Influence of Government Regulations on the Relationship Between Mortgage Distribution Channels and Performance of Real Estate in Kenya

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Abstract: *Housing is a basic human right as enshrined under the Social pillar in Kenya's Vision 2030.The attainment of this fundamental right is difficult to achieve despite as it requires a huge capital outlay which is out of reach for many ordinary people. To raise the needed funds borrowing remains one of the most appropriate options. Mortgage funds flow through a variety of channels. However, literature, reveals that influence of mortgage distribution channels on performance of real estate have received little attention yet they are the pathways through which funds for housing flows through. Moreover, the moderating role of government regulations on the relationship between mortgage distribution channels and performance of real estate remains blurred. To understand this relationship better, this study employed structural equation modeling (SEM) for hypothesis testing and to fit the theoretical models. The study demonstrated that government regulations significantly moderated the relationship between mortgage distribution channels and performance of real estate sector in Kenya. It also revealed that depository system, specialized mortgage lending and the secondary mortgage market have a significant and positive effect on real estate in Kenya. This study will enable mortgage finance providers embrace government regulations positively for the growth of the real estate sector.*
Keywords: *[Structural Equation Modeling (SEM), Performance of Real Estate (PRE), Mortgage Distribution Channels]*

I. Introduction

Beside food and clothing, housing is basic human want that requires a huge capital outlay and regular flow of income to meet the long term commitment (Doling, Vandenberg & Tolentino, 2013). For people to finance their major obligations in life the tendency to borrow funds remain high. In most cases, they go to formal institutions like banks or informal financial institutions. Mortgage financing is one of the most appropriate options of getting funds to invest in home ownership in most emerging economies. Mortgage finance undertakes a pivotal role in the development of housing markets which confers advantages ranging from living in a dream house in the early years of one's life to offering the potential for profit-making when house prices rise (Keys, 2010). However, the performance of the mortgage market has experienced minimal growth due to its inability to provide affordable housing to majority of prospective home owners in Kenya. The housing sector is more than shelter as it includes utilities and communal services such as water supply, electricity, good access roads, disposal facilities and access to health and educational facilities

In some countries, the private sector is unable to deliver the housing needs forcing the government to develop market oriented policies by encouraging private sector involvement through licensing of primary mortgage institutions, development of mortgage finance market, strengthening of existing mortgage support infrastructures and embarking on reform measures to boost housing finance and provision (Zandi & Deritis, 2011). Mortgage distribution channels allows for provision of long term finance for housing which is determined by government regulations (Ndungu, 2010). For example the Banking Act of 2002 extended the loan repayment period from 5years to 10-25 years to provide affordable loans to majority of the people in need of housing in Kenya. Zandi and Deritis further affirms that the mortgage finance system should be established to bring together mortgage loans from the government and the private sector in the housing market to increase home ownership with the government as the regulator. In England, the Bank of England announced a significant increase in the availability of secured credit to households by banks and building societies which resulted to an increased demand for mortgage and rental property (Sharma, 2012). Sharma (2012) further gave an example of the United States of America which experienced recovery in the housing sector after the 2007 financial crunch due to large volume of refinancing activities, low interest rate environment and the supportive government programs.

The government through its banks may also intervene through either direct or indirect subsidies to channel mortgage lending to the household group to prevent foreclosure and its consequences. Programs of assistance in finance, availability of infrastructure and research have been designed by governments because housing provision requires huge capital outlay, which is often beyond the capacity of the middle income/low

income groups. The housing problems in upcountry areas are not as serious as in the town areas even though, the renewal problem involving the construction of existing dwellings remains. Such modernization schemes, involving the provision of basic housing facilities, require a huge amount of money greater than which private finance or low income inhabitants can provide (Keyode, 2011).

