RESEARCH ARTICLE

Do Economic Growth, Human Development and Political Stability favour sovereign Creditworthiness of a Country? A Cross Country Survey on Developed and Developing Countries

Ntogwa Nghabi Bundala*

Tanzania Police Force, Mwanza Regional Police, Mwanza, Tanzania.

*Corresponding Author:Email:**bundalantogwa@yahoo.com***

Abstract

One of the challenges face a country or firm when deciding to lend a foreign country or firm is how to appraise the creditworthiness of that firm or country? It is experienced and commonly use of credit ratings established by Credit Rating Agencies (Moody's, Standard and Poor's and Pitch) as the yardstick for sovereign creditworthiness appraisal, these will be the secondary or an appeal instrument for appraising creditworthiness. This study established local based factors that will be used as pre-requites factors or benchmark for lending decisions of a country or a firm. The level of economic growth, human development and political instability of a country borrowing found to affect the ability of paying its debt obligations. The study used cross country survey strategy for generalization purpose. Twenty countries used from both developed and developing, ten countries from most risk and another ten countries from least risk countries. The multivariate multiple regressions model used to analyzed data with the aid Minitab 16.1 software. The findings of the study are that, GDP per capita, GDP growth, government budget, current account balance and inequality-adjusted index are negatively related to the probability of a country to dishonor its debt obligations. The unemployment rate, inflation rate and political instability index found to be positively support the probability of a country to dishonor its debt obligations. It is recommended that countries lending a foreign country or firm based on abroad should adhere to these pre-requisite factors for creditworthiness appraisal. These factors should be used as basic guidelines for assessing the probability of default of a country in lending decisions.

Keywords: *Developing Countries, Economic Growth, Political Stability.*

Introduction

One of the challenges face the lending firms or countries on making lending decision on the firm based on foreign country or a foreign country is how sure the firm or country that will meet its debt obligations. A lending firm or country faces difficulties to make sure that a country or a firm has ability to meet its debt obligations. The root of the problem is that no local factors that established that gauge the ability of a country or potency of a country to meet its debt obligations in both developed and developing countries. This study aimed to examine the key local factors that gauge the potency of a country to meet its debt obligations. The study investigated both the macro and micro factors that a country can be influenced at the national level.

The credit rating offers the advantageous window for the investors for making decisions on the country with high probability of defaults their debt obligations. The long term obligation ratings as defined by Moody's [1-3] that is the perceptions on the relative credit risk of the fixed income obligations with an original of at least a year. It describing the possibility that a financial obligation of a country or firm will be not honoured as promised. The short term ratings are the perceptions of the ability of the country or firm (issuers) to honor its short term obligations [1]. The maturity of the obligation is at most thirteen months. The one issue to be asked on the rating is the base of rating and the factors considered in rating the country.

The Statement of Problem

Appraisal of the sovereign creditworthiness of a foreign firm or country is key and critical issue to be addressed seriously by the researchers. Assessment of general qualifications for borrowing foreign country or firm enable the lending firm to lay a positive image on the country or firm borrowing by estimating the risk expected and methods of aversion. There are no clear factors to be preliminarily considered for assessment of the creditworthiness of a foreign country or firm based on abroad. This leads lending firms or country to suffer from, burden of bad debts, to enter into petitions or bankruptcy due to poor lending decision that unexpected impotency of countries or firms of honouring their

debt obligations. This study provides the preliminarily guidelines for lending decisions in a firm.

Objective of the Study

General Objective of the Study

The general objective of the study is to investigate the factors that influence the potency (ability) of a country or firm to honour its debt obligations.

Specific Objectives of the Study

The study aimed to meet the following specific objectives

- To examine the relationship between country cumulative probability of default (CPD) and country local factors.
- To determine the pre-requisite factors for sovereign creditworthiness appraisal for a foreign lending firm or country.

Research Questions

The study guided with the following research questions

- What is the relationship between country cumulative probability of default (CPD) and country local factors?
- What are the pre-requisite factors for sovereign creditworthiness appraisal for a foreign lending firm or country?

Research Hypotheses

The study was guided by the following set of hypotheses:-

$H0_1$: There is no significant relationship between cumulative probability of default and GDP per capita.

$H1_1$: There is a significant relationship between cumulative probability of default and GDP per capita.

$H0_2$: There is no significant relationship between cumulative probability of default and GDP Growth.

$H1_2$: There is significant relationship between cumulative probability of default and GDP Growth.

$H0_3$: There is no significant relationship between cumulative probability of default and external debts.

$H1_3$: There is a significant relationship between cumulative probability of default and external debts.

$H0_4$: There is no significant relationship between cumulative probability of default and current account balance.

$H1_4$: There is a significant relationship between cumulative probability of default and current account balance.

$H0_5$: There is no significant relationship between cumulative probability of default and inflation rate.

$H1_5$: There is a significant relationship between cumulative probability of default and inflation rate.

$H0_6$: There is no significant relationship between cumulative probability of default and Unemployment rate.

$H1_6$: There is a significant relationship between cumulative probability of default and unemployment rate.

$H0_7$: There is no significant relationship between cumulative probability of default and government budget.

$H1_7$: There is a significant relationship between cumulative probability of default and government budget.

$H0_8$: There is no significant relationship between cumulative probability of default and political instability index.

$H1_8$: There is a significant relationship between cumulative probability of default and political instability index.

$H0_9$: There is no significant relationship between cumulative probability and Inequality-adjusted human development index.

$H1_9$: There is a significant relationship between cumulative probability and Inequality-adjusted human development Index.

$H0_{10}$: There is no significant relationship between cumulative probability and gender inequality Index.

$H1_{10}$: There is a significant relationship between cumulative probability and gender inequality Index.

Literature Review

Definition of Terms

Credit Ratings

"Moody's credit ratings are opinions of the credit quality of individual obligations or of an issuer's general creditworthiness, without respect to individual debt obligations or other specific securities. Examples include our long-term obligation ratings, syndicated loan ratings, bank deposit ratings and insurance financial strength ratings" [1].

Non-credit Ratings

"Moody's has designed other rating systems to address other aspects of risk, including investment quality ratings, management quality ratings, market-risk ratings, and Lloyd's syndicate volatility rating" [1].

Cumulative Probability of Default (CPD)

Cumulative Probability of Default (CPD) is the probability that a country cannot meet its debt obligation over a given time period, this includes the probability of restructuring of debt (CMA, 2011). Country credit risk (CCR) is the broad term that includes all the risk cause by both government and private sectors in a country [4].

Sovereign Credit Risk (SCR)

Sovereign Credit Risk (SCR) is the risk the default of a country associated or caused by factor which controlling with government [4].

Review of Related Study

Recently studies done on the field of risk management aimed to assess the credit worthy of local firm. The emerging of global market poses challenges on how to manage risk associate with the foreign country or firm. The issue is how to determine the ways of reducing or being cautioned on the sovereign credit risk. The issue addressed by many researchers in this field is of credit ratings. Various factors identified as the determinants of the credit ratings. Some of the researchers do not satisfied with the credit ratings procedures provided by agencies. It is evidenced that sovereign ratings differ across agencies [5]. The measuring of the credit risk is a difficult task and should be done by considering both solvency and factors that may independently affect the willingness to honour their debt obligations such as political stability, social and economic cohesion and integration into the world economic system [5, 6].

