.4436*	-1.270**	-0.1243
	(0.2470)	(0.5529)	(0.4224)
INF	0.404***	0.369**	0.359**
	(0.0693)	(0.1747)	(0.1424)
RIR	0.298***	0.2228	0.2264
	(0.0785)	(0.1835)	(0.1514)
AGR	-0.146**	0.0798	-0.1081
	(0.0554)	(0.1012)	(0.0837)
R^2	0.57	0.67	0.31
Redundant FE Test	-	4.13	-
		(0.0000)	
Hausman Test (χ^2)	-	0.000	-
		(1.0000)	
F-Stat.	21.31	14.17	7.42
	(0.0000)	(0.0000)	(0.0000)
Obs.	174	174	174

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

The estimation exercise continued with the inclusion of WMO corruption index and the HMO political instability index in the savings models. The results of estimation and various tests performed are shown in Table 4.13. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0001, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test illustrates that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation reveal that higher political stability has a significant and positive effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 7.58%. This finding is consistent with the outcomes of previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986).

Furthermore, the coefficient of corruption-income interaction term is significant and has the expected sign at 1%. A 1 dollar increase in income reduces the effect of corruption on savings rates by 0.03 index point. This finding demonstrates that the effect of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings is larger in ECOWAS countries because of their low income levels. Besides, income per capita has a significant and positive effect on savings at 1%. A 1 dollar increase in income per capita leads to 0.0047% increase in savings rates. This finding lends support to the ones reported by previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Also, inflation rate has a significant

and positive effect on savings at 10%. A 1% increase in inflation rate leads to 0.28% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Moreover, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.17% decrease in savings rates. This finding is in line with the outcomes of previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.13
Estimation Results for ECOWAS Using the WMO Corruption Index and the HMO Political Instability Index

Dependent Variable: Savings Rates			
Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-4.3208	59.8279**	9.7310
	(13.5724)	(24.1350)	(19.4880)
COR	-0.7096	-7.3007	-4.2792
	(2.9840)	(5.2046)	(4.3064)
POL	9.8406***	1.5869	7.5763***
	(2.2487)	(3.0878)	(2.8340)
PCY	0.0059***	-0.0013	0.0047***
	(0.0012)	(0.0022)	(0.0018)
COR*PCY	-0.030***	-0.0242**	-0.031***
	(0.0087)	(0.0113)	(0.0107)
POL*PCY	0.0067	-0.0188	0.0052
	(0.0044)	(0.0126)	(0.0072)
GPCY	0.0985	0.1230	0.1093
	(0.0822)	(0.1020)	(0.0952)
DEP	0.2148	-1.0690**	-0.0133
	(0.2666)	(0.4970)	(0.3838)
INF	0.332***	0.2108	0.2779*
	(0.0694)	(0.1724)	(0.1422)
RIR	0.230***	0.0686	0.1599
	(0.0808)	(0.1817)	(0.1522)
AGR	-0.184***	0.0551	-0.174**
	(0.0536)	(0.1030)	(0.0797)
R^2	0.57	0.66	0.33
Redundant F E Test	-	3.28	-
		(0.0001)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	21.68	13.3	8.20
	(0.0000)	(0.0000)	(0.0000)
Observations	174	174	174

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

Again, we estimated the savings models by including the WMO corruption index and the ICRG political instability index in the models. As shown in Table 4.14, the redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0002, indicating that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation reveal that higher political stability has a positive and significant effect on savings at 5%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 0.19%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986).

Also, the coefficient of political instability-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.001 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries because of their low income levels. Furthermore, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.30% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 1%. A 1% increase in agricultural share in GDP leads to 0.23% decrease in savings rates.

This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.14

Estimation Results for ECOWAS Using the WMO Control of Corruption Index and the ICRG Political Instability Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-1.1537	88.085***	-1.1537
	(15.5521)	(27.1139)	(13.2515)
COR	-3. 4388	-7.0373	-3. 4388
	(4.7663)	(5.2424)	(4.5443)
POL	0.1916**	0.1478	0.1916**
	(0.0929)	(0.1026)	(0.0814)
PCY	0.0039*	0.0047*	0.0039
	(0.0023)	(0.0028)	(0.0029)
COR*PCY	-0.0041	0.0253	-0.0041
	(0.0155)	(0.0160)	(0.0143)
POL*PCY	-0.0005**	-0.001***	-0.0005**
	(0.0002)	(0.0002)	(0.0002)
GPCY	0.1503	0.1060	0.1503
	(0.1170)	(0.1247)	(0.1027)
DEP	0.1098	-1.989***	0.1098
	(0.3026)	(0.5555)	(0. 2662)
INF	0.3048***	0.2927	0.3048**
	(0.0998)	(0.2288)	(0.1221)
RIR	0.1877	0.2678	0.1877
	(0.1297)	(0.2364)	(0.1422)
AGR	-0.226***	0.1088	-0.226***
	(0.0702)	(0.1068)	(0.0654)
R^2	0.45	0.6	0.45
Redundant FE Test	-	3.79	-
		(0.0002)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	9.17	7.64	9.17
	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

More so, the ICRG corruption index and the ICRG indicator of political instability were employed in the estimation of the savings models. The results of estimations and tests performed are presented in Table 4.15. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0003, implying that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation illustrate that lesser corruption has a significant and positive effect on savings at 10%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.16%. This finding is line with the ones reported by previous studies (see Swaleheen, 2008). Also, higher political stability has a positive and significant effect on savings at 5%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 0.13%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986).

The results also demonstrate that the coefficient of political instability-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.001 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries due of their low income levels. Although corruption-income interaction is significant at 5%, the coefficient does not

have the expected sign. In addition, income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.005% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000).