1.2 Statement of the Problem

In Kenya, the housing problem can best be described as endemic as the demand for housing far outstrips supply (Ruitha, 2010). The overall demand for housing is 150,000 housing units compared to 35,000 housing units being delivered in the market every year (UN Habitat survey, 2011). Rural urban migration patterns have continuously made the housing problem worse. Despite the National government's regulations that can engender housing production, only about 4.0 percent of Kenyans can afford mortgage repayments for a house priced at Sh. 3.9m (Hass Consult, 2014). Therefore unless strategic interventions are put in place majority of urban dwellers may continue living in informal settlements which are best defined by poor sanitation, soaring crime levels and insufficient public amenities. The relationship between mortgage distribution channels and performance of real estate sector in Kenya remains blurred as there has been little documented evidence in the literature available. Moreover, studies in this area have been predominantly done in the developed countries. Few elaborate studies have been done in developing countries. The thrust of this study is therefore, to articulate some of the main mortgage distribution channels that must be strengthened so as to ensure efficient and sustainable mortgage financing in Kenya as a prerequisite to housing for all by year 2030.

1.3 Research Objectives
1. To establish the effect of mortgage distribution channels on the performance of real estate firms in Kenya.
2. To determine the moderating role of government regulations on the relationship between mortgage distribution channels and performance of real estate firms in Kenya.

1.4 Research Hypothesis
$H0_1$: There is no significant relationship between mortgage distribution channels on the performance of real estate firms in Kenya.
$H0_2$: Government regulations do not moderate the relationship between mortgage distribution channels and performance of real estate firms in Kenya.

II.   Literature Review

This study analyzed the influence of government regulations on the relationship between mortgage distribution channels (depository system, specialized mortgage lending and secondary market) and performance of real estate sector in Kenya.

2.1 Theoretical Review
2.1.1 Regulation Theory

The theory of economic regulation is an economic theory that was originally developed by Arthur Cecil Pigou in 1932. The theory postulates that the need for regulation is called for by the public to correct inequitable market practices. Regulation is assumed to benefit the whole society instead of particular vested interests. The regulatory authority is considered to represent the general interest of the society in which it operates instead of the private interests of the regulators (Goodwin, 2001; Levy & Spiller, 1994; Newbery, 1999). The case for economic regulation is based on the existence of significant market failure arising from economies of scale and scope in production. It also emanates from information imperfections in market transactions, existence of incomplete markets and externalities, and from resulting income and wealth distribution effects. It has been suggested that market imperfections may be more pronounced, and therefore the case for public regulation is stronger, in developing countries (Stiglitz, 1998).In the context of making housing affordable to majority of low and middle income groups, government regulation is necessary due to the existence of mortgage markets imperfections and externalities, and from arising from income, wealth distribution effects and information asymmetry.

2.1.2 Structural Form Theory

This theory document the process of extending mortgage finance to the low and middle income earners in Sub-Saharan Africa (SSA) (Tomlinson, 2007). This theory outlines the structural bottlenecks which lowers the delivery of mortgage finance for housing in this region. It documents various challenges such as macroeconomic instability, adverse institutional, legal and regulatory environment which have led to inefficient, collateralization of housing assets, poor record of public sector housing banks, building societies and other specialist housing lenders. Levy-Yeyati and Sturzenegger (2005) posit that inadequate

regulatory framework, shortage of long term funding sources affect supply of formal housing in Sub-Saharan Africa. Tomlinson (2007) further corroborates that adverse macroeconomic, legal, institutional and regulatory environment impact on the provision of long-term finance for housing in Sub-Saharan Africa. Therefore, the moderating role of government regulations in mortgage finance and supply of housing is of great concern in most countries in Sub-Saharan Africa.