Canuto, Dos Santos and De Sa Porto [4] examine the macroeconomics to be taken into considerations in the sovereign credit assessment by the agencies and relationship between the factors and ratings. The study found that GDP per capita in term dollars and inflation rate are negatively related to cumulative probability of default (CPD). The economic growth found to be related positively with the cumulative probability of default (CPD). The studies done by Afonso [7], Afonso, Furceri and Gomes [8] and Afonso, Gomes and Rother [9] investigating factors that influence the sovereign credit ratings, they found that GDP per capita, real GDP growth, external debt, the public debt level and the government budget balance are major determinants of the sovereign credit ratings.

UNEP FI [10] defined the sovereign credit worthiness as a way of measuring the ability and willingness of a country to repay its debt. The

repayments of the debt require sustainable revenue for government. That is to say that a country should has a sustainable and strong source of income such as good and strong taxation policies and systems and other means of improving the government revenue. This will be achieved through stable and sustainable economic activities.

According to UNEP FI [10] categorized the conventional factors and measures of sovereign credit worthiness that currently used by rating agencies and investment analysts. It categorized into economic development which profile the economic structure and growth prospects, which includes the GDP growth, GDP per capita, and inflation. Government debt burden is a category in these factors; this intends to measure the total debts as percentage of the GDP, interest payment and average debt maturity. Other factors included are budgetary performance in the base of budget deficit as the percentage of GDP. Foreign liquidity and balance trade in base of foreign debt as percentage of GDP and trade deficit/surplus and foreign currency and reserves. Monetary flexibility and institutional and political factors are also earmarked for credit rating.

The importance of Credit Ratings Agencies(CRAs) in the international financial markets compared with the military power of USA which can destroy a nation with bombs, the same Moody's has the power to destroy a nation by downgrading its bond. From this fact the CRAS have extensive influence on the function capital market and should appraise. The only disparity evidenced in the three Credit Rating Agencies found in Fitch [11] that the sovereign credit assessment weighted in macroeconomic policies, performance and prospects and the general structure of the economics of the country. Moody's [2, 3, 11, 12] weighted in the factors of economic strength of a country, institutional strength and government financial strengths. Standard and poor's [13-15] apart from all considered in Moody's and Fitch credit ratings, considered the qualitative measures that influence the potency and willingness of honoring its debt obligation.

Longstaff [16] studying the nature of sovereign credit risk using set of sovereign CDS data, find that majority of sovereign credit risk are associated or linked to global factors. The study involves for categories of explanatory variables, namely local economic variable (Stock return, Exchange rate and Currency reserve), global financial markets variables (Stock market, treasury market, Investment grade and High

yield), global risk premium measures (Equity premium, Volatility premium and term premium) and global market liquidity variables (Stock flows and bond flows) and Sovereign spreads (Regional spread and Global spread).

Empirical Determinants of the Sovereign Credit Risk

GDP Per Capita

The country maintaining high GDP per capita tends to have positive motive meet their tax liabilities so as to increase the ability to collect revenues. The improving of revenues makes the government to have a high chance of paying its debt obligations. Canuto, Santos and De sa Parto [4], Erdem and Varli [17], Mora [18], Jaramillo and Tejada [19], Valle and Marin [20] and others found that GDP capita income negatively related to probability of default a country. The higher GPD per capita, the higher the personal consumption income, this leads to high investment, which in turns reinforce the growth of the economy of a country. The developed countries are experienced of low level of probability of default.

GDP Growth Rate

The country with relative high growth rate of its GDP is more likely to meet its debt obligation [21]. The growth of GDP in a country stimulates the human development. The growth should be tied with the improved economic activities such as industries, foreign trade, and other. These economic activities will improve the revenues collection in a country. Davies [22], Borio and Packer [23], Nognes and Grandes [24], Anagnostis [25], Zheng [26], Wu and Kim [27] and others found that GDP growth have a negative impact on the level of sovereign credit risk of a country. That is, the country with higher GDP growth is less more likely to fail to honour its debt obligations. The developed countries tend to have less sovereign credit risk.

External Debts

The higher the debts burden the higher the probability of default of a country [26]. The weight of the burden increases as a country's foreign currency debts rises relative to its foreign currency earnings [26]. Jaramillo and Tejada [19], Afonso, Gomes and Rothee [21] found that external debts is an agent of sovereign credit risk, it has a positive impact on sovereign credit risk of a country.

Current Account Balance

A current account of a country is treated as an oil or working capital that a country uses to liquidity its operation. The current account deficit of a country signs that a country is going to fails to meet its payments, hitherto, to fail to honour its debt obligations. The deficit indicates that both private and public sectors having a burden of debts from abroad. That is to say, a current account will be negatively related to the probability of default. Zheng [26] found that current account balance has negative influence on the sovereign credit risk of a country. Valle and Marin [20] differ from Zheng [26], found that current account balance is negatively related with the level of sovereign credit risk of a country.

Inflation Rate

The country with low rate of inflation tends to be upgraded, that is having low credit risk [4].The high inflation in a country cause a government to unable to pay for current budgetary expenses. The purchasing power of the local currency defeat, force a country to unable to honour its debts obligations. Erdem and Varli [17], Valle and Marin [20], Mora [18] found that the inflation rate have negative influence on sovereign credit risk of a country.

Unemployment Rate

Unemployment rate in a country tends to reduce the revenue of the government; the high unemployment rate in a country cause a drop of GPD growth, which in turn GDP per capita, resulting to negative motive to meet their tax liabilities and investments. This causes a drop of revenues which results to impotency of a country to meet its debts obligations. Zheng [26] and Mora [18] found that economic growth have negative relations with probability of default of a country. The economic growth is negatively related with unemployment rate. The employment rate will be positive related with the probability of country to dishonor its debt obligations.

Government Budget

The government budget deficit as the percentage of GDP profiles the ability of a country to honor its debt obligation. It is expected that the less the deficit of government budget the less the probability of default. The positive relation is expected. That is, the higher the deficit of the government budget the higher the sovereign credit risk of a country. Mora [18], Baranenko [28] and Afonso, Gomes and Rother [21] found that, government budget deficit to have positive related with the chance or ability of a country to dishonor its debts ability.

Political Instability

The ability of paying debts it depends on the ability of government to generates and collect revenues. The generation of revenues in a country depends on the peace and tranquility states, the political stability will encourage people to engage fully in economic activities, and government to collect at optimal revenues. The stability will encourage investors to invest in a country so as to have to widen sources of generating income. The political stability will be negatively related to the probability of default of a country. Borio and Packer [23], Baranenko [28] and Anagnostis [25] and Howell [29] found that political risk have a positive influence on the probability level of the country to dishonor its debt obligations.

Inequality-adjusted Human Development Index

The human development has an influence on the creditworthiness of a country. The developed countries have the less probability of dishonoring their debt obligations. It is observed that the growth of economy of a country is highly associated with higher Inequality-adjusted human development index. Anagnostis [25] suggested that the degree of risk depends on economic growth rate of a country.

Gender Inequality Index

The gender inequality has a negative impact on the economic growth, the country with higher level of gender inequality index tends to have low growth economic rate. The gender equality in a country provides equal chance all people to engage in the economic activities. The positive sign is expected from this variable. That is, the higher gender inequality index, the higher the probability of a country to dishonor its debt obligations.