Also, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.39% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Furthermore, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.27% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Finally, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.16% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.15
Estimation Results for ECOWAS Using the ICRG Corruption Index and the ICRG Political Instability Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-11.4458	77.035***	-11.4458
	(16.0555)	(26.8338)	(14.9288)
COR	1.1585	0.5166	1.1585*
	(0.7866)	(0.9608)	(0.6475)
POL	0.129**	0.1502	0.129**
	(0.0620)	(0.0972)	(0.0545)
PCY	0.005**	0.0033	0.005**
	(0.0021)	(0.0023)	(0.0022)
COR*PCY	0.005**	0.008***	0.005**
	(0.0027)	(0.0029)	(0.0028)
POL*PCY	-0.0006**	-0.0010**	-0.0006**
	(0.0001)	(0.0001)	(0.0001)
GPCY	0.1610	0.1031	0.1610
	(0.1142)	(0.1162)	(0.1025)
DEP	0.2470	-1. 858**	0.2470
	(0.3053)	(0.5456)	(0.2916)
INF	0.387***	0.2196	0.387***
	(0.0966)	(0.2144)	(0.1109)
RIR	0.2673**	0.1968	0.2673**
	(0.1227)	(0.2243)	(0.1216)
AGR	-0.160**	0.1683	-0.160**
	(0.07020	(0.1058)	(0.0684)
R^2	0.48	0.62	0.48
Redundant FE Test	-	3.74	-
		(0.0003)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	10.22	8.26	10.22
	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

We continued our consistency check by including the ICRG corruption indicator and the WMO political instability index in the savings models. The results of estimation including other tests are presented in Table 4.16. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0004, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation reveal that lesser corruption has a significant and positive effect on savings at 5%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.34%. This finding lends support to the outcomes of previous studies (see Swaleheen, 2008). Similarly, higher political stability has a positive and significant effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 9.94%. This finding is consistent with the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986).

Furthermore, the results show that the coefficient of political instability-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.001 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries due of their low income levels. Although the corruption-income interaction term has is significant at 5%, the

coefficient does not have the expected sign. Moreover, income per capita has a significant and positive effect on savings at 1%. A 1 dollar increase in income per capita leads to 0.006% increase in savings rates. This finding is in line with the ones reported by previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000).

Besides, income growth has a significant and positive effect on savings at 5%. A 1% increase in income growth leads to 0.19% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003). Also, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.45% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, real interest rate has a significant and positive effect on savings at 1%. A 1% increase in real interest rate leads to 0.33% increase in savings rates. This finding lends support to the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 10%. A 1% increase in agricultural share in GDP leads to 0.11% decrease in savings rates. This finding is consistent with the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.16
Estimation Results for ECOWAS Using the ICRG Corruption Index and the WMO Political Instability Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-17.1034	81.218***	-17.1034
	(15.6692)	(25.2122)	(14.5256)
COR	1.3446*	1.0753	1.3446**
	(0.7451)	(1.0656)	(0.5942)
POL	9. 944***	14.918***	9. 944***
	(2.8809)	(5.2439)	(2.3927)
PCY	0.006***	0.0035	0.006***
	(0.0021)	(0.0022)	(0.0021)
COR*PCY	0.0055**	0.0063**	0.0055**
	(0.0026)	(0.0029)	(0.0027)
POL*PCY	-0.0007**	-0.0009**	-0.0007**
	(0.0001)	(0.0001)	(0.0001)
GPCY	0.1994*	0.1678	0.1994**
	(0.1083)	(0.1116)	(0.0986)
DEP	0.3331	-2.021***	0.3331
	(0.2887)	(0.5319)	(0.2721)
INF	0.445***	0.2556	0.445***
	(0.0901)	(0.2057)	(0.0992)
RIR	0.3326***	0.2617	0.332***
	(0.1172)	(0.2188)	(0.1099)
AGR	-0.1131	0.2077**	-0.1131*
	(0.0703)	(0.1021)	(0.0670)
R^2	0.51	0.64	0.51
Redundant FE Test	-	3.61	-
		(0.0004)	
Hausman Test (χ^2)	-	0.00	-
		(1.0000)	
F-Stat.	11.62	9.00	11.62
	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

Another attempt was made to evaluate the consistency of our results via using the ICRG corruption indicator and the HMO political instability index. The results of estimation and various tests performed are presented in Table 4.17. The redundant FE test rejects the null hypothesis of no effects in the cross section units over the period of time as the p-value is 0.0004, suggesting that pooled OLS estimator is not appropriate in estimating the savings models. The Hausman test shows that the RE estimates are preferred to the FE estimates as the p-value is 1.0000. The results of the RE estimation demonstrate that lesser corruption has a significant and positive effect on savings at 5%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.69%. This finding lends support to the ones reported by previous studies (see Swaleheen, 2008).

The results also indicate that the coefficient of political instability-income interaction term is significant and has the expected sign at 10%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.01 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries due of their low income levels. Furthermore, age dependency has a significant and positive effect on savings at 10%. This finding is contrary to the outcome of previous studies (see Ang & Sen, 2009; Kwack & Lee, 2005). In addition, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.47% increase in savings

rates. This finding lends support to the outcomes of previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006).