### 2.1.3 Modern Mortgage Lending Model

Housing finance requires a continuous flow of funds which is guaranteed by the Secondary Mortgage Markets (SMMs). The secondary mortgage market brings together the originators of mortgage loans with the ultimate investors by developing new instruments and institutions that can lower the risks of mortgage lending for originators and provide them with new funding outlets. The mechanism of capital mobilization through mortgage securitization as found in advanced economies like the US, Germany, France, Italy, and others will serve as a potent driver of real estate growth and housing finance in other parts of the world. Lea (1999) argues that a successful secondary market is based on effective management of the basic functions and risks involved in mortgage lending regardless of the institutional entities involved or what separation of functions existing in the market. In the Modern Mortgage Lending Model (MMLM), there are a wide variety of investors ranging from depositories to mutual funds, bond insurance companies, direct credit (Lea, 1999). The quality of mortgages produced by the primary market becomes much more important in a SMM. The SMM separates the act of making mortgage loans from the act of holding mortgage loans. The mortgage holding function is the strategic focus for dealing with the risks of mortgage lending (Renaud & Jaffee, 1996). According to them, the basic principle of SMM is to tap capital market investor as the long-term source for the mortgage market, thus mitigating risks of interest rate and credit risk.

2.1.4 Credit Intermediation Model

In the Mortgage Credit intermediation model, the mortgage markets rely on the existence of a network of intermediation (Stephens, 2005a; Chiquier & Lea, 2009). This network underpins the funding and origination of the credit, the education of the market, the division of obligations and responsibilities. In most developed countries, mortgage intermediation was initially performed by a specially regulated institution. In the United Kingdom, it was the building society while in the United States of America; it was primarily the Savings and Loans Associations (S&L). These institutions started as mutual societies or community- based organizations driven by concern for housing for the community and not by maximizing profit for investors. These societies, organizations or institutions were given special tax and regulatory concessions on condition that they restricted themselves to mortgage lending. The result was that they developed a network of mortgage intermediation, expertise and culture appropriate to support access to housing, which was almost their exclusive preserve. For countries with rapid economic growth and soaring urban population like in Kenya, mortgage intermediation is the most rapidly growing business, making a major contribution to financial systems and economic development.

2.2 Conceptual Framework

A concept is an abstract or general idea inferred or derived from specific instances (Kombo & Tromp, 2009). A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Kombo & Tromp, 2009). The conceptual frame work helps the researcher to understand the phenomena under study and communicate it. The proposed conceptual frame work for this study is intended to show the relationship between mortgage contract terms and the performance of the real estate sector with government regulations being the moderating variable. The variables in the conceptual framework are derived from the theories and the models discussed in the theoretical framework.
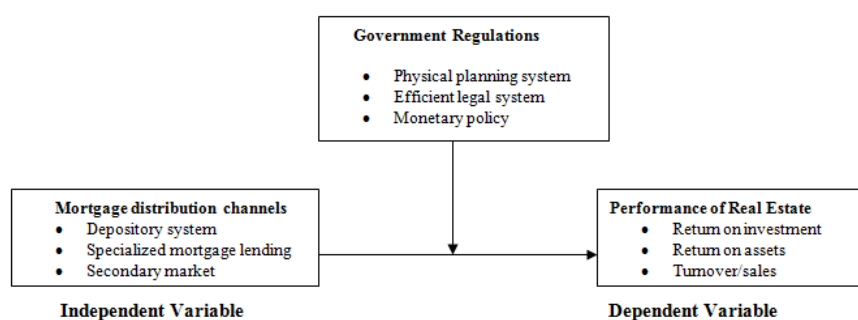
Figure 1: Conceptual Framework

2.2.1 Performance of Real Estate (PRE)

The concept of firm performance is core to businesses because the major objective of a business is to make profits. For a firm to be successful it has to record high returns and identify performance drivers from the top to the bottom of the organization (Awino,2011). Performance improvement is at the heart of strategic management and a lot of strategic thinking is geared towards defining and measuring performance (Nzuve & Nyaega, 2012). Kiragu (2005) highlights performance in four perspectives which are the financial, customer, internal processes and innovativeness. In support, Odhuno and Wadongo (2010) outline some key parameters used in measuring financial performance of a firm which are profit margin, return on assets, return on investments, asset turnover, leverage, cash flow, and working capital. Strategic management drivers of performance involve the translation of business strategies into deliverable results. It combines financial, strategic and operating principles to gauge how a company is able to meet its targets (Mshenga & Owuor, 2009). Performance of real estate market is measured in terms of rental income, risks of occupancy level, sales/turnover and return on investments. This study measured performance of real estate from a financial perspective using the following sub-variables return on investments (ROI), return on assets (ROA) and turnover/sales.