Methodology of the Study

Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure [30]. The research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis, keeping in view the objective of the research and the availability of the staff, time and money. The research design, in fact has a great bearing on the reliability of the results arrived at and as such constitutes the firm foundation of the entire edifice of the research work [30]. The study used descriptive approach (quantitative), the methods appropriately describe the fact and practicality of the reality that developed and developing countries operate. The research is designed to use statistical inference to reach the conclusion and facts to be addressed. The study used cross country survey method to increase the generalization of the findings.

The population of the study is all the developed and developing countries in the world as per human development report of 2011. The twenty countries from each of the least risk and most risk countries were sampled. The convenient or `purposive sampling used to obtain the sample size of the study, this is due to availability of data. The documentary analysis and website survey used to collect data, save cost and time; they do not require field staff

Specification Model

The specification model of the study is;-

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10}$$

Where
X_1 = GDP per capita
X_2 = GDP growth
X_3 = External debt
X_4 = current account balance
X_5 = Inflation rate
X_6 = Unemployment rate
X_7 = Government budget
X_8 = Political instability Index
X_9 = Inequality-adjusted human development index
X_{10} = Gender inequality index
a = Constant term of the model
b's = Coefficients of the model.

Definition of Variables

Table 1: Description of dependent and explanatory variables

Name of Variable	Definition	Unit of measurement
GDP per capita	Value of all final goods and services produced within country in a given year divided by the average (or mid –years) population for some years[1].	US dollar
GDP growth	A percentage change of total values of all final	Percent

goods and services produced within country in a given year (2010-2012)

External debt	Total public and private owed to nonresidents repayable in US dollars goods and services	Percent
Current account balance	Sum of the value of imports of goods and services plus net revenues on investments abroad, minus the value of exports of goods and services, all in local currency.	Percent
Inflation rate	Annual percentage change in consumer prices compared with the previous year's consumer prices	Percent
Government budget	A weigh of expenditures on the revenues	Percent
Unemployment rate	The number of unemployed person as a percentage of the labour force	Percent
Political instability index	Vulnerability to social and political unrest	Ratio
Inequality-adjusted human development index	Adjusted human development index (HDI) for inequality in distribution of each dimension across the population	Ratio
Gender Inequality Index	Reflects women's disadvantage in three dimensions- reproductive health, empowerment and the labour market	Ratio
Cumulative probability of default(CPD)	Quantifies the probability of a country being unable to honour its debt obligations over a given time period	Percent

Source: Field data (2012)

Findings Presentation and Discussions

The study aimed to investigate the local country factors namely the economic growth, human development and political stability that influence the sovereign creditworthiness of a country. The multivariate multiple regression model used to analysed data, sampled from 20 countries of both developed and developing. The Mintab 16.1 software and MS Excel are used for processing and analysed data.

Profile of the Sovereign Credit Risk, Economic Growth, Human Development and Political Stability in the Developed and Developing Countries

Descriptive statistics of the independent variable and explanatory variables were computed to overview the profile of the developed and developing countries (Table 2). The aimed statistical measures are mean, SE mean, standard deviation and range.

Table 2: Descriptive Statistics Independent Variable and Explanatory Variables

Variable	N	Mean	SE Mean	St. Dev	Minimum	Maximum
Risk (CPD) %	20	28.200	5.750	25.74	4.400	90.600
GDP per Capita	20	29962	3413	15265	2786	53396
GDP Growth %	20	2.569	0.532	2.380	-3.039	7.541
External Debt % GDP	20	135.2	22.60	101.3	14.000	390.0
External balance % GDP	20	2.250	1.830	8.200	-9.67	24.430
Inflation rate%	20	5.290	1.340	6.000	-0.70	27.600
Unemployment Rate %	20	8.286	0.720	3.221	3.385	14.700
Government Budget%	20	-1.900	1.530	6.860	-13.40	13.600
Political Instability Index	20	5.020	0.387	1.730	1.200	7.800
IHDI	20	0.7364	0.032	0.141	0.3460	0.890
GII	17	0.2186	0.038	0.158	0.0490	0.646

Source: Field data (2012)

The table 2 shows the descriptive statistics of the dependent variable namely risk (cumulative probability of default) and explanatory variables that are GDP per capita, GDP Growth, external debt as percentage of GDP, current account balance as the percentage of GDP, inflation rate, and government budget. These are measure of economic growth of a country. Political instability index is a measure of political stability in a

country. Inequality-adjusted human development Index and gender inequality index are measures of human development.

The sovereign credit risk of the developed and developing ranging from 4.40 to 90.600 percent, the Greece rated at 90.600 probability of default and 4.40 probability of default for Norway. The range of cumulative probability of default of the developed and developing countries is about 86.2 percent with mean of 28.2 percent. This is extremely large dispersion of the inability of a country to honor its debt obligations. This variation is due to fact that the developed countries are safer than developing country.

The economic growth measured in GDP growth, GDP per capita and other portrays that the developed and developing countries are extremely dispersed. The GDP per capita and GDP growth rate of the developed and developing countries various extremely large. The political stability of county measured in political instability index

profile that developing country and developed country varies marginally from 1.20 to 7.80 for Norway and Pakistani respectively. Norway has both lowest cumulative probability to default and political instability index. This indicates that the political instability index is positively related to cumulative probability to default.

The Relationship between Sovereign Credit Risk and Economic Growth, Human Development and Political Stability

The examination on how the economic growth, human development and political instability were done. Before to run the regression model, the Pearson correlation coefficients of the explanatory variables were determined to know the ability of one explanatory variable to affects its representative not in group or jointly or a bundle of variable (Multicollinearity problems). It was found that there are no multicollinearity problems (Table 2).

Table 3: Pearson correlation coefficients for dependent variable and explanatory variables

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
GDP Growth (X_2)	0.055 0.817								
External Debt (X_3)	0.572 0.008	-0.192 0.418							
External Balance (X_4)	0.251 0.287	0.574 0.008	-0.114 0.633						
Inflation Rate (X_5)	-0.579 0.008	0.049 0.839	-0.429 0.059	0.051 0.829					
Unemployment Rate (X_6)	-0.336 0.147	-0.454 0.045	-0.211 0.372	-0.386 0.093	0.044 (0.855				
Government budget(X_7)	0.203 0.391	0.625 0.003	0.031 0.896	0.747 0.000	-0.144 0.545	-0.419 0.066			
Political Instability Index (X_8)	-0.836 0.000	0.037 0.876	-0.490 0.028	-0.284 0.224	0.579 0.007	0.422 0.064	-0.308 0.186		
Inequality -Adjusted HDI(X_9)	0.852 0.000	-0.015 0.951	0.506 0.023	0.131 0.583	-0.682 0.001	-0.097 0.683	0.229 0.331	-0.770 0.000	
Gender Inequality Index (X_{10})	-0.563 0.019	0.444 0.074	-0.546 0.023	0.411 0.101	0.524 0.031	0.254 0.454	0.195 0.454	0.719 0.001	0.719 0.001

*Cell Contents: Pearson correlation
 P-Value
Source: Field data (2012)

The Table 3 shows the results of the person correlation coefficients were computed to diagnose the multicollinearity problems among the independent variables. Inequality –adjusted human development index positively related with GDP per capita and negatively related with the political instability index. This means that GDP per capita, political instability index and

inequality –adjusted human index, they not stand alone to represent its individualism, their representative power are jointly owned.The analysis on how the dependent variable correlated with explanatory variable was computed to profile the nature of influence on each explanatory variable (Table 3).