In the same vein, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.36% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Finally, agricultural share in GDP has a significant and negative effect on savings at 1%. A 1% increase in agricultural share in GDP leads to 0.22% decrease in savings rates. This finding is line with the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.17
Estimation Results for ECOWAS Using the ICRG Corruption Index and the HMO Political Instability Index

Dependent Variable: Savings Rates

Variables	Pooled OLS	Fixed Effects	Random Effects
Constant	-17.2428	85.486***	-17.2428
	(17.6713)	(30.1456)	(17.8012)
COR	1.6872**	-0.0003	1.6872**
	(0.8157)	(1.0896)	(0.6771)
POL	2.9349	-3.8791	2.9349
	(2.9724)	(4.1099)	(2.6232)
PCY	0.0020	-0.0088**	0.0020
	(0.0035)	(0.0039)	(0.0035)
COR*PCY	0.0037	0.0078**	0.0037
	(0.0028)	(0.0033)	(0.0031)
POL*PCY	-0.0119	-0.042***	-0.0119*
	(0.0078)	(0.0085)	(0.0068)
GPCY	0.1084	-0.0066	0.1084
	(0.1209)	(0.1386)	(0.1159)
DEP	0.5430*	-1.719***	0.5430*
	(0.3182)	(0.5929)	(0.3247)
INF	0.4711***	0.3633	0.4711***
	(0.0982)	(0.2437)	(0.1236)
RIR	0.3561***	0.3540	0.3561**
	(0.1277)	(0.2568)	(0.1364)
AGR	-0.216***	0.2302**	-0.216***
	(0.0749)	(0.1021)	(0.0789)
R^2	0.42	0.57	0.42
Redundant FE Test	-	3.58	-
		(0.0004)	
Hausman Test (χ^2)	-	(0.0000)	-
		(1.0000)	
F-Stat.	7.86	6.64	7.86
	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Also, we estimated our models using the robust coefficient covariance method, i.e. Cross-section SUR (PCSE) with FE/RE. Standard errors are in parenthesis.

4.6 Endogeneity

As stated earlier, using OLS to estimate the savings model may lead to endogeneity bias due to the bivariate causality between savings and income per capita/income growth. To this end, the TSLS (a robustness check on the OLS) was employed to estimate the relationship between the variables. Given that the Hausman test revealed that the RE estimation is significant and preferred to the FE estimation, the savings models were re-estimated using the TSLS technique that takes into account the RE. In addition, the White's method correction was employed to solve the problem of heteroscedasticity. The results of estimation using different measures of corruption and political instability are presented in Tables 4.18 to 4.23.

The results of estimation presented in Table 4.18 demonstrate that lesser corruption has a significant and positive effect on savings at 1%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.94%. This finding is consistent with the one reported in previous studies (see Swaleheen, 2008). Furthermore, age dependency has a significant and positive effect on savings at 10%. This finding is contrary to the outcome of previous studies (see Ang & Sen, 2009; Kwack & Lee, 2005). The results also indicate that income per capita has a significant effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0054% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Also, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.57% increase in

savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, real interest rate has a significant and positive effect on savings at 1%. A 1% increase in real interest rate leads to 0.46% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 1%. A 1% increase in agricultural share in GDP leads to 0.13% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.18
Estimation Results for ECOWAS Using Corruption Indicators

Dependent Variable: Savings Rates

	TI index		ICRG index	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects	OLS/Random Effects	2SLS/Random Effects
Constant	-15.0920	28.8334	-26.9912	-35.1486
	(19.1302)	(18.2790)	(22.5203)	(24.1511)
COR	1.9037***	1.9447***	1.6139*	1.7313*
	(0.6619)	(0.7436)	(0.8268)	(1.0033)
PCY	0.0037**	0.0054**	0.0051*	0.0082*
	(0.0016)	(0.0021)	(0.0030)	(0.0046)
COR*PCY	-0.0001	-0.0002	0.0051	0.0056
	(0.0009)	(0.0010)	(0.0036)	(0.0038)
GPCY	-0.0602	-0.4315	0.1465	-0.1188
	(0.1474)	(0.3992)	(0.1348)	(0.7388)
DEP	0.4764	0.7287*	0.6902	0.7634
	(0.4133)	(0.3792)	(0.4399)	(0.4765)
INF	0.3139***	0.3737***	0.5379***	0.5693***
	(0.0075)	(0.0838)	(0.1589)	(0.1722)
RIR	0.2155	0.2470	0.4592***	0.5790**
	(0.1555)	(0.1691)	(0.1736)	(0.2915)
AGR	-0.1269***	-0.0602	-0.1436**	-0.0409
	(0.0269)	(0.0966)	(0.0677)	(0.0855)
R^2	0.41	0.38	0.22	0.13
F-Stat.	6.76	8.32	3.99	3.22
	(0.0000)	(0.0000)	(0.0000)	(0.0024)
Obs.	98	98	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis.

The results of estimation presented in Table 4.19 illustrate that income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0056% increase in savings rates. This finding lends support to the ones reported by previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Also, the coefficient of corruption-income interaction term is significant and has the expected sign at 5%. A 1 dollar

increase in income reduces the effect of corruption on savings rates by 0.02 index point. This finding suggests that the effect of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings is larger in ECOWAS countries due to their low income levels. Moreover, income growth has a significant and positive effect on savings at 5%. A 1% increase in income growth leads to 0.14% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003). Furthermore, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.39% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006).

In addition, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.25% increase in savings rates. This finding lends support to the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Besides, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.19% decrease in savings rates. This finding is in line with the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.19
Estimation Results for ECOWAS Using Corruption Indicators (continued)

Dependent Variable: Savings Rates

	WMO index	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects
Constant	-0.0236	-4.7729
	(19.2501)	(25.6858)
COR	-2.5892	-5.7559
	(2.7907)	(4.2257)
PCY	0.0053***	0.0056**
	(0.0018)	(0.0027)
COR*PCY	-0.0174**	-0.0178**
	(0.0084)	(0.0088)
GPCY	0.1377**	0.2098
	(0.0645)	(0.7889)
DEP	0.2717	0.3704
	(0.3835)	(0.5498)
INF	0.3470***	0.3902**
	(0.1174)	(0.1540)
RIR	0.2510**	0.2434
	(0.1158)	(0.1623)
AGR	-0.1901**	-0.1671*
	(0.0794)	(0.0890)
R^2	0.34	0.25
F-Stat.	10.50	6.75
	(0.0000)	(0.0000)
Obs.	174	164

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis.

