Housing Market Constraints in the West African Region

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Doi:10.5901/mjss.2012.v3n11p241

Abstract: This study examines the constraints limiting lending institutions' participation in housing finance supply in the West African region. It also recommends actions necessary for addressing these constraints. It is based on regression analysis of secondary data related to factors necessary for lending institutions' participation in formal housing finance supply. The ratio of the private credit to GDP of West African countries between 2008 and 2010 is regressed against the independent variables Inflation rate, procedures to register property, time to register property, cost to register property, strength of legal right index and depth of credit information system. The private to credit ratio is used as a proxy for the mortgage to GDP ratio due to lack of access to data for most of the West African countries. The regression analysis showed that two factors: 'depth of credit information system' and 'strength of legal right index' are statistically significant to explain the lack of depth of the private credit to GDP ratios in the region. It is concluded that the housing market across several West African countries could be strengthened if the governments act to substantially improve the legal strength of lenders is increased through stronger foreclosure laws, and where lenders can effectively access, collect, share and disseminate credit information on prospective borrowers in the region. This can be addressed by setting up institutions to convert credit information from informal thrift and savings societies which are active in the region, to formal private and public credit bureaus.

Keywords: Housing, housing finance, housing market, Housing supply ,West Africa,

1. Introduction

It is evident from the literatures that national governments in both developed and developing countries are increasingly transferring responsibility for housing finance and provision -for even low income groups -to formal, wholly private and/or quasi-private institutions (Malpass & Victory 2010, Ronald 2010, Nubi 2010). These institutions operate with various structures and access funds through a variety of means. Wholly private institutions could be structured as savings and loans corporations, building societies, mutual savings banks, credit financiers, pension funds and life insurance companies. Quasi-private institutions are government sponsored and are structured to access market funds at favorable rates in return for which they operate according to government influenced policies. However, there are also wholly owned public institutions that have been mandated to provide housing finance for specific customers at government specified terms. These generally operate as specialized housing financial institutions and are usually few in number relative to the general population they serve (See Renaud 1984 for an historical account of these structures globally).

Apart from those that obtain direct government funds, these organizations access funds from two principal systems (Renaud 1984): mobilization of funds directly from the general public and indirect mobilization of funds through capital market instruments such as securities and bonds. In the former system otherwise referred to as the 'British-US model' (Renaud 1984) or 'deposit taking' system (Lea 1998); the institution provides a bundled service of originating, servicing and retiring the loans. It does this by seeking savings from households and corporations for onward distribution to qualified loan-seeking households. This method is popular in Britain, Malaysia, Thailand and Latin America (Lea 1998). Where funds is mobilized through the capital market (as widely done in the US), wholesale organizations are established to facilitate flow of funds to a primary mortgage sector (the deposit taking institutions). These wholesale organizations do not lend directly to the general public but act as liquidity windows, rediscounting or secondary mortgage instruments. They ensure, through the sales and refinancing of general obligation bonds and residential backed securities in the capital market, that primary market lenders can access funds. With these structures, the challenge of managing the financial flows to and from households; and between institutions and the regulatory frameworks set up to manage the risks associated with expanding investment on real estate' (Forrest 2008:6) have been mastered; and several products have been designed in response to the effective demand of various income classes.

However, in most developing countries, housing finance is not formalized and market-driven (Centre for Affordable Housing Finance in Africa (2011), Tomlison (2007)), with the result that even high-income lenders resort to self-build as

there is limited housing for sale in the open and resale market, dearth of mortgage finance systems and generally weak depth of financial markets (Chiquier, Hassler & Lea 2004). In these countries, the supply of funds by lending institutions to households and homebuilders and secondly, the ability of the national macro-economic policy to guarantee the mobilization of funds to the lending institutions remain critical challenges that has led to their limited participation in housing finance markets (Chiqiuer *et al*2004, Erbas and Nothaft 2005, Okoroafor 2007, Nubi 2010).

This study examines the constraints limiting lending institutions' participation in housing finance supply in the West African region. It also examines how governments across West Africa can tackle these constraints. However, it is acknowledged that West Africa countries are not entirely homogenous in governance and historical background. For instance, the most populous country in Africa (Nigeria) is situated within West Africa. Ghana is a promising economy currently recording some measure of political stability. Liberia, Sierra Leone and Cote d'Ivoire have witnessed varying degrees of civil conflicts that had truncated their development in the last decade but are now recording positive recovery reforms; Sierra Leone, as at 2007/2008 had the lowest human development index (UNDP 2010). However, a heritage of common developmental challenges permits the use of these countries as a case-study. The focus on West Africa also comes from the need to fill the geographical imbalance in the research and reportage of housing problems in the developing world generally.