Table 4: The Pearson correlation coefficients of dependent variable with explanatory variables

Risk(CPD)	-0.626	-0.527	-0.285	-0.504	0.388	0.638	-0.440	0.672	-0.492	0.193
	(0.003)	*(0.017)*	*(0.224)*	*(0.024)*	*(0.091)*	*(0.002)*	*(0.052)*	*(0.001)*	*(0.025)*	*(0.459)*
Explanatory Variables	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}

Source: Field data (2012)

The table 4 portrays the relationship between sovereign credit risk (dependant variable) and economic growth, human development and political stability of their components variables (explanatory variables). The results indicates that GDP per capita, GDP growth, current account balance, inflation rate, unemployment rate, government budget, political instability and inequality-adjusted human development index influence the sovereign creditworthiness in a country. The more investigation was done to scrutiny the relationship between the local based factors and the sovereign creditworthiness of a country. The general regression model was run to profile the relationship of the dependent and explanatory variables and know the influence of each variable to favour the sovereign creditworthiness of a country (Table 4). The regression model was run at 0.05 level of significant, that at the 95 per cent of confidence level.

Table 5: General Regression Analysis of the dependent variable and explanatory variables
Regression Equation

$Y = 112.918 + 0.000136466 X_1 - 3.96982 X_2 - 0.0421252 X_3 - 0.770164 X_4 + 0.351005 X_5 + 3.4335 X_6 + 1.10646 X_7 + 3.54178 X_8 - 139.741 X_9 - 51.045 X_{10}$

Coefficients

Term	Coef	SE Coef	T	P
Constant	112.918	193.087	0.58480	0.580
GDP per Capita	0.000	0.001	0.17930	0.864
GDP Growth	-3.970	3.212	-1.23612	0.263
External Debt % GDP	-0.042	0.055	-0.76469	0.473
External balance %	-0.770	1.685	-0.45697	0.664
Inflation rate%	0.351	2.064	0.17004	0.871
Unemployment Rate	3.434	2.725	1.25988	0.254
Government Budget	1.106	1.636	0.67635	0.524
Political Instability Index	3.542	10.622	0.33344	0.750
IHDI	-139.741	190.434	-0.73380	0.491
GII	-51.045	79.722	-0.64029	0.546

Summary of Model

S = 16.2551	R-Sq = 86.26%	R-Sq (adj) = 63.37%	PRESS = 27711.7	R-Sq (pred) = -140.09%

Source: Field data (2012)

The table 5 shows the results of the general regression model run at 95 percent of confident level. The regression model is determined at 86.26 percent. The only 13.74 percent not explained by the regression model.

The Prediction error sum of squares (PRESS) and R-Sq (prediction) shows that the model will be used as a predictive model. The higher the PRESS and lower R-sq prediction indicates a model that predicts poorly.

The analysis of variance of the dependent and independent variables in the regression model was done in order to determine the impact of independent variable have on the dependent variable in regression analysis. The adjusted sum of squares test were used (Table 6).

Table 6: Analysis of variance of the dependent variable and independent variables in the regression model

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	10	9956.8	9956.85	995.685	3.76827	0.059028
GDP per Capita	1	4897.6	8.49	8.494	0.03215	0.863607
GDP Growth	1	3613.4	403.74	403.741	1.52800	0.262607
External Debt % GDP	1	101.6	154.51	154.506	0.58475	0.473451
Current account balance %	1	57.5	55.18	55.176	0.20882	0.663772

Inflation rate%	1	73.7	7.64	7.640	0.02892	0.870564
Unemployment Rate	1	478.0	419.41	419.410	1.58730	0.254498
Government Budget	1	441.3	120.87	120.870	0.45744	0.524022
Political Instability Index	1	97.9	29.38	29.378	0.11118	0.750146
IHDI	1	87.6	142.28	142.277	0.53846	0.490739
GII	1	108.3	108.32	108.325	0.40997	0.545646
Error	6	1585.4	1585.37	264.229		
Total	16	11542.2				

Fits and Diagnostics for Unusual Observations

Obs	RISK (CPD) %	Fit	SE	Fit Residual	St Residual
13	4.6	23.1510	13.7270	-18.5510	-2.13079 R

* R denotes an observation with a large standardized residual
Source: Field data (2012)

The table 5 portrays the analysis of variance results, the sequential sums of squares (Seq SS) is the added sums of squares given that prior terms are in the model. These values depend upon the model order. The adjusted sums of squares (Adj.SS) are the sums of squares given that all other terms are in the model. These values do not depend upon the model order. The p-value of SS between is 0.059028 that indicates that the regression model is significant at 90 percent or level of confidence.

Pre-requisite Factors for Sovereign Creditworthiness Appraisal for a Foreign Lending Firm or Country

The company or firm making lending assessments on a foreign country or firm should be aware of the factors that influence the sovereign creditworthiness of a borrowing company. For more illustrations and graphical examinations of the cumulative probability of default graphed with each explanatory variable to profile the level of influence for each explanatory variable. The regression analysis for each explanatory variable was run.

The regression model between cumulative probability of default and GDP per capita was run. The line of best fit is determined at the 39.2% at the 0.05 level of significant (Fig.1)
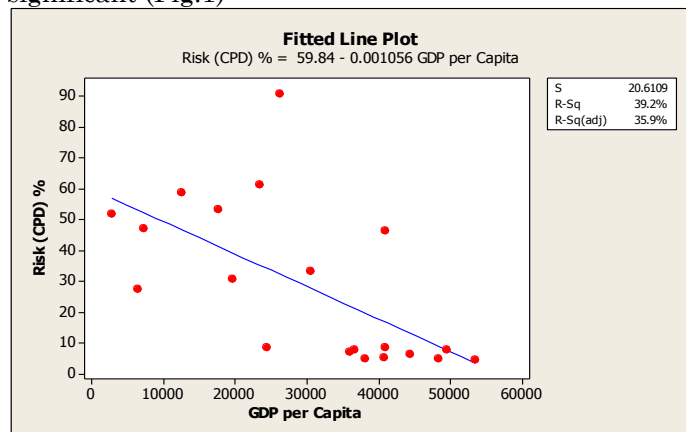

Fig. 1: The regression line between Cumulative probability of default and GDP per capita
Source: Field data (2012)