The results of estimation presented in Table 4.20 indicate that higher political stability has a significant and positive effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 10.90%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). The results also illustrate that the coefficient of political instability-income interaction term is

significant and has the expected sign at 1%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.001 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries because of their low income levels.

Also, income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0062% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). In addition, income growth has a significant and positive effect on savings at 10%. A 1% increase in income growth leads to 0.12% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003). Similarly, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.48% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Furthermore, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.30% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to

0.17% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.20
Estimation Results for ECOWAS Using the Political Instability Indicators

Dependent Variable: Savings Rates

	ICRG index		WMO index	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects	OLS/Random Effects	2SLS/Random Effects
Constant	13.4614	-4.0378	-3.6276	-19.0595
	(16.1078)	(20.6255)	(21.6735)	(24.8100)
POL	0.1314**	0.2378**	9.9014***	10.8976***
	(0.0605)	(0.1141)	(3.0682)	(3.7950)
PCY	0.0039	0.0093*	0.0050**	0.0062**
	(0.0030)	(0.0049)	(0.0019)	(0.0026)
POL*PCY	-0.0008***	-0.0007***	-0.0078	0.0070
	(7.68E-05)	(9.33E-05)	(0.0067)	(0.0077)
GPCY	0.1170	-0.7784	0.1194*	-0.0040
	(0.0931)	(0.8461)	(0.0674)	(0.8076)
DEP	-0.2055	-0.0484	0.1257	0.4212
	(0.3534)	(0.3985)	(0.4279)	(0.5156)
INF	0.3085*	0.3044*	0.4255***	0.4813***
	(0.1741)	(0.1817)	(0.1175)	(0.1315)
RIR	0.2320	0.4597*	0.3017**	0.3380*
	(0.1515)	(0.2452)	(0.1319)	(0.1887)
AGR	-0.1663**	-0.0225	-0.1008	-0.0825
	(0.0761)	(0.1180)	(0.0761)	(0.0772)
R^2	0.34	0.03	0.31	0.28
F-Stat.	7.33	8.73	9.44	8.68
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	174	164

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis.

The results of estimation presented in Table 4.21 demonstrate that income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0057% increase in savings rates. This finding is consistent with

the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Also, inflation rate has a significant and positive effect on savings at 5%. A 1% increase in inflation rate leads to 0.40% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). In addition, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.26% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 5%. A 1% increase in agricultural share in GDP leads to 0.16% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.21
Estimation Results for ECOWAS Using Political Instability Indicators (continued)

Dependent Variable: Savings Rates

	HMO index	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects
Constant	9.9356	6.7693
	(20.1004)	(27.2347)
POL	3.7391	4.0344
	(2.4273)	(14.5283)
PCY	0.0051***	0.0057**
	(0.0018)	(0.0023)
POL*PCY	-0.0052	-0.0054
	(0.0059)	(0.0368)
GPCY	0.0667	0.0651
	(0.0430)	(2.6167)
DEP	-0.0329	-0.0243
	(0.4032)	(0.4970)
INF	0.3481***	0.4028**
	(0.1218)	(0.1582)
RIR	0.2595**	0.2667*
	(0.1291)	(0.1570)
AGR	-0.1569**	-0.0995
	(0.0708)	(0.1421)
R^2	0.31	0.24
F-Stat.	9.79	7.02
	(0.0000)	(0.0000)
Obs.	180	169

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis.

The results of estimation that include both corruption and political instability are presented in Table 4.22 and Table 4.23. The results in Table 4.22 reveal that corruption has a significant effect on savings at 5%, but the coefficient does not have the expected sign. In addition, higher political stability has a positive and significant effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 14.43%. This finding lends support

to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Also, the coefficient of corruption-income interaction term is significant and has the expected sign at 5%. A 1 dollar increase in income reduces the effect of corruption on savings rates by 0.03 index point. This finding suggests that the effect of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings is larger in ECOWAS countries because of their low income levels.

Similarly, that the coefficient of political instability-income interaction term is significant and has the expected sign at 1%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.001 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries because of their low income levels. The results also show that income per capita has a significant effect on savings at 10%. A 1 dollar increase in income per capita leads to 0.0099% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000).

In the same vein, income growth has a significant and positive effect on savings at 5%. A 1% increase in income growth leads to 0.15% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003). Also, inflation rate has a significant and positive effect on savings at

1%. A 1% increase in inflation rate leads to 0.41% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Furthermore, real interest rate has a significant and positive effect on savings at 5%. A 1% increase in real interest rate leads to 0.42% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 1%. A 1% increase in agricultural share in GDP leads to 0.23% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Table 4.22
Estimation Results for ECOWAS Using Corruption and Political Instability Indicators