2.2.2 Mortgage Distribution Channels

The influence of mortgage distribution channels in addressing housing affordability problems by providing housing finance have been discussed by various scholars (Wachter & Green, 2000; Manoj, 2010; Kitson & Thomson, 2012). The availability of formal mortgage distribution channels is indispensable for effectively addressing the quantitative and qualitative housing problems in developing countries. There is no universally accepted model of providing mortgage finance among different countries but this heavily relies on macroeconomic conditions, banking regulations, the size of the banking system, taxation, subsidy programs and the structure of the housing market. Having a vibrant secondary mortgage market brings together the originators of mortgage loans with the ultimate investors by developing new instruments and institutions that can lower the risks of mortgage lending for originators and provide them with new funding outlets.

2.3 Empirical Review

Discussions on the influence of mortgage distribution channels in addressing housing affordability problems by providing housing finance have been done by various scholars (Wachter & Green, 2000; Manoj, 2010). Okpala (1994) in his paper titled "Financing Housing in Developing Countries: A Review of the Pitfalls and Potentials in the Development of Formal Housing Finance System" argues that the availability of formal mortgage distribution channels is indispensable for effectively addressing the quantitative and qualitative housing problems in developing countries. There is no universal model of availing mortgage finance among different countries but this depends on macroeconomic conditions, banking regulations, the size of the banking system, taxation, subsidy programs and the structure of the housing market (Warnock & Warnock 2008). Ronald (2007) describe a comprehensive housing policy as a situation where provision of housing becomes the onus of governments and the residual / social housing policy is when governments supports those that cannot compete in the housing market to acquire one.

In both developed and emerging economies, sovereign governments have intervened in the markets by setting up institutions characterized by a significant degree of regulation and segmentation from the rest of the financial markets and very often with governments providing subsidized housing finance. A mortgage market that is functioning well is considered by Renaud (2008) and Dickerson (2009) as one that have large external benefits to the domiciled national economy such as contribution to economic growth and improvement of the standards of living. With the absence of a well-functioning housing finance system, a market-based provision of housing would therefore be lacking (Quigley, 2000; Warnock & Warnock 2008).

Chiquier and Lea (2009) posited that the mortgage markets rely on the existence of a network of intermediation which underpins the funding and origination of the credit, the education of the market, the division of obligations and responsibilities. In most advanced countries, mortgage intermediation was initially performed by a specially regulated institution. In the United Kingdom, it was the building society while in the United States of America; it was primarily the Savings and Loans Associations (S&L). These institutions started as mutual societies or community-based organizations driven by concern for housing for the community and not by maximizing profit for investors. These societies, organizations or institutions were given special tax and regulatory concessions on condition that they restricted themselves to mortgage lending. The result was that they developed a network of mortgage intermediation, expertise and culture appropriate to support access to housing, which was almost their exclusive preserve. Some of the existing network of intermediaries used in Mortgage Credit intermediation model includes depository systems, directed credit, specialized mortgage lending and the secondary mortgage market. Competition among these channels should lower the cost of credit to the borrowers (Mungatu, et al., 2014).