The fig. 1 shows the relationship between cumulative probability of default and GDP per capita. The figure shows that the country with GDP per capita tends to have low cumulative probability of default, it is negatively related. Countries with high GDP per capita have a high chance of honouring their debt. The high GDP per capita encourage consumptions which in turn reinforce the human development. The country or firm planning to provide loans should be aware of the level of GDP per capita as a measure of willingness of that country to honor its debts obligations. The regression line between cumulative probability of default and GDP growth was determined. The line of best fit determined at 27.8 percent (Fig. 2).
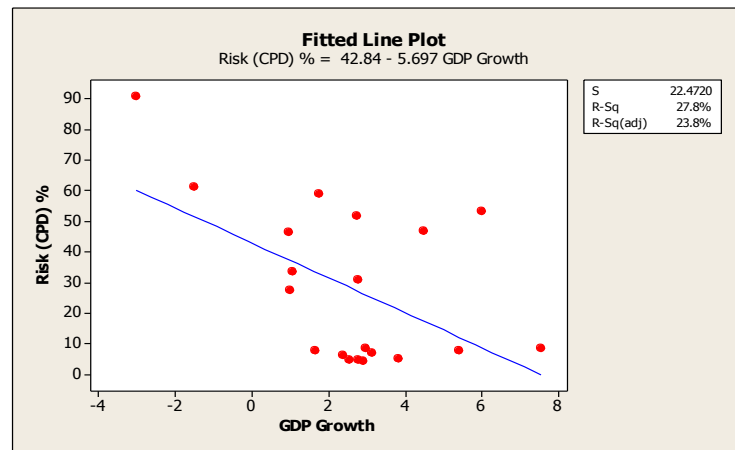

Fig. 2: The regression line between Cumulative probability of default and GDP growth
Source: Field data (2012)

The fig. 2 portrays the relationship between cumulative probability of default and GDP growth. The figure profiles that sovereign credit risk is negatively related with GDP growth rate. That is, the higher GDP growth reduces the sovereign credit risk in a country. The country with higher GDP growth will create a goodwill and potency on honouring its debts obligations. The growth of the GDP in a country depends on the rate of consumption of the country; a country consuming more tends to product more.

The regression model was run on cumulative probability of default and the external debt as the percentage of the GDP (Table 3). The line of best fit portrays negatively relations of cumulative probability of default and external debts of a particular country.
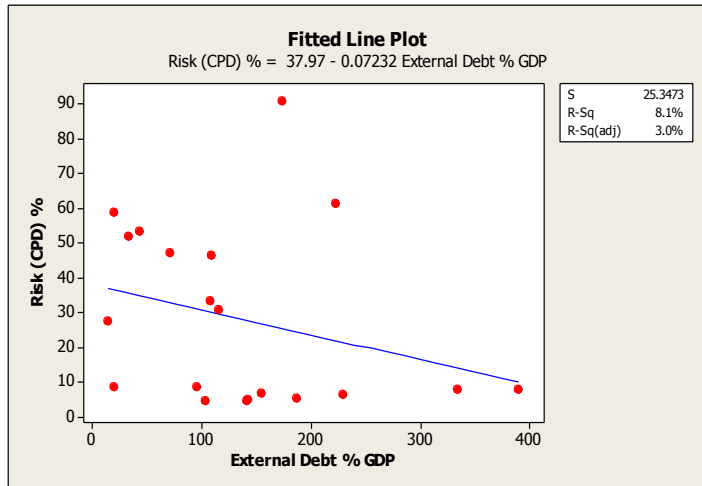

Fig. 3: The regression line between Cumulative probability of default and external debt as percent of GDP
Source: field data (2012)

The fig. 3 shows the relationship between the cumulative probability of default and external debt as percentage of the national GDP. The graph portrays negative relations, that is, a country with more external debts weighted to its GDP, tends to have low sovereign credit risk. The line of best fit is determined at 8.1 percent. The regression model was run on cumulative probability of default and current account balance. The regression model run at 5% level of significant and found that, sovereign credit risk is negatively related with current account balance. The country having high current account balance tends to have low cumulative probability of default (Fig. 3)
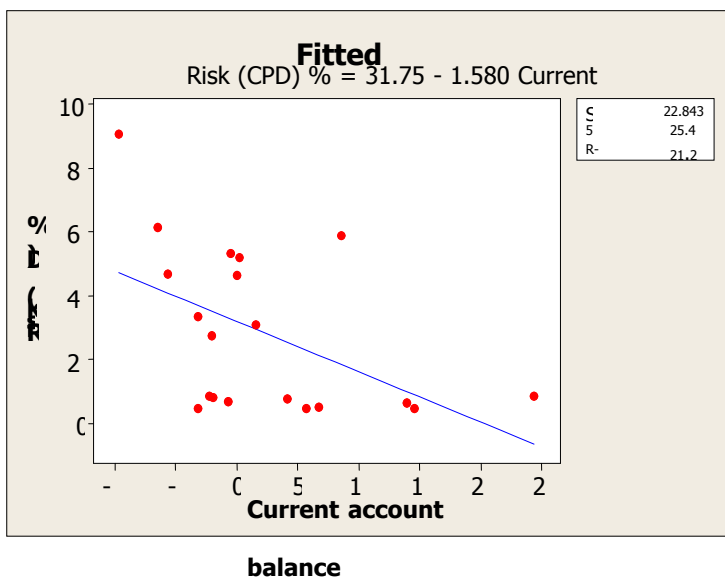
Fig. 4: The regression line between Cumulative probability of default and current account balance
Source: Field data (2012)

The figure 4 shows the relationship between sovereign credit risk and the current account balance of the developed and developing countries. The graph portrays negative relations at the 25.4 percent of level determination. A country with low current account balance tends to have more sovereign credit risk. The current account balance of a country acts as the collateral or stock for a country borrowing.

The cumulative probability of default were regressed at the 95 level of confidence, and found

that a country having a high rate of inflation is more likely to fail or unable to honor its debt obligations (Fig. 5).
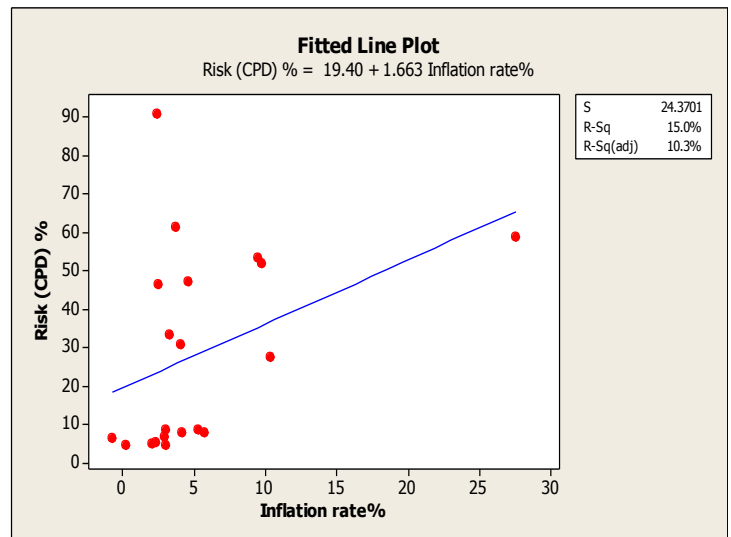

Fig. 5: The regression line between Cumulative probability of default and inflation rate
Source: Field data (2012)