Dependent Variable: Savings Rates

	WMOc and WMOp		WMOc and ICRGp	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects	OLS/Random Effects	2SLS/Random Effects
Constant	10.8151	1.0431	-1.1537	-10.4297
	(19.8205)	(28.1384)	(11.7588)	(20.3335)
COR	-9.9706***	-11.1468**	-3.4388	-0.1928
	(3.6514)	(4. 9213)	(2.4301)	(3.3181)
POL	13.3770***	14.4261***	0.1916***	0.2191**
	(4.0044)	(4.3437)	(0.0729)	(0.0961)
PCY	0.0041**	0.0046	0.0039	0.0099*
	(0.0020)	(0.0031)	(0.0028)	(0.0051)
COR*PCY	-0.0291**	-0.0255**	-0.0041	-0.0100
	(0.0129)	(0.0113)	(0.0123)	(0.0144)
POL*PCY	0.0027	0.0015	-0.0005***	-0.0008***
	(0.0112)	(0.0140)	(0.0001)	(0.0002)
GPCY	0.1501**	0.2094	0.1503*	-0.6627
	(0.0711)	(1.0484)	(0.0912)	(0.6790)
DEP	-0.1234	-0.0268	0.1098	0.1204
	(0.3879)	(0.6325)	(0.2482)	(0.3840)
INF	0.3598***	0.4104***	0.3048**	0.3234**
	(0.1300)	(0.1466)	(0.1203)	(0.1527)
RIR	0.2264*	0.2474	0.1877*	0.4213**
	(0.1331)	(0.1762)	(0.1125)	(0.2129)
AGR	-0.1080	-0.0553	-0.2268***	-0.0528
	(0.0892)	(0.1193)	(0.0659)	(0.1178)
R^2	0.31	0.26	0.45	0.17
F-Stat.	7.42	5.32	9.17	8.08
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Obs.	174	164	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis. WMOc = WMO corruption index; WMOp = WMO political instability index; and ICRGp = ICRG political instability index

The results of estimation presented in Table 4.23 indicate that lesser corruption has a significant and positive effect on savings at 1%. A one point increase of the corruption index (that is, lower corruption) raises gross savings rates by 1.99%. This

finding lends support to the previous ones (see Swaleheen, 2008). Moreover, higher political stability has a significant and positive effect on savings at 1%. A one point increase of the political risk index (that is, lower political instability) raises gross savings rates by 7.82%. This finding lends support to the ones reported by previous studies (see Edwards, 1996; Fielding, 2003; Venieries & Gupta, 1986). Moreover, corruption-income interaction is significant at 5%, but the coefficient does not have the expected sign.

In addition, the coefficient of political instability-income interaction term is significant and has the expected sign at 1%. A 1 dollar increase in income reduces the effect of political instability on savings rates by 0.03 index point. This finding suggests that the effect of political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the effect of political instability on savings is larger in ECOWAS countries because of their low income levels. Furthermore, age dependency has a significant and positive effect on savings at 10%. This finding is in line with the outcome of previous studies (Ang & Sen, 2009; Kwack & Lee, 2005). Also, the results indicate that income per capita has a significant and positive effect on savings at 5%. A 1 dollar increase in income per capita leads to 0.0097% increase in savings rates. This finding is consistent with the outcomes of previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003; Collins, 1991; Elbadawi & Mwega, 2000). Furthermore, income growth has a significant and positive effect on savings at 1%. A 1% increase in income growth

leads to 0.23% increase in savings rates. This finding is consistent with previous studies (see Athukorala & Sen, 2004; Athukorala & Tsai, 2003).

Also, inflation rate has a significant and positive effect on savings at 1%. A 1% increase in inflation rate leads to 0.49% increase in savings rates. This finding is in line with previous studies (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Furthermore, real interest rate has a significant and positive effect on savings at 1%. A 1% increase in real interest rate leads to 0.38% increase in savings rates. This finding is in line with the outcomes of previous studies (see Athukorala & Sen, 2004; Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006). Lastly, agricultural share in GDP has a significant and negative effect on savings at 1%. A 1% increase in agricultural share in GDP leads to 0.16% decrease in savings rates. This finding lends support to the ones reported by previous studies (see Ang & Sen, 2009; Muhleisen, 1997).

Moreover, the results of the OLS/RE and TSLS/RE are identical, indicating that the OLS estimates are consistent and unbiased. Therefore, endogeneity is not a problem in the estimated relationships, and there is no simultaneity between savings and income per capita/income growth.

Table 4.23
Estimation Results for ECOWAS Using Corruption and Political Instability Indicators

Dependent Variable: Savings Rates

	ICRGc and ICRGp		ICRGc and WMOp	
Explanatory Variables	OLS/Random Effects	2SLS/Random Effects	OLS/Random Effects	2SLS/Random Effects
Constant	-11.4458	-20.4907	-18.8748	-20.0803
	(12.1036)	(18.8236)	(13.7789)	(24.6563)
COR	1.1585*	1.3855**	1.9917***	1.9669**
	(0.6032)	(0.6036)	(0.5771)	(0.7784)
POL	0.1299**	0.2068**	7.8160***	10.3446**
	(0.0564)	(0.1002)	(2.9503)	(4.0880)
PCY	0.0053**	0.0097**	-0.0024	0.0026
	(0.0024)	(0.0041)	(0.0040)	(0.0069)
COR*PCY	0.0057**	0.0057**	0.0075**	0.0069**
	(0.0028)	(0.0028)	(0.0031)	(0.0033)
POL*PCY	-0.0006***	-0.0007***	-0.0344***	-0.0273**
	(8.70E-05)	(0.0001)	(0.0073)	(0.0117)
GPCY	0.1610*	-0.4855	0.2555***	-0.3019
	(0.0968)	(0.5820)	(0.0887)	(0.7452)
DEP	0.2470	0.2304	0.4408*	0.3206
	(0.2450)	(0.3613)	(0.2438)	(0.4533)
INF	0.3875***	0.3844**	0.4658***	0.4912***
	(0.1148)	(0.1539)	(0.1044)	(0.1684)
RIR	0.2673**	0.4409**	0.3811***	0.5933**
	(0.1147)	(0.1896)	(0.1117)	(0.2620)
AGR	-0.1606***	-0.0082	-0.1046*	0.0348
	(0.0580)	(0.0942)	(0.0582)	(0.0896)
R^2	0.48	0.28	0.49	0.25
F-Stat.	10.22	8.99	10.72	5.99
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Obs.	121	121	121	121

Note: *, **, *** indicates significant at 10%, 5%, and 1%, respectively. Standard errors are in parenthesis. ICRGc = ICRG corruption index; ICRGp = ICRG political instability index; and WMOp = WMO political instability index.