Under the depository systems, scholars have argued that potential mortgage borrowers are expected by their financiers to pay not less than 20% as down payment value of the property to be mortgaged from savings (Kalui & Kenyanya, 2015). However, a large percentage of potential borrowers for housing acquisition may not qualify for the loan on this basis of this criteria or the financial institution may require that they raise the remainder of the amount needed from other sources (Whitehead & Yates, 2007). Mwathi (2013) study entitled, "Financing sources of real estate firms in Kenya," demonstrated that savings, venture capital and equity financing are the most significant source of mortgage financing for real estate development. These study findings also concurred with those of Osoro (2014) who in the article from "The Centre for Research on Financial Markets and Policy'' noted that savings is a major source of financing mortgages in Kenya.

Specialized Mortgage lending institutions have played a key role in funding real estate sector with Housing Finance and Kenya Commercial bank (KCB) having the biggest market share in mortgage finance despite the endemic housing shortage (World Bank, 2011). The study findings corroborate with Ezimuo, Onyejiaka and Emoh (2014) study on sources of real estate finance and their impact on property development in Nigeria: A case study of mortgage institutions in Lagos Metropolis which demonstrated that efforts by mortgage institutions to finance the real estate have been intense despite the housing shortage. However, these findings should not be misinterpreted with shortage of housing on the part of the government. The fact is that mortgage financing institutions have fared well in lending mortgage loans to both residential and commercial real estate developers in Nairobi Metropolis.

According to Occasional paper No. 50 of the Central Bank of Nigeria (2013) entitled " Mortgage Financing in Nigeria" the secondary market is believed to be the system that is most reliable in providing long-term needs of the housing finance market. This is because it brings together the originators of mortgage loans with the ultimate investors by developing new instruments and institutions that can lower the risks of mortgage lending for originators and provide them with new funding outlets. A well organized secondary market involves loan origination, warehousing, securitization and sale to investors. The proceeds from the sale are ploughed back into the system creating more funds for mortgages and increasing housing stock in the economy in return.

Other studies agree with this for example, World Bank's report (2011) in its article entitled "Developing Kenya's mortgage market" posited that over the past decade the secondary housing market in Kenya has developed having borrowed heavily from the South African model. The same report further argued that the property markets in most African cities are segmented into various categories ranging from low, middle and up market. The development of the upper market allows banks to value their property more accurately giving them comfort that should they need to realize their loan collateral a relatively liquid market exists where they will be able to sell their loan collateral. However, lower and middle income parts of the market may not support the secondary market due to lower purchasing power. Ndinda (2014) study on the effect of mortgage financing on the performance of real estate market in Kenya further argued that the development of the secondary mortgage market has been tremendous in the recent past especially due to the introduction of the real estate investment trusts (REITs) and corporate bonds which recorded an oversubscription of over (41%).

III.   Research Methodology

This study used mixed method research design due to its ability to blend elements of both qualitative and quantitative research approaches (Johnson, Onwuegbuzie & Turner, 2007). The target population for the study comprised finance managers of mortgage lending commercial banks and real estate investors. The sampling frame comprised 35 commercial banks and 69 real estate firms registered with Kenya Property Developers Association (KPDA) as at December 31st, 2013. The study employed census since the respondents were less than 200 as recommended by Israel (2012). The study used a self-administered, semi-structured questionnaire to obtain primary data with a response rate (90%) which was adequate. Pilot testing was done with 10% of the population and the Cronbach's Alpha statistic ranged from 0.7 to 0.9, indicating high reliability of data. Mertens (2010) opined that the nearer the coefficient is to 1.0, the more reliable the measurements. The study adopted construct validity where all the constructs in the survey questionnaire were factor analyzed. Eigen values criterion was used to determine the selection of factor loadings for each component. The larger the Eigen value loading, the more important the associated principal component (Graham & Midgley, 2000). In this case, the varimax with Kaiser Normalization sampling adequacy with Eigen value greater than 1 were used as the rotation method because the items were uncorrelated. Montgomery, Peck and Vining (2001) recommend that a minimum factor loading of 0.40 should be used when factor analysis is used to refine construct validity. All items had factor loadings ranging from 0.625 to 0.939 IBM Statistical Package for the Social Sciences (SPSS) version 21.0 for Windows 7 was used for data entry, data cleaning and running the initial Exploratory Factor Analysis (EFA). Analysis of Moment Structures (AMOS) version 21, which is essentially analysis of mean and co-variance structures, was used in Confirmatory Factor Analysis (CFA), Path Analysis, Structural Equation Modeling (SEM) and computation of Goodness-of-Fit Indices.