The fig. 5 shows the relationship between cumulative and inflation rate. The graph shows that cumulative probability of default and inflation rate is positively related, that is the higher the inflation rate, the higher sovereign credit risk in a country. The line of best fit is determined at 15 percent. The regression model on cumulative probability of default and unemployment rate at 5% level of significant was determined (Fig.6). The regression found that the unemployment rate tends to reduce the GDP per capita, which in turns reduces the personal consumptions. The reduction of person consumption causes the poor revenues in a country. Poor revenues in a country are indicators of the poor economic activities. The regression model found the positive relations that, the higher unemployment rate in a country tends to cause higher sovereign credit risk and it is vice versa.
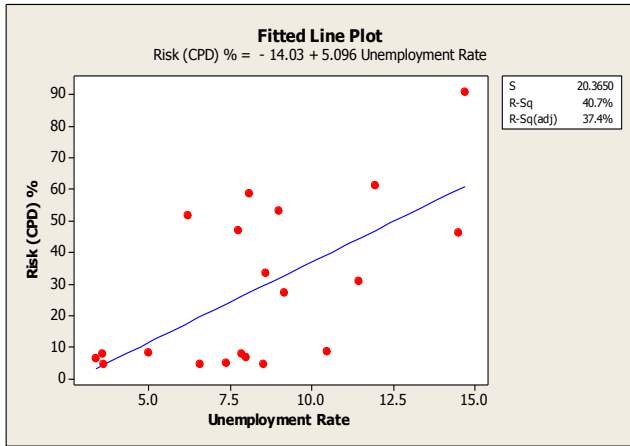
Fig. 6: The regression line between Cumulative probability of default and unemployment rate
Source: Field data (2012)

The figure 6 shows the relationship between cumulative probability of default and unemployment rate. The line of best fit is determined at 40.7 percent. The graph shows that the cumulative probabilities of default and unemployment rate are positively related. The higher unemployment rate in a country indicates the higher probability of default.The regression mode of cumulative probability of default and government budget was run at 5% level of significant and found that the government budget and sovereign credit risk is negatively related (Fig.7). The government budget tends to have negative influence of the creditworthiness of a country. A country with high government budget tends to be with low probability of default.
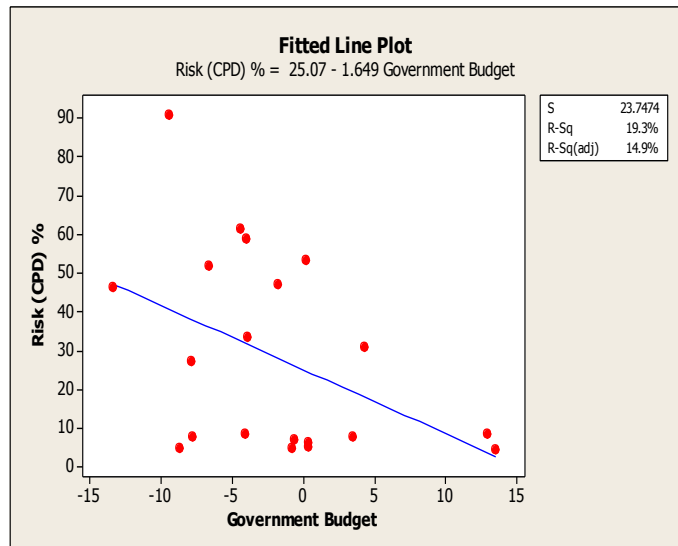

Fig. 7: The regression line between cumulative probability of default and Government budget
Source: Field data (2012)

The fig.7 shows the relationship between cumulative probability of default and government budget. The graph portrays that cumulative probability of default and government budget relates negatively. The line of best fit is determined at 19.3 percent. The political instability index is regressed to the cumulative

probability of default at 5% level of significant and found positively related (Fig. 8). The country with instable government tends to have higher probability of default.
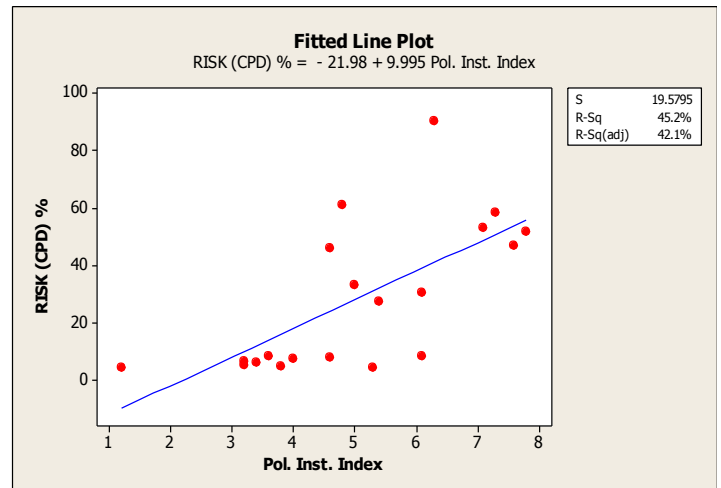

Fig. 8: The regression line between Cumulative probability of default and political instability Index
Source: Field data (2012)

The fig. 8 shows the relationship between cumulative probability of default and political instability index. The line of best of fit is determined at 45.2 percent. The probability of default is positively related to political instability in a country. The stable government tends to have lower probability of default.The regression on cumulative probability of default and inequality - adjusted human development index is established at 5% level of significant. The regression profiles that human development of a country negatively related to the ability of honoring its debt obligation. That is to say, the most developed countries have higher probability of default their debt obligation (Fig.9).
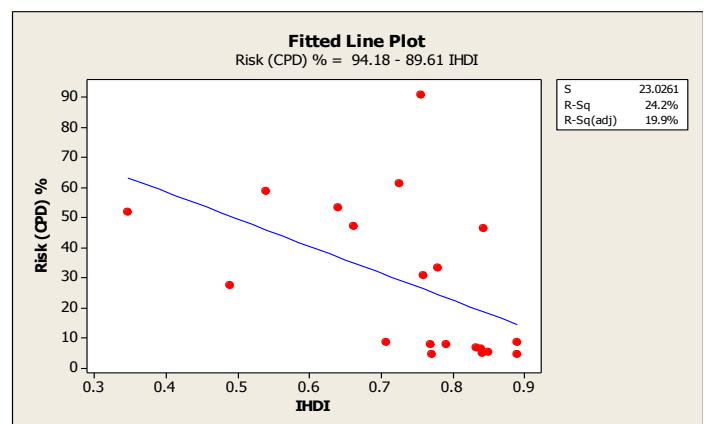

Fig.9: The regression line between Cumulative probability of default and Inequality-adjusted human development index
Source: Field data (2012)

The fig. 9 shows the relationship between the cumulative probability of default and inequality-adjusted human development index. The line of

best fit is determined at 24.2%. The graph portrays the negative relations. The regression model between cumulative probability and gender inequality index was run at 5% level of significant to invest the influence of human development in sovereign creditworthiness of a country. The model profiles that gender inequality in a country leads to poor economic growth, which in turn cause high chance of defaulting of a country (Fig. 10).
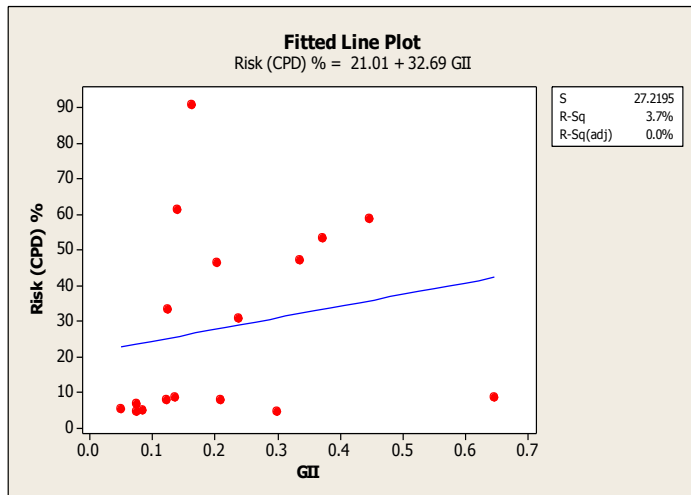

Fig. 10: The regression line between Cumulative probability of default Gender inequality index
Source: Field data (2012)

The fig. 10 shows the relationship between cumulative probability of default and gender inequality index. The graph portrays the positive relationship, that a country exercising gender equality is more likely to have higher ability of paying its debt. That is, the gender equality promotes the growth of the economy in a country. The line of best fit is determined at 3.7 percent.