The structure of the paper is as follows: the general criteria for lending participation on housing markets are discussed after this introduction. A few housing demand and supply indicators in West Africa are presented in the third section. The study methodology is highlighted in section four. A discussion follows in section 5 where the results of the regression analysis carried out for the study is presented. Section 6 concludes.

2. Criteria for Lending Institutions Participation in Housing Markets

Past research in the area of comparative housing finance systems include Warnock & Warnock's (2008) analyses of the determinants of housing finance in sixty two countries. Although the sample consisted of both developed and developing countries; only one West African country was featured (Ghana). Their study showed that factors such as ability to value property, information on the credit worthiness of borrowers, macro-economic stability and ability to secure collateral are responsible –with various degrees of seriousness-for depth of mortgage markets in particular and the financial markets in general. Erbas & Nothaft (2005) focused on five Middle East and North African countries; presenting a case for the introduction of mortgage suppliers in the region. Djankov, McLeish & Shleifer (2006) investigate cross-country determinants of private credit using data on legal credit or rights and private and public credit registries in 129 countries between 1978 and 2003. Chiquier & Lea (2004) review the experience in developing mortgage securities in emerging countries with case-studies of eight emerging economies spread across Latin America, Asia, Eastern Europe and the Middle East. Butler, kravkova and Safavian (2009) articulates regulatory efficiency in the mortgage registration and title transfer process as well as ease of foreclosure in 42 countries and maintains that the size of housing finance markets depends on land rights, income distribution, macro-economic stability, financial market depth, urban planning policies and the availability of other sources of long-term finance. Renaud (2004) examines the constraints on mortgage finance in emerging economies and identifies five structural factors determining market efficiency. These are market size, macro-economic stability, degree of development of financial market infrastructure, legal and structural path dependency in the development of this financial infrastructure and the feasibility of domestic risk-based pricing for medium and long term financial instruments.

Other factors, such as savings and deposit structures, capital market sophistication and government liquidity windows (secondary market structure) are necessary to promote the mobilization of funds (Renaud 1984) for the housing finance institutions. For the purpose of this study, five institutional factors (selected due to availability of data) shall be examined for the West African region. These are: Strength of mortgage lending, strength of the financial market, access to credit information, ease of registration of Property and ability to secure collateral by lenders.

Strength of mortgage lending

The ability to utilize personal savings for formal housing finance is dependent on the level and distribution of per capita income in each country. Where per capita income is low, savings at all income levels will be lower compared to if the per capita income is high. Where per capita income is high, but unevenly skewed amongst the population, the strength of mortgage lending in the country determines the ability of financial institutions to gather these savings and thereafter disburse effectively across all geographical locations of the country. Where per capita income is high and evenly spread across the nation, savings would be concurrently higher. The predominance of any of these scenarios in a country would

affect the extensiveness and diversification potential of institutions that can be developed to support the housing finance system (Renaud 1984). It would also affect the level of development of financial instruments (such as mortgages) that could be utilized to offer loan facilities for housing at reasonable terms.

The aggregate domestic savings and the methods chosen to mobilize resources could therefore constitute macro-economic constraints of significance to the potential growth of housing finance institutions. A high per capita income which is ideally evenly spread with high aggregate domestic savings are therefore important conditions for the successful agglomeration of funds by mortgage lenders in particular.

Strength of the financial market

To have appreciable macro-economic impact, it has been argued that a nation's housing finance policy should be firmly imbedded in its financial sector (Lea 1998, Warnock & Warnock 2008). A well-functioning housing finance system could emerge from this. The emerging system would have the capacity to promote long-term liability, ability to value properties and to seize it in the case of default, inform on the credit worthiness of potential borrowers. To achieve this, macro-economic stability and factors to promote the mobilization of funds (savings and deposits, capital markets, a government liquidity window or secondary market) should exist. The vibrancy of a nation's capital market in particular-as suppliers of long term capital- can also be seen as an indicator of the maturity of its financial system. Similarly, the existence and extent of sophistication of these capacities contribute to the depth of a country's financial system.

Macro-economic stability

Stable macroeconomic conditions where inflation rates are low and stable over time, with a balanced distribution of income and single digit interest rates are pre-requisites for market driven housing finance systems. This would facilitate the development of finance products that could be suitable for various income classes, and also reduce the risk that borrowers would default. Where inflation is high and volatility of the macro-economy is also high, lenders are predisposed to offering discriminatory, variable rate loans in order to protect themselves from interest rate risks.