IV.   Data Analysis and Results

This study tested for normality, outlier's multicollinearity, heteroscedasticity, linearity, non-response bias and common method variance to ensure that there was no violation of the assumptions. The results of the tests conformed to the respective thresholds for each test. The data was analyzed using a two-phase process that comprised of confirmatory measurement model and confirmatory structural model as suggested by Anderson and Gerbing (1988).The first step involved confirmatory factor analysis (CFA) that evaluates the measurement model on multiple criteria such as internal reliability, convergent, and discriminant validity. Before CFA was done, the exploratory factor analysis (EFA) was done whose key steps included the computation of factor loading matrix, communalities and principal components analysis (PCA). Tabachnick and Fidell (2013) argued that EFA has the potential to narrow down a large sample of data into smaller one. Before performing EFA, two statistical tests which assess the suitability of data for structure detection were performed, that is, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. Table 1 indicates the results of the test for suitability of structure detection. The results in table 1 show that KMO value is 0.709 which is close to 1. This is an indication that factor analysis was suitable. With $p < 0.05$ in the Bartlett's Test of Sphericity, this was an indication of suitability of data for structure detection.

Table 1 Results of the Test for Suitability of Structure Detection

KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity	
0.709	Approx. Chi-Square	1991.050
df		496
Sig.		*0.000*

Table 2 indicated the loading of the items to a factor. The higher loading reflects the strength of affiliation of an item to a specific factor. The findings of this study revealed that each of the three dimensions (PRE, GR and MDC) was homogeneously loaded to separately different factors. For this study, the general criteria were accepted items with loading of 0.60 and above.

Items	Mortgage Distribution channels	Performance of real estate	Government regulations
MDC6	.829		
MDC4	.828		
MDC2	.824		
MDC7	.819		
MDC3	.782		
MDC5	.776		
PRE5		.939	
PRE3		.934	
PRE4		.920	
PRE2		.886	
PRE6		.761	
GR2			.887
GR3			.804
GR5			.787
GR1			.748
GR6			.625

Confirmatory Factor Analysis (CFA) was done to test whether a relationship exists between the observed variables and their underlying latent constructs (Hair et al, 2010). It was also done to measure the construct validity in the measurement model which was demonstrated by presence of both discriminant and convergent validity since none alone is sufficient to measuring construct validity.

The second step involved answering the study's objectives where structural equation modeling (SEM) was used to test the hypothesized relationships and to fit the structural model. The values obtained in testing the model fit indices were within the accepted thresholds as shown in table 3.

Table 3 Model Fit Indices for the Influence of mortgage distribution channels on the performance of real estate sector in Kenya.

Model	CFI	GFI	AGFI	NFI	RMSEA
Default model	.966	0.888	0.816	0.922	0.087
Saturated model	1	1		1	
Independent model	0	0.322	0.187	0	0.400

SEM for the study objective was done as shown in figure 1. Table 4 shows that CR=3.710 which was greater than 1.96 (CR>1.96). Therefore this model was significant at p<0.001 significant level as indicated by path coefficient β = 0.33 in figure 2. Consequently, H1a was rejected. Figure 2 further shows that mortgage

distribution channels had a coefficient R^2 mean of 0.11 showing the proportion of variation in dependent variable explained by the SEM model. R^2 indicates that (11 %) of the variations in performance of real estate sector in Kenya can be accounted for by mortgage distribution channels scores.