Overall, the estimation results demonstrate that lesser corruption and higher political stability have a significant and positive impact on savings. In addition, corruption-income interaction and political instability-income interaction are significant in

explaining savings, implying that the impact of corruption and political instability on savings depends on income levels. It also indicates that the impact of corruption and political instability on savings is higher at low income levels, but lesser at high income levels. Moreover, political instability variable appears to be more consistent and has the correct sign compare to corruption variable in explaining savings. However, the number of positive sign of the corruption coefficient outweighs the negative sign. In the same manner, political instability-income interaction variable is more consistent and correctly signed compare to corruption-income interaction variable in explaining savings. But the number of the negative sign of the corruption-income interaction coefficient outweighs the positive sign.

Furthermore, variables that include income per capita, income growth, real interest rate, and inflation rate all have a positive and significant effect on savings. Lastly, agricultural share in GDP has a significant and negative effect on savings, but age dependency is not significant in explaining savings.

4.7 Consistency and Robustness Check

In estimating the savings models, we employed different measures of corruption and political instability to check if our estimates are robust and consistent. For instance, we used the ICRG corruption index to check for the robustness and consistency of our estimates using the TI corruption index. This approach is line with Swaleheen (2011) who unemployed the TI index to check for the robustness of estimates using the ICRG corruption index. We found that our estimates are robust and consistent

using TI and ICRG corruption indicators. In particular, both corruption indicators are positive and significant (see Table 4.4 and Table 4.5). Similarly, our estimates are robust and consistent using the indicators of political instability (see Table 4.7, Table 4.8 and Table 4.9).

In the same vein, the estimates of the TSLS are robust and consistent with those of PCSE/SUR because interest variables (corruption, political instability and interaction terms) are significant in explaining savings. Lastly, the TSLS estimates are similar to the OLS estimates in the case of the interest variables (see Table 4.18, Table 4.19, Table 4.20, Table 4.22 and Table 4.23), implying that the OLS estimates are consistent and unbiased. Thus, endogeneity is not a problem in the estimated relationships, and there is no simultaneity between savings and income per capita/income growth.

4.8 Discussion

The results of the data analysis reported above are indeed revealing. For instance, of the three corruption indicators employed, only two - TI and ICRG indicators have a significant and positive effect on savings. The positive sign of the corruption coefficient indicates that lesser corruption leads to higher savings. This suggests that, low level of corruption will raise government investment in human capital such as education. The increase in people's access to education raises their productivity and incomes, leading to higher savings. Furthermore, lesser corruption will increase the amount of social services (such as government transfers, subsidies, health, roads, and

so on) that will help to reduce poverty and inequality and promote economic development (and income), leading to higher savings. Also, lesser corruption implies that private investors do not have to pay bribes to government officials in order to collect permits and licenses, or register their businesses. This will go a long way in promoting the growth of businesses (particularly the SMEs), raising employment and incomes including savings.

Moreover, lesser corruption will encourage the inflow of foreign direct investment since foreign (prospective) investors have the assurance that they can do business with ease and government bureaucrats will not consistently harass them to pay bribe in the course of doing their legitimate business, or even tax them arbitrarily and in an unpredictable manner. The implications of this include increased domestic investment and production, higher employment opportunities and incomes, and as a result rising savings. Cape Verde is one country in the ECOWAS region that is least corrupt and it also has the highest savings rates.

Secondly, the results show that corruption-income interaction is significant and correctly signed. The negative sign of the coefficient of corruption-income interaction term suggests that the impact of corruption on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of corruption on savings would be larger in ECOWAS countries due to their low income levels. In addition, since corruption contributes to capital flight, decline in domestic and foreign investment, inadequate public investment in human capital, declining

productivity, high unemployment, reduced access of the masses to social services and income generating opportunities, its impact on savings will be larger. On the contrary, the impact of corruption on savings will be lesser at high income levels because income is relatively high. Moreover, high income countries can provide considerable amount of social services including subsidies and transfers, raise domestic investment and production, attract foreign investment, create jobs and invest in the fight against corruption relative to their poor counterparts, leading to lesser effect of corruption on savings.

Earlier, Mauro (1995) submitted that poor countries tend to be corrupt. This suggests that poor economic conditions (such as lower incomes) can create an enabling environment for corrupt practices, as people see bribe collection as an alternative source of generating incomes to improve their economic welfare. In fact, studies have confirmed that high incomes (improvement in economic wellbeing) or high wages in civil service are associated with lower corruption (Gokcekus & Suzuki, 2011; Montinola & Jackman, 2002; Van Rijckeghem & Weder, 2001; Schumacher, 2013). So long as incomes earned by the people (or wages paid to government officials) are enough to cater for their basic needs, the tendency that they will engage in corrupt practices will be less.

Thirdly, the results illustrate that all three indicators of political instability used in the estimations are significant and positively related to savings, implying that higher political stability leads to higher savings. This finding is in line with the one reported

in previous studies (see, Edwards, 1996; Fielding, 2003). It also supports the outcome of the work of Venieries and Gupta (1986) that socio-political instability has a negative impact on savings. The positive sign of the coefficient suggests that higher political stability such as a reduction in political unrest/violence, frequent changes in government via coups, and ethno-religious conflicts in ECOWAS countries will go a long way in reducing the uncertainties and/or risks associated with production and investment, leading to output expansion, employment creation, higher income and savings. Also, improvement in the political system will promote the enforcement of property rights and guarantee contracts. And since there is increased assurance that people will enjoy the benefits (returns) from their savings, it will increase their urge to save.