Access to Credit Information

Formal lending organizations require access to information on potential borrowers in order to objectively verify their repayment capacity and the soundness of their collateral. Credit information could be accessed from private credit bureaus or public registries or both. These registries should possess credit information on every adult. In a matured regulatory system these credit registries can verify and share borrower credit history information and thus have enhanced risk taking capacities. This also facilitates the development of various products to suite various classes of borrowers (The World Bank 2009).

Ease of Registration of Property

The ability to secure property relates to the ability of lenders to repossess mortgaged property in the case of default, increasing their legal strength and providing an incentive for continuous lending activities. Two broad indicators could be used to measure this in a country: the quality of the property registration system and the legal strength of lenders to act in case of defaults. A formal land registration process also allows legal titling of properties which is important for borrowers seeking loans and also for lenders seeking repossession, foreclosure and resale. However, a lengthy, costly, complex and bureaucratic property transfer process reduces the ability of lenders to participate in the housing finance market by reducing the number of mortgageable properties, while also constraining property transfer processes.

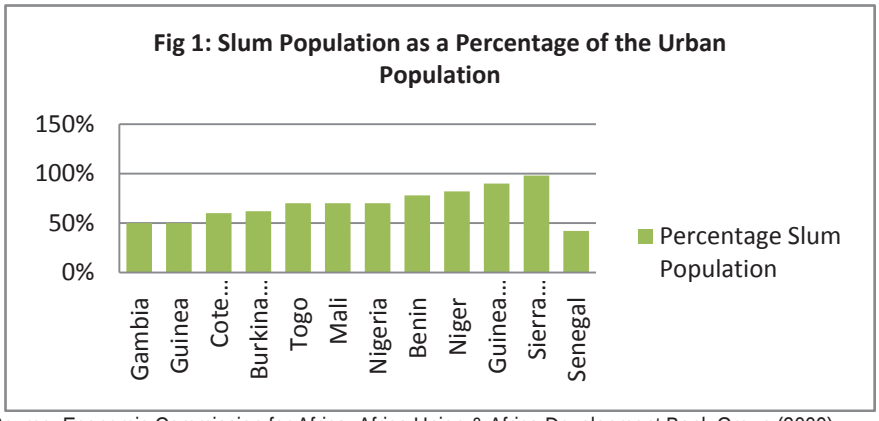
Ability to secure collateral by lenders

The ability of lenders to secure a credible collateral against defaults, their ability to legally, easily and promptly seize the collateral and institute foreclosure proceedings in the event of default is an important hedge in the mortgage lending process. Warnock & Warnock's (2008) study showed that across developed countries, the variation in the strength of the legal right to secure a foreclosure accounted for the depth of the housing finance system, even though all the countries tended to exhibit low macroeconomic volatility and extensive credit information systems. Butler et al (2009) made a

similar conclusion, noting that ease of foreclosure is one of the most significant factors accounting for regulatory efficiency in housing finance markets.

3. Housing Demand and Supply Indicators in West Africa

Housing need in West Africa can be estimated by the proportion of the urban population living in substandard housing in slum settlements as a result of various factors ranging from poverty to lack of access to alternatives. As shown in figure 1 below, As at 2005 estimates, slum population as a proportion of urban population range from 42% in Senegal, to 50% in Guinea, 70% in both Togo and Nigeria and 98% in Sierra Leone (ECA, AU & ADBG 2009).



Source: Source: Economic Commission for Africa, Africa Union & Africa Development Bank Group (2009)

Kihato (2009) further shows the financial extend of demand for housing finance as shown in table 1 below. The funds required for satisfying urban housing demand across West Africa ranges between ten million US dollars in Gambia and 1.5 trillion in Nigeria. This shows the financial implication of the housing need and also indicates that there is a potential investment outlet in the housing sector in the region.

Table 1: Financial Estimate of Housing Need across some West African Countries

	Country	Population	Estimated minimum demand	Urban demand for finance ($)
1	Nigeria	144 700 000	2 039 355	1 427 548 847.20
2	Cote d'Ivoire	18 900 000	440 062	308 043 400.00
3	Ghana	23 000 000	315 161	220 612 933.33
4	Togo	6 400 000	188 707	118 885 656.96
5	Mali	12 000 000	95 552	66 886 500.00
6	Senegal	12 100 000	91 989	64 392 328.00
7	Benin	8 800 000	87 442	61 209 727.46
8	Liberia	3 600 000	63 707	44 594 655.00
9	Burkina Faso	14 400 000	62 140	43 497 801.29
10	Niger	13 700 000	52 577	36 804 022.50
11	Gambia	1 700 000	15 052	10 536 420.45

Source: Kihato (2009)

However, while the housing need has been established to be in existence in the region (table 1) above, the effective demand required to satisfy the need may not be sufficient to provide an incentive for market participation.