Test of Hypotheses

The ten set of paired hypotheses were tested statistically at 1%, 5% and 10% levels of significant. The GDP per capita has a negative coefficient of -0.001056, R-sq of 39.2% (Fig.1), and p-value of 0.003 found to be statistically significant at 1% level of significant. The p-value of 0.003 is less than 0.01, so there is no strong statistical evidence to accept the null hypothesis at this level of significant; therefore the alternative hypothesis of the first set of the hypotheses is accepted. That is, there is a significant relationship between cumulative probability of default and the GDP per capita.

The GDP growth has a negative coefficient of -5.697, R-sq of 27.8 % (Figure 4.2) and the p-value of 0.017, found to be significant statistically at 5% level of significant. The p-value of 0.017 is less than level of significant, that is, there is a strong evidence to reject null hypothesis. Therefore, the

alternative hypothesis of the second set of paired hypotheses is accepted at this level of significant.

That is, there is a significant relationship between cumulative probability of default and the GDP growth.

The external debt, has negative coefficient of -0.07232, R-sq of 8.1% (Fig. 3), and p-value of 0.224, found to be statistically insignificant at 10%. The p-value is greater than 10% of significant levels. From this fact, there is no statistical evidence to reject the null hypothesis. Therefore, the null hypothesis of the third set of paired hypotheses is accepted. That is, there is no significant relationship between cumulative probability of default and external debts.

The current account balance has negative coefficient of -1.580, R-sq of 25.4% (Figure 4.4), and p-value 0.024, found to be statistically at 5% level of significant. The p-value of the 0.024 is less that the level of significant. That is, there is a strong evidence to reject the null hypothesis. Therefore, the alternative hypothesis of the fourth set of paired hypotheses is accepted, that is, there is a significant relationship between cumulative probability of default and current account balance.

The inflation rate has positive coefficient of +1.663, R-sq of 15% (Fig. 5) and P-value of 0.091, found to be statistically significant at 10%. The p-value of 0.091 is less than the level of significant. From this fact, there is no strong evidence to accept the null hypothesis; therefore the null hypothesis in the fifth set of paired hypotheses is rejected. That is, there is a significant relationship between cumulative probability of default and inflation rate.

The unemployment rate has positive coefficient +5.096, R-sq of 40.7 % (Figure 4.6) and p-value of 0.002 found to be statistically at 1%. The p-value of the 0.002 is less that the level of significant; therefore, there is no strong statistical evidence to accept the null hypothesis at this level of significant. The null hypotheses in the sixth set of paired hypotheses are rejected at this level and the alternative hypothesis is accepted. That is, there is a significant relationship between cumulative probability of default and unemployment rate.

The government budget variable has negative coefficient of -1.649, R-sq of 19.3 %(Fig. 7) and p-value of 0.052 found to be statistically significant at 10% level of significant. The p-value of 0.052 is less than level of significant; therefore, there is a strong evidence to reject the null hypothesis in the seventh set of paired hypotheses. The null hypothesis is rejected at this level, which is there is a significant relationship between cumulative

probability of default and government budget of a country.

The political stability index variable has positive coefficient of +9.995, R-sq of 45.2% (Fig. 8) and p-value of 0.001 found statistically significant at 1% level of significant. The p-value of 0.001 is less than level of significant. From this fact, there is a strong statistical evidence to reject the null hypothesis in the eighth set of paired hypotheses. The null hypothesis is rejected. That is, there is significant relationship between political instability and the cumulative probability of default.

The inequality- adjusted human development index variable has negative coefficient of -89.61, R-sq of 24.2% (Fig.9) and p-value of 0.025 found to be statistically significant at 5% level of significant. The p-value of 0.025 is less than the level of significant; therefore, there is no strong statistical evidence to accept the null hypothesis in the ninth set of hypotheses. The null hypothesis is rejected at this level of significant. That is, there is a significant relationship between cumulative of default and the inequality- adjusted human development index.

The gender inequality index variable has positive coefficient of 32.69, R-sq of 3.7% (Fig.10) and p-value of 0.459, found statistically insignificant at 10% level of significant. The p-value of 0.459 is greater than 10% level of significant. From this fact, there is no strong statistical evidence to reject the null hypothesis, the null hypothesis in the tenth set of hypotheses in accepted. That is, there is no significant relationship between cumulative probability of default and gender inequality index.

Findings

The study aimed to determine factors that influence the sovereign creditworthiness of a country by examining the economic growth, human development and political instability as the local factors. The study found that GDP per capita, GDP growth, current account balance, unemployment rate, inflation rate, government budget, political instability index and inequality-adjusted human development index are country based factor that influence the sovereign credit risk of a country.

The GDP per capita, GDP growth, current account balance, government budget and inequality- adjusted human development negatively influence the sovereign creditworthiness of a country. That is, the

countries with high GDP per capita, GDP growth, current account balance, government budget and inequality-adjusted human development index have lower probability of honor their debts obligation. This implies that the developed countries are safer regions for lending or investing than developing countries, since they have lower probability of default.

Unemployment rate, inflation rate and political instability index are positive related, that countries with high unemployment rate, inflation rate and political instability index have the higher probability of default their debts. This implies the developing countries which most of them faces the problems of high unemployment rate, inflation rate and political instability index not safe area for investing. They have high level of probability of default.

The external debt, inflation rate and gender inequality index found that, they have little influence on the sovereign creditworthiness of a country. These factors are tested and found that were not statistically significant.

The pre-request factors that a country should be considering on sovereign creditworthiness appraisal are the GDP per capita, GDP growth, current account balance, government budget and inequality-adjusted human development index which are negatively related to probability of default. The unemployment rate, inflation rate and political instability index that positively related to probability of default also proven to be pre-requisite factors.

Discussions of Findings

The findings of this study generally conclude that the country local factors namely economic growth, human development and political instability affects the level of probability of dishonoring its debts. The finding that, GDP per capita, GDP growth rate, current account balance, government budget and Inequality-adjusted human development index have a negative relation with the probability of a country to dishonor its debts obligations is supported by other researchers in this field. Canuto, Santo and De Sa Parto[4],Erdem and Varli [17], Jaramillo and Tejada [19], Valle and Marin [20], Zheng [26], Borio and Packer [23], Mora [18] confirm these findings. The finding that, unemployment rate, inflation rate and political instability index is positively related to the probability of country to dishonor its debts obligations. Baranenko [28] and Borio and Packer [23] confirm this finding. They suggest that, the countries in political instability have high probability of default their debts. The

political instability in a country causes the slow growth of economy. The inflation rate deteriorate the purchasing power of a local currency, this leads the country to have a burden of debts, so as to fail to repay [18].