Fourthly, the results indicate that political instability-income interaction term is significant and correctly signed. The negative sign of the coefficient of the political instability-income interaction term illustrates that the impact political instability on savings is higher at low income levels, but lesser at high income levels. Thus, the impact of political instability such as protests, demonstrations and civil unrest and violence on savings will be larger in ECOWAS countries due to their low income levels. In addition, political instability further reduces people's ability to save through the destruction of physical capital and displacement of human capital, disruption of production, discouragement of domestic and foreign investment, non enforcement and lack of guarantee of property rights, and high unemployment. But the impact of political instability on savings will be lesser at high income levels

because income is relatively high. Besides, governments in wealthy countries can reduce political crisis via introduction of welfare benefits such as transfers and subsidies, including raising domestic investment in productive sectors of the economy and attracting foreign investment to generate employment and raise income.

Akenroye (2012) and Barka and Ncube (2012) argued that the various military Juntas that seized power in different ECOWAS countries cited poor economic conditions as a major reason for their actions, and Mauro (1995) pointed out that political instability is a major characteristic of poor countries. But higher incomes and/or improvement in economic conditions have been found to play a crucial role in political stability or sustenance of democracy (Adelman & Morris, 1968; Feng, 1997; Helliwell, 1994).

Fifthly, we found that in the estimations that include both interaction variables, political instability-income interaction term is more consistent and significant (including having the correct sign) compare to corruption-income interaction term in explaining savings. Although corruption-income interaction has mixed signs, the negative signs are more than the positive signs. This finding is not surprising because, as we pointed out earlier, political instability has a positive sign while corruption has mixed signs in the various estimations. Notwithstanding, corruption and political instability have deleterious effects on savings, the adverse effect of political instability seems to be more persistent. One explanation for this outcome is

that, while it is possible for corrupt countries to invest and produce, earn incomes and save as in the case of China, it is more difficult for politically unstable ones (like ECOWAS) because of the high risks and uncertainties associated with investment and production. Le (2004) concluded that political instability destroys not only existing physical capital but also displaces human capital, including lowering savings.

Another discovery from the results is that income per capita has a significant and positive effect on savings. The positive impact of income lends support to previous studies in developing countries (see Collins, 1991; Elbadawi & Mwega, 2000). The positive sign of the income coefficient suggests that rising income enhances households' ability in meeting their consumption needs and thereafter save the remainder. Studies have shown that high income countries tend to have higher savings rates (Metin-Ozcan *et al.*, 2003). Also, income growth has a significant and positive effect on savings in a few estimations. This finding lends support to previous studies (see, Athukorala & Sen, 2004; Athukorala & Tsai, 2004). Hence, savings rates increase as individuals or nations incomes grow faster (Athukorala & Tsai, 2003).

In addition, the empirical evidence indicates that inflation rate has a significant and positive effect on savings. This finding supports the outcome of previous works (see Burnside *et al.*, 1999; Callen & Thimann, 1997; Hondroyiannis, 2006; Hüfner & Koske, 2010; Loayza *et al.*, 1999). The positive sign of the coefficient of inflation

rate (a measure of macroeconomic uncertainty) suggests that higher uncertainty regarding future earnings/incomes compels people to increase their savings for precautionary purposes. In fact, Athukorala and Sen (2004) emphasized that households' income is more uncertain in developing countries than their developed counterparts, so that savings should increase with inflation rate. Given that many households in the ECOWAS region are employed in the primary (agricultural) sectors of the economy and face higher uncertainty in respect to their future incomes, they are forced to save on precautionary grounds.

Real interest rate is significant and positively related to savings. The finding lends support to previous studies (see Athukorala & Tsai, 2003; Callen & Thimann, 1997; Burnside et al., 1999; Hondroyiannis, 2006; Hüfner & Koske, 2010). The positive sign of the coefficient suggests that, increases in real interest rate induce households to increase their savings with a view to earning higher returns in the future. Reducing the rate of inflation will help raise real interest rates (Edwards, 1996). Another interpretation of the positive sign of the real interest rate is that the substitution effect is higher than the income effect (Athukorala & Sen, 2004).

The estimation results also illustrate that agriculture share in GDP has a significant and negative effect on savings. This finding supports the one found in previous studies (see, Ang & Sen, 2009; Muhleisen, 1997). The negative effect of agriculture on savings reflects a situation where the sector is highly underdeveloped and practised at subsistence level, implying low incomes for most households employed

in the agricultural sector in ECOWAS countries. Thus, given low income levels and subsistence agricultural production, additional output will be consumed rather than being sold to generate additional incomes or raise savings. In fact, poor households will often resort to drawing on past savings (if at all they have any) rather than raising savings.

4.9 Summary of Chapter

The results of analysis demonstrate that lesser corruption and higher political stability have a positive and significant effect on savings in ECOWAS countries. Similarly, the results confirm that the effects of corruption and political instability on savings depend on income levels, so that at high income levels their impact on savings is lesser and vice versa. Other important determinants of savings include income per capita, income growth, inflation rate, real interest rate, and agricultural share in GDP.

CHAPTER FIVE
SUMMARY OF MAJOR FINDINGS, POLICY IMPLICATIONS AND CONCLUSION

In this chapter, we present the summary of the major findings of the study, followed by policy implications and conclusion. Also, the chapter discusses the limitations of the study and recommendations for future research.

5.1 Summary of Major Findings

This study set out primarily to investigate the effects of corruption and political instability on savings, including examining whether the effects of corruption and political instability on savings depend on income levels in ECOWAS countries from 1996 to 2012. Using the PCSE/SUR and TSLS-instrumental variables techniques, the results indicate that lesser corruption and higher political stability have a significant and positive effect on savings. The results also demonstrate that the effect of corruption and political instability on savings depend on income levels, suggesting that the impact of corruption and political instability on savings is lesser at high income levels but higher at low income levels. Furthermore, income per capita, income growth, inflation rate and real interest rate all have a significant positive impact on savings, while agriculture has a negative effect on savings.