In table 2 below, it is shown that across West Africa, the cheapest housing built by a public sector organization is not affordable to its citizens.

Table 2: Housing Market indicators across selected West African countries

Country	Cheapest House(USD)	Monthly Repayment for cheapest Mortgage loans (USD)	% of population earning below $60/month	Housing need per annum
Benin	14,130	22	75.3	n/a
Gambia	31,000	1,500	56.7	n/a
Ghana	16,447	250	53.6	65,000
Niger	12,889	60.18	85.6	40,000
Nigeria	16,700	200	83.9	720,000
Senegal	n/a	n/a	60.4	200,000

Source: Centre for Accessible Housing Finance in Africa (2011)

The table also shows that there is a high rate of dependent population, who live so much under the poverty line, as high as 75% in Benin, 85% in Niger and 83% in Nigeria. If the monthly repayment mortgage is compared to the earning capacity across the countries, it is evident that the effective demand necessary to meet the housing need identified in table 1 is minimal. This might be due to the basis of employment opportunities available. Available data (table 3) shows the distribution of employment across the agriculture, industry and services sector in sub-Saharan Africa (of whichWest Africa is a part) and indicates that most of those employed are in the informal (Agricultural) sector.

Table 3: Average Sectorial Share in Employment: World and Africa (1998-2008).

Sector	Agriculture	Industry	Services
World	36.7	21.7	41.5
North Africa	34.2	35.6	44.6
Sub-Saharan Africa	64.1	9.8	26.0

Source: Economic Commission for Africa, Africa Union & Africa Development Bank Group (2009)

The informal sector is characterized by lower incomes, limited protection, and frequent spells of unemployment and lack of access to institutions that shape policies (UNECA 2010). Lower incomes in a largely informal economy could often result in lower propensity to save in the formal sector. This affects the potential volume of savings available for future lending activities. The bulk of the demand base of West African countries (like many emerging nations) is from these small-scale producers and enterprises which are non-corporate, unlicensed and unregistered business concerns with farmers, often artisans, trades people as main actors (Todaro & Smith 2004). They require access to typically small loans for both business and housing needs, but do not necessarily possess quality collateral, operate on the margin in small scale, and have little or no verifiable credit history to access finance in the formal financial sector. These people who in countries like Nigeria constitute 57% of the urban workforce; in Burkina Faso are 82%, in Cote D'Ivoire are 42%; Mali (60%), Niger (81%), Ghana 38% of the working male population (African Economic Outlook 2010, Okunlola 2007, UN-Habitat 2007) do not generally satisfy the lending requirements by formal lending institutions, even though other factors such as a significant annual growth rate, high slum population indicative of high urban housing need both indicate present and future need for finance that could be met by the private sector.

4. Study Methodology

In the analysis that follows, statistical means is employed to determine the most significant deterrent factors to the participation of formal lenders in the West African region. To do this, the private credit to GDP ratio is utilized as the dependent variable while inflation, depth of credit information, property registration index, and depth of legal strength are used as independent variables. While it is recognized that the ratio of mortgage debt to GDP is a more appropriate measure of access to formal sector funds in the mortgage market of any country; this data was not available for most of the West African countries (studies such as Warnock & Warnock 2008 had similar limitations). Therefore, the depth of

private credit to GDP ratio is used as a proxy. The rationale is that the ratio captures all the private sector debts in the market: of which mortgage debts are a component. Its use as a proxy would therefore give an insight into the upper limit of the mortgage market and its contribution to the national GDP.

Data is gathered for these factors from a variety of sources, principally the Doing Business Reports of the World Bank and the African Economic Outlook database between 2008 and 2010 and Djankov et al (2007) (see table 4 below), averaged and subjected to regression analysis. Three 'comparable' countries with significant private credit to GDP rations are also introduced to further illustrate the importance of the independent variables. These are Uruguay, Malaysia and South Africa. The proposition being tested is that these three 'comparable' countries possess significant private credit to GDP ratios because they had more matured mortgage markets (based on the afore-mentioned criteria) and that should West African countries improve on their ratings in these factors; the ratio of private credit to GDP ratio would be higher. Because all the independent variables also relate to the institutional factors necessary for lenders to be active in the housing market; the higher ratio of private credit to GDP could be attributed to higher lending activities in the housing market.