The findings of this study lay down the preliminarily factor or guideline for the lending decisions in lending firms. The findings will be generalized due to fact the methodology used to collect data and their sources are credible. The cross country survey strategy used by the study is a powerful method for findings generalization. From these facts, the findings of this study as supported by various researchers contribute value in the field.

Conclusion and Recommendations

The sovereign credit risk of a country depends on the economic growth, human development and political stability of a country. This study aimed to investigate the factors that influence the potency (ability) of a country or firm to honour its debt obligations. The study objectively target to meet two objectives. The first objective is to examine the relationship between country cumulative probability of default (CPD) and country local factors, and the second is to determine the pre-requisite factors for sovereign creditworthiness appraisal for a foreign lending firm or country. The study met their objectives; the findings profile that GDP per capita, GDP growth rate, current account balance, government budget proxy of economic growth and inequality-adjusted human development index proxy of human development, found to have a positive impact in the sovereign creditworthiness appraisal in a country. That is, it favors the country for keeping low the probability of dishonoring its debts obligations.

This finding profiles that political instability of a country, inflation rate and unemployment rate positively related with the ability or probability of a country to dishonor its debt obligations. That is a country with high political instability index, inflation rate and unemployment rate is more

likely have high level of sovereign credit risk. This met the demand of the first objective of this study. This finding addressed the second objective in a relevantly. The pre-requisite factors for sovereign creditworthiness appraisal of a country are all factors proved to have influence on the creditworthiness of a country, negatively or positively. These factors are GDP per capita, GDP growth, current account balance, government budget, unemployment rate, inflation rate, political instability index and inequality-adjusted human development index. A country or a firm appraising the creditworthiness of a foreign country or firm should adhere on these factors that have an influence of the ability or probability of dishonoring debts obligations [30,31].

The study used cross country survey strategy to which is powerful strategy for generalization, in both developed and developing countries. This finding lays down the key country local factors that should be observed or acting as the yard stick or benchmark for a country to meet its debts obligation.

The study recommends that lending firms in making their decisions should use these factors as a preliminary gauge for sovereign creditworthiness appraisal. The factors should be used as a pre-requisite for the risk aversion strategies in risk management. A country also should run a regular self assessment of their ability of honoring their debt obligations, the assessment will be ease and cheaper due to fact that all the variables required are locally obtained.

Proposed Further Study

This study recommends further study should be carried out to establish the optimality of these local factors that influence the sovereign credit risk of a country. The establishment of these factors is a primary foundation of overcoming the problem of overlooking the creditworthiness of a borrowing countries or firms. The issue on how much level or value of these local factors should be considered to be optimal for a country or to be a safe zone of credit risk is not solved by this study in the fact that was not the primary or core objective of the study.

References

1. Moody's (2003) Moody's rating symbols and definitions. Moody's Investors services. Inc.pp.3.

2. Moody's Investors Service (2008) Sovereign Bond Ratings, Moody's Investors Servic.

3. Moody's (2009) Moody's Rating Symbols and Definition. Moody's Investors Services, Inc., USA.

4. Canuto O, Dos Santos PFP, De sa Porto PC (2004) Macroeconomic and sovereign Risk rating,FEA, University of Sao Paulo, Washington.

5. Cantor R, Packer F (1995) Sovereign credit ratings. Current issues in Economic and Finance 1(3):1-6.

6. Cantor R, Packer F (1996) Determinants and Impacts of Sovereign Credit Ratings. FRBNY Economic Policy Reviews, 37-54.

7. Afonso A (2003) Public sector Efficiency: An international comparison. European Central Bank. Working paper series, 242.

8. Afonso A, Furceri D, Gomes P (2011) Sovereign Credit ratings and Financial Markets Linkages Application to European Data. Working paper series, Macroprudential Research network 1347

9. Afonso A, Gomes P, Rother P (2011) Short and Long-run determinants of sovereign debt credit ratings. Int. J. Finance and Economics, 16(1):1-15

10. United Nations Environment Programme Finance Initiative. (2012) Global Footprint Network, Geneva, Switzerland.

11. Moody's Investors Service (2010a) Sovereign Methodology Update: Narrowing The Gap–A Clarification of Moody's Approach to Local vs. Foreign Currency Government Bond Ratings," Moody's Investors Service, February.

12. Moody's Investors Service. (2010b) The Performance of Moody's Structured Finance Ratings: March 2010 Quarterly Update, Moody's Investors Service.

13. Standard & Poor's ((2008a) "Sovereign Credit Ratings: A Primer," Standard & Poor's Ratings Direct, May 19.

14. Standard & Poor's (2008b) Corporate Rating Criteria. Standard & Poor's, Division of the Mcgraw-Hill Companies, Inc.

15. Standard & Poor's (2009) Understanding Standard & Poor's Rating Definitions. Standard & Poor's Ratings Direct.

16. Longstaff FA,Pan J, Pedersen LH, Singleton KJ (2011) How sovereign is sovereign credit Risk? American Economic Journal: Macroeconomics 3:75-103.

17. Erdem O,Varli Y (2012) Understanding the sovereign Credit Rating of Turkey. J. Money, Investment and Banking. 23, 16-25.

18. Mora N (2006) Sovereign credit ratings. guilty beyond reasonable doubt? J. Banking and Finance, 30:2041-2062.

19. Jaramillo L, Tejada CM (2011) Sovereign Credit ratings and Spreads in Emerging Markets: Does Investment Grade matter? IMF working paper, 11/44.

20. Volle CT, Marin JLM (2005) Sovereign Credit Ratings and their Determination by the Rating Agencies. Investment Management and Financial Innovations, 4:159-73.

21. Afonso A, Gomes P, Rother P (2007) What "Hides" Behind Sovereing Debt Ratings? European Central bank, Working Paper, No.711/2007

22. Davies M (2011) The rise of Sovereign credit Risk: Implications for financial stability. Bank of International settlements Quarterly reviews, September 2011:59-70.

23. Borio, C and Packer, F (2004) Assessing new perspectives on country risk. Bank of international Settlements Quarterly reviews, December 2004, 47-65

24. Nognes J, Grandes M (2001) Country risk: economic policy, contagion effect or political noise? J. Applied Economic 4(1):125-62.

25. Anagnostis K (2011) FDI and impacts of country risk- factors affecting the influx of fdi in emerging economies: Scientific Bulletin- Economic Science, 10(16):2.

26. Zheng L (2012) Are sovereign CREDIT ratings objectives? A tale of two agencies. J.Applied Finance and Banking. 2(5):43-61.

27. Wu E, Kim SJ (2010) Sovereign Credit Ratings, Capita Flows and Financial Sector Development in Emerging Markets. Forthcoming in Emerging Markets Reviews.

28. Baranenko,I.A (2011). Sovereign Credit ratings and their Influence on Foreign Direct Investments Inflow. Economic Herald of the Donbas 4(26), 122-126.

29. Howell LD International country risk guide methodology, PRS Group, Inc.

30. International Monetary Fund (2010) GlobalFinancial stability report: sovereign, funding and systemic liquidity

31. Central Intelligence Agency (2011). The World factbook.