5.2 Policy Implications

Having established that savings is positively related to lesser corruption and declining political instability, and that the effects of corruption and political instability on savings depend on income levels in the ECOWAS region, we recommend the following among other things.

Firstly, policies aimed at reducing corruption would lead to higher savings in the ECOWAS region. Therefore, ECOWAS governments should employ policies to reduce corruption in order to raise savings. Corruption can be reduced through increases in income (Gokcekus & Suzuki, 2011), higher wages (Van Rijckeghem & Weder, 2001; Schumacher, 2013), and establishment of efficient legal system and anti-graft agency to facilitate the arrest and prosecution of offenders.

Secondly, ECOWAS governments should employ measures to reduce political instability in the region to raise savings. Higher political stability can be attained via improvements in incomes (Adelman & Morris, 1968; Helliwell, 1994), creation of an enabling environment for every citizen to participate in socio-economic and political activities (Gyimah-Brempong & Dapaah, 1996), respect of the rule of law by the political class, and re-orientation of military personnel on the need to sustain ECOWAS countries fragile and nascent democracy.

Thirdly, given that the impact of corruption and political instability on savings depend on income levels, ECOWAS governments should raise incomes in the region

in order to reduce the adverse effects of corruption and political instability on savings. Higher incomes will also lessen the tendency of the people to engage in corrupt practices, promote socio-political stability, including raising savings overtime. One way to raise income levels in ECOWAS is through increased investment in education. Recently, the World Bank (2014) pointed out that higher education is very crucial in promoting economic growth and development, particularly for Africa's fast-growing youth population. To this end, the World Bank has been mobilizing resources to raise investment in higher education in the region.

Fourthly, base on the results, income level and income growth affect savings. Hence, ECOWAS governments should raise people's income and promote income growth in order to raise savings in the region. Athukorala and Tsai (2003) mentioned that higher economic growth has been found to be very important in raising savings. Elbadawi and Mwega (2000) confirmed that SSA countries savings have been poor because of low income per capita, and therefore proposed increase in income per capita to raise their savings. Also, empirical evidence from cross-country studies suggests that high income countries tend to save a considerable fraction of their GDP (Metin-Ozcan *et al.*, 2003).

Fifthly, ECOWAS governments and monetary authorities should raise the real interest rates to promote savings. Given that low and negative interest rates (financial repression) contribute to low savings (McKinnon, 1973; Shaw, 1973), increasing real interest rates would lead to higher savings in ECOWAS countries.

Sixthly, although inflation rate has a positive impact on savings, it has been suggested that reducing the rate of inflation will have a significant positive effect on real interest rates and as a result savings (Edwards, 1996).

Finally, since agriculture has a negative impact on savings, ECOWAS governments should reverse this trend by raising investment in the agricultural sector (the main employer of labour). Higher investment will lead to higher productivity, employment and income in the sector, leading to higher savings.

5.3 Limitation of the Study

This study focuses primarily on investigating the impact of corruption and political instability on savings, including examining whether the impact of corruption and political instability on savings depend on income levels in ECOWAS countries. However, certain variables (such as tax, Quasi-liquid liabilities, money supply, net current transfers, urbanization, net capital transfers, domestic credit, terms of trade, population growth) that have been used in previous studies on savings were not considered due to the short span or coverage of the present study (that is, 1996-2012). The study was limited to the period due to the availability of data on our variables of interest (corruption and political instability, for instance). Other than having data for only a few years there were missing data for certain countries. Thus, including more variables and countries might provide more useful information on savings mobilization. Besides, given that other developing regions such as Asia (China, Indonesia, Thailand, etc.,) also rank among the most corrupt, future research

that focus on comparative analysis is important for the purpose of generalization. Moreover, the inadequate data employed in this study limited our choice in using superior estimation techniques such as the Generalized Method of Moments (GMM). The GMM requires a larger number of cross sections, and it also provides useful information regarding the dynamism of the relationship between/among variables.

5.4 Recommendation for Future Research

Given the limitations of the present study, we recommend that future research should consider the issues highlighted below. First, future studies that employ a rich datasets by expanding their coverage to include other developing regions such as MENA and East Asia, where the level of corruption is also high are important for generalization. Although East Asian countries such as China, Indonesia and Thailand are considered to be among the most corrupt nations, they have been successful in achieving higher economic growth and attracting more foreign private capital (Campos, Lien, & Pradhan, 1999), including having higher savings rates.

Second, other potential determinants of savings that were omitted in this study can be included to see how they affect savings. But this will require a large datasets that include many countries. Third, this study only examines whether the effects of corruption and political instability on savings depend on income levels, but it did not consider the income threshold below (above) which corruption/political instability will have a higher (lower) impact on savings. Therefore, future studies should look at the income threshold effect in relation to corruption and political instability.

5.5 Conclusion

The ECOWAS region has not been able to mobilize adequate savings needed to raise investment and spur economic growth and development. In addition, the region has witnessed incessant political instability and remains one of world's most corrupt regions. This study finds that corruption and political instability have partly been responsible for the unimpressive savings in ECOWAS countries. Moreover, the study discovers that the effects of corruption and political instability on savings depend on income levels, such that the impact of corruption and political instability on savings is higher at low income levels but lesser at high income levels. Thus, given that low income ECOWAS countries are highly corrupt and politically unstable including having poor savings rates, any policies aimed at reducing corruption and political instability would lead to higher savings. In addition, raising incomes would go a long way in reducing the adverse effects of corruption and political instability on savings, as well as raising savings in the region.

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