Table 4. Average ratings of West African countries on the independent variables over the 2008-2010 period.

Country	PC/GDP	Inflation	PREG(6.5)	TREG(days).	CREG (%)	CInfoP (%)	CInfoPr (%)	LRT (3.73)
Benin	0.12	3.67	83.93	11.7	2.95	9.73	1	3.33
Burkina Faso	0.12	6	69	11.87	2.68	2.2	1	3.33
Cote d'Ivoire	0.14	6.33	62	14.9	4.08	2. 8	1	3
Gambia	0	5	371	5.6	5.43	0.0	0	4.67
Ghana	0.12	5	34	1.2	10.68	0.0	0	6.33
Guinea	0.04	6	104	14.37	10.55	0.1	0.03	3.33
Guinea Bissau	0	9	211	6.13	1.58	0.7	1	3
Liberia	0	12	50	14.27	6.13	0.2	0.67	4
Mali	0.17	5	29	20.5	2.43	3.57	1	3
Mauritania	0.2	4	49	5.2	4.75	0.2	1	3.33
Niger	0.05	4.33	34	10.33	3.68	0.93	1	3
Nigeria	0.15	13.67	82	21.67	11.58	0.03	0	8
Senegal	0.19	6	120.67	20.23	1.13	4.27	1	3
Sierra Leone	0.03	7.33	185.67	13.4	11.2	0.0	0	5
Togo	0.16	5	295	13.47	3.23	2.67	1	3
Regional Averages		3.76	6.5	118	112.32	1.58%	0.65%	3.73
Comparable countries								
Malaysia		2.33	5	144	3.2	48.63	27.33	10
Uruguay		3.45	8.3	66	7.1	15.77	96.33	4
South Africa		5.5	6	24	8.8	0	57.2	10
Averages		3.76	6.43	78	6.37	21.47	60.29	8

Table 4 above presents data on private debt outstanding expressed as a share of nominal GDP. All data are for the 1999–2010 period, but not all years are available for all countries. Average Private Credit to GDP (PC/GDP) for the 1999–2003 period is used as the dependent variable. The independent variables are Inflation rate with the available period from 2009 to 2012. Procedures to register (PREG), time to register property (in days-TREG) and cost to register property (CREG) -measured as a percentage of property value- are all for the period of 2008 to 2010 and collectively make up the ease of registration of property index. Similarly, strength of legal right (LRT) and credit information index which measures percentage of adults covered by a public credit information bureau (CInfoP) and by a private credit information bureau (CInfoPr) were collected over the 2008 to 2010 period.

Table 5: Summary Statistics

	N	Mean	Standard dev.	Minimum	Maximum
West-African Countries					
GDP(Y)	12	0.1242	0.5712	0.03	0.20
Inflation(X1)	15	5.4728	3.6991	1.13	11.58
Procedure of reg.(X2)	15	6.5543	2.8946	3.67	13.67
Time to reg.(X3)	15	118.6827	102.8786	29	371
Cost of reg.(X4)	15	12.4813	5.6606	3.60	21.67
Legal rights.(X5)	15	3.9467	1.4808	3	8
Public reg.(X6)	15	1.8313	2.6286	0	9.73
Credit info.(X7)	15	0.6667	0.4544	0	1
Country size.(X8)	15	39716.2667	95861.4942	2266	384084

Table 6: Main Regression Results

Variables	T– Statistic	Standard Error	Significant (P-value)
Inflation	0.254	0.047	0.681
Procedure-to registration	-0.413	0.037	0.816
Time to reg.	0.362	0	0.708
Cost to reg.	0.639	0.013	0.741
Legal rights	0.781	0.126	0.492
Public reg.	-0.513	0.011	0.643
Credit info.	0.604	0.610	0.588
Country size	-0.276	0	0.801
N	15		
Adjusted R^2	-0.404		

The presence of multi-co linearity in the data necessitated a reduction of independent variables, in order to determine the highly significant ones. The resulting adjustment showed that legal rights and credit information systems appeared to be the two most significant factors. A model specification is generated on this basis.

Table 7 Regression Results After Adjustment: West African countries.

Variables	T– Statistic	Standard Error	Significant (P-value)
Legal rights	2.459	0.015	0.036
Credit info	3.111	0.054	0.013
N	12		
Adjusted R	0.414		

4.1 Model Specification for West African Countries.

Y = Bo + B1X1 + B2X2 +B3X3 + B4X4 + B5X5 + B6X6 + B7X7 + B8X8 + e.
Where;
Y = Private credit to GDP.
X1 = Inflation rate.
X2 = Procedures to register.
X3 = Time to register property (days).

X4 = Cost of registration.
X5 = Strength of legal right index.
X6 = Public registry coverage (% of adults).
X7 = Depth of credit information.
X8 = Country size.
e = Stochastic variables.
Bo = Autonomous variable.
B1 = Co-efficient of X1.
B2 = Co-efficient of X2.
B3 = Co-efficient of X3.
B4 = Co-efficient of X4.
B5 = Co-efficient of X5.
B6 = Co-efficient of X6.
B7 = Co-efficient of X7.
B8 = Co-efficient of X8.

Regression Result = Y = -0.583 + 0.012X1 – 0.015X2 + (0)X3 + 0.008X4 + 0.098X5 – 0.006X6 + 0.368X7 – 0.000000042X8
Standard Error (S.E) = (1.283) (0.047) (0.037) (0) (0.013) (0.126) (0.011) (0.610) (0)
T-Value = (-0.0454) (0.254) (-0.413) (0.362) (0.639) (0.781) (-o.513) (0.604) (-0.276)
R^2 = 0.617, Adjusted R^2 = -0.404, Durbin Watson = 2.747

4.2 Interpretation of Result

The dependent variable; Private Credit to GDP is regressed against the independent variables Inflation rate, procedures to register property, time to register property, cost to register property, strength of legal right index, public registry coverage and private bureau coverage. The R^2 value shows 61.7% of the variability in the dependent variables as explained by the independent variables. Thus, the remaining 38.3% is caused by the unexplained variation due to non-inclusion of the other variables.

The adjusted R^2 value shows -40.4% if a new variable is introduced into the model. This will reduce the R^2 and as such the assumed variable is detrimental.

From table 7 above, it could be deduced that only depth of credit information and strength of legal right index satisfy the condition of p=<0.05 and we can conclude that these two variables are statistically significant.

West African economies however lag behind in several of the independent variables. For instance, on the state of depth of credit information, the West African market average is below the minimum level found in comparable countries, mostly at point 1. The point estimates in Table 7 suggest that bringing their legal rights and credit information systems up to the comparable country average would enable a 20% increase of legal right's point (of GDP) and a 100% in credit information system's points respectively. This would bring about an increase in size up to the comparable economies' housing finance systems.

Particular countries can be used to exemplify this. For example, Nigeria, with private credit ratio being about 0.15% of GDP, is on no par with any of the comparable countries and it lags behind some of its West African peers (Mauritania, Mali, Senegal and Togo). Nigeria scores 8 on legal rights and 22 approximately on cost to register on the average. It has no public credit information Bureau and the coverage of three newly established private information is yet to be established. Therefore it scores a zero in respect of depth of credit information. If current Malaysian standards on legal rights and credit information index are applied to Nigeria; the estimates in the model specification suggest that it could add almost 125% percentage points to its private credit to GDP ratio sector. Ghana could add 86.1%, Guinea 56% and Niger Republic 95% respectively to their private credit to GDP.

That is,
(1.) Y = -0.583 + 0.012X1 – 0.015X2 + (0)X3 + 0.008X4 + 0.098X5 – 0.006X6 + 0.368X7 – 0.000000042X8……*Equation 1*

If we substitute the Nigerian parameters in the above equation from the independent variables;

Y = -0.583 + 0.012(12) – 0.015(13.7) + 0(82) + 0.008(22) + 0.098(8) – 0.006(0) + 0.368(0) – 0.000000042(384084)…….*Equation 2*

Y = -0.583 + 0.144 – 0.2055 + 1.76 + 0.784 – 0.16131528
Y = 1.738.; that is, nominal private credit to GDP is 1.738. As legal right and credit information are statistically significant, we substitute legal right (10) and credit info (6) of Malaysia in Equation 2 to determine the increase in private credit to GDP.
Y = -0.583 + 0.012(12) – 0.015(13.7) + 0(82) + 0.008(22) + 0.098(10) – 0.006(0) + 0.368(6) – 0.000000042(384084)…….*Equation 3*

Y = -0.583 + 0.144 - 0.2055 + 1.76 + 0.98 + 2.208 – 0.16131528
Y = 4.142
Difference in percentage = 4.142 – 1.738/1.934 * 100/1
= 1.243 * 100 = 124.3%.
So, the substitution will bring about 124% increase in the Private Credit to GDP ratio for Nigeria.

4.2.1 Substitute Ghana's parameters into equation 1.

Y = -0.583 + 0.012(10.6) – 0.015(5) + 0(34) + 0.008(1.2) + 0.098(0) – 0.006(0) + 0.368(6.3) – 0.000000042(24333)…….*Equation 4*
= -0.583 + 0.12816 – 0.075 + 0.00096 + 2.3184 – 0.0001021986
Y = 1.789.

Substitute Malaysia's score on the legal right index (10) and the credit information index (6), while holding others constant into Equation 4.
Y = -0.583 + 0.12816 – 0.075 + 0.00096 + 0.098(10) + 0.368(6) – 0.0001021986
Y = 2.65.
Ghana's private debt to GDP ratio would be increased by (2.65-1.789/2.65*100) = 86.1%.

4.2.2. Substitute Guinea's parameters into equation 1.

Y = -0.583 + 0.1266 – 0.09 + 0.11496 + 0.00098 – 0.00004336 – 0.000018 + 1.2144…….*Equation 5*
Y = 0.783.

Substitute Malaysia's score on the legal right index (10) and the credit information index (6), while holding others constant into equation 5.
Y = -0.583 + 0.1266 – 0.09 + 0.11496 + 0.98 – 0.000018 + 1.2144 – 0.00004336
Y = 1.76.
The increment is (1.76 – 0.783)/1.76*100 = 55.5%.

4.2.3 Substitute Niger's parameters' into equation 1.

-0.583 + 0.012X1 – 0.015X2 + (0)X3 + 0.008X4 + 0.098X5 – 0.006X6 + 0.368X7 – 0.000000042X8
Y = -0.583 + 0.012(3.68) – 0.015(4.34) + 0(34) + 0.008(10.33) + 0.098(3) – 0.006(0.93) + 0.368(1) – 0.000000042(15891)……*Equation 6*
Y = -0.583 + 0.04416 – 0.0651 + 0.08264 + 0.294 - 0.00558 + 0.368 – 0.000667422.
Y = 0.13.

Substitute Malaysia's score on the legal right index (10) and the credit information index (6), while holding others constant into Equation 6.
Y = 2.66.

This substitution has induced a 95% increment in the ratio of the private credit to the GDP for Niger.

This model therefore shows that the private depth to GDP (of which the depth of mortgage depth is a component) in these West African countries can be improved substantially if the legal strength of lenders is improved, and lenders can effectively access, collect, share and disseminate credit information on prospective borrowers in the region.

5. Discussion

The ability of any country to effectively and efficiently utilize the systems and structures of market driven institutions for housing finance depends on the level of sophistication of its financial system, stability of the political economy and the macro-economic conditions under which they will be required to operate (Chiquier, Hassler & Lea 2004). The functions which these institutions would perform for the housing market and the entire national economy are important, more so in developing countries where the need for housing finance affects a predominantly large section of the population.

Renaud (1984) and Forrest (2008) identifies a few of these functions: They are expected to mobilize household savings and investor funds into mainstream housing finance mechanisms such as primary mortgage banking and secondary market investments. They are also expected to drive the savings culture across all income groups so as to increase the volume of financial savings into the national economy and then take charge of the allocation of the supply of loan-able funds to loan-seekers. Macro-economic stability which also generates employment in the formal sector are important criteria to actualize this function.

The market allocates funds between and within various sectors of the economy: lending institutions are expected to provide policy control for the allocation of funds to the housing sector, to reallocate funds from surplus to relatively deficit areas by developing products that will ensure that all income strata of the economy are well served. In addition, they are also expected to facilitate the flow of international and domestic funds into the sector. The need for flexibility in the legal framework to ensure ease of foreclosure proceedings-for instance- enhances the profile of housing as an alternative investment outlet.

As the channel of financial infrastructures improves, housing systems would be able to operate within a globally integrated financial market, which offers opportunities for global competition. Housing finance institutions are therefore expected to connect with global financial systems to improve their own competitiveness, while ensuring that relevant global standards (such as Property Valuation and Asset Accounting conventions) governing their operations are adhered to. Risk management strategies are paramount services to protect the market from shocks that could cause financial loss to investors and home-owners: this is an important duty given the increasingly globalized nature of real estate markets. In particular, risk management would also ensure that asset deflation or inflation, interest rate changes and investment flows into the housing sector are appropriately managed (Forrest 2008).

Most of these functions can be achieved through policy liaisons with government regulatory agencies. This is because the role of government in the housing market is still fundamental, despite the neo-liberal recommendation for government withdrawal from direct provisioning of key social infrastructures. When government participates directly in the housing market, it has the capacity to initiate, develop and nurture the institutions that ensure the efficient workings of the market. Synergized, the activities of government as 'enabler' and the private sector, as 'provider' should ensure that there is wider access to housing finance, increased housing supply, growth and development of the construction and real estate industry, increased employment opportunities, urban development and general national economic development. However, there are specific areas where the instrumentality of government is needed to strengthen the market.

Todaro & Smith (2009) recommend a series of 'dynamic incentives' to address the inappropriate credit history such as microfinance, ROSCAs, village lending and group lending. As these credit systems are inculcated in the culture of West Africans, it is possible for the government to link up their activities with the formal sector by creating opportunities for their registration, collecting credit information from them about their participants, while also incentivizing the process through the provision of loan insurance and guarantees. Loan insurance and guarantees also serve to incentivize the fund providers towards finance provision, and is provided by governments in developed countries to ensure that a cushioning effect can be had in case of default.

The regulation of financial institutions to ensure that activities such as lending criteria setting, governance and risk profiling is to be done by government and its agencies. Governments could also strengthen the market by creating (or facilitating the creation of) new institutions that would be designed to use resources available in the informal sector –such as credit information from thrift societies- and convert them to a form useful for the formal sector.

Macro-economic stability requires continuity in governance, which ensures that policy formulation, consolidation and implementation are more efficiently carried out. Continuity in governance does not however mean perpetuity in political offices; but rather requires that macro-economic stability is taken as a strategic goal for which co-ordinated set of action

plans are required. These strategies include employment generation, promotion of savings culture, and enhanced human capital development amongst others.

The legislative processes for foreclosure could also be loosened to ensure lenders have quick access to collaterals in case of default, while also protecting borrowers' rights. It has been suggested (Todaro & Smith 2009) that non-court based procedures be utilized in the ascertainment and enforcement of foreclosure rights to quicken the process and also reduce costs.

To have appreciable macro-economic impact, it has been argued that a nation's housing finance policy should be firmly imbedded in its financial sector (Lea 1994, Warnock & Warnock 2008, Renaud 2004). This position is advocated as a means of mainstreaming policies, reducing government direct intervention and hence ensuring that housing subsidies and direct provision do not distort the macro-economy. However, there is a need to ensure that the demand base of the people in the region is increased through more formalized employment generation activities. This could enhance the volume of savings in the macro-economy.

In well-functioning, market led housing finance system, the capacity to promote long-term liability (that is ability to value properties and to seize it in the case of default, inform on the credit worthiness of potential borrowers and macro-economic stability and factors to promote the mobilization of funds e.g savings and deposits, capital markets, a government liquidity window or secondary market) exist. All these are tied to the depth of each country's financial system. Developed economies in North America, Western Europe, Australasia and Japan- despite the subprime crisis- have proven to master the complexities of the system; and have achieved a measure of economies of scale and development depth of both domestic financial markets and international demand mechanism, to the extent that their housing markets are tailored to the needs of the people and specific to each income strata in the society. Mainstream housing finance work for people who are able to operate in the financial markets; and other products are developed for people who are not able to. In the market, people who need help to operate in the market are helped through government mediated funds to achieve this.

6. Conclusion

A significant proportion of the population in the West African region can be classified as sub-prime for lending purposes, earning below $60 per day. In addition to this high subprime market base, the region's housing markets are also characterized by lack of depth of the mortgage market, especially in the area of lack of credit information systems and low levels of legal rights for lenders.

The need for government intervention is necessary in several areas. The need for facilitating the setting up of private credit information bureaus while creating intermediaries to convert information from informal organizations to be used in the formal sector is one such area. The need for the government to also ensure macro-economic stability is increasingly important to ensure that a critical mass is generated for promoting savings and lending, at least at the primary mortgage level. It is also possible for governments across the West African region to develop non-court procedures for foreclosures to strengthen legal rights.

However, given that the predominant proportion of people in the West African region are in the sub-prime sector, the development of alternative routes to formal housing finance, through intermediary organizations that are culture centered (and so familiar to the people they are meant to serve) is considered a pragmatic step forward in the debate of how government could provide housing finance to its people within the limits of market driven reforms.

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