Table 4: Critical Values of Mortgage Distribution Channels

|			Estimate	S.E.	C.R.	P
PRE	<---	Mortgage Distribution Channels	0.420	0.113	3.710	***
MDC4	<---	Mortgage Distribution Channels	1.516	0.21	7.13	***
MDC2	<---	Mortgage Distribution Channels	1.01	0.15	6.419	***
MDC7	<---	Mortgage Distribution Channels	1.637	0.21	7.724	***
MDC3	<---	Mortgage Distribution Channels	1.127	0.16	6.776	***
MDC5	<---	Mortgage Distribution Channels	1.492	0.24	6.364	***
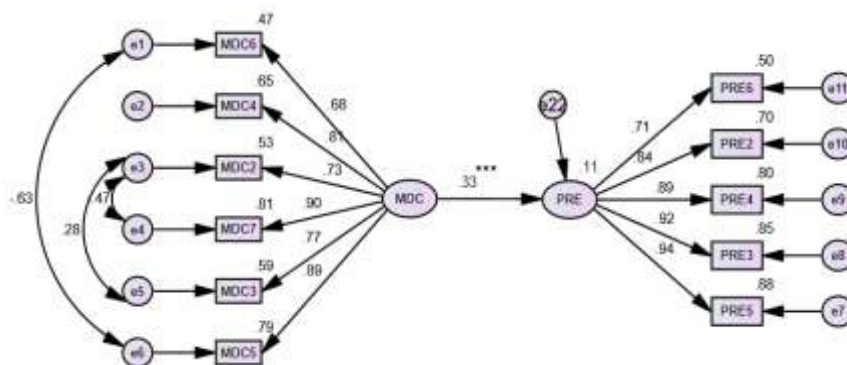
Figure 2 Structural equation modeling for the second hypothesis

N=94*p<0.1, **p<0.05; ***p<0.001(two tailed)

Structural Equation Modeling (SEM) with moderation was then carried out in this study. To test this hypothesis, structural models were used whereby interaction term government regulations was added into the model (mortgage distribution channels * performance of real estate) as shown in figure 3. Inclusion of the interaction term resulted in an R^2 change of 0.08 showing presence significant moderating effect. This means the moderating effect of government regulations gained 8 % variance in performance of real estate, above and beyond the variance by mortgage distribution channels and government regulations. The magnitude of the change in R^2 is a measure of the increase in the predictive power of particular dependent variable, given the dependent variable or variables already in the model. Table 5 shows t-statistics values (CR) used to provide information on the moderating role of government regulations on the relationship between mortgage distribution channels and performance of real estate sector in Kenya. With t=3.381, p=0.001 this model was significant at 99% significance level. In this case, null hypothesis that "government regulation does not moderate the relationship between mortgage distribution channels and performance of real estate sector in Kenya was rejected. The study therefore accepted the alternative hypothesis that government regulations do moderate the relationship between mortgage distribution channels and performance of real estate sector in Kenya.

Table 5: Regression Weights and Critical Ratios for Mortgage Distribution Channels with Moderator

			Estimate	S.E.	C.R.	P
PRE	<---	MDC	.555	.133	4.173	***
PRE	<---	GR	.393	.116	3.381	0.001
MDC4	<---	MDC	1.516	0.213	7.129	***
MDC2	<---	MDC	1.01	0.157	6.419	***
MDC7	<---	MDC	1.637	0.212	7.723	***
MDC3	<---	MDC	1.127	0.166	6.776	***
MDC5	<---	MDC	1.492	0.235	6.364	***
PRE3	<---	PRE	0.976	0.06	16.154	***
PRE4	<---	PRE	0.971	0.066	14.64	***
PRE2	<---	PRE	0.909	0.073	12.383	***
GR1	<---	GR	0.833	0.112	7.409	***
GR6	<---	GR	0.479	0.095	5.056	***
GR3	<---	GR	0.849	0.11	7.742	***
PRE6	<---	PRE	0.787	0.09	8.721	***
GR5	<---	GR	0.884	0.119	7.447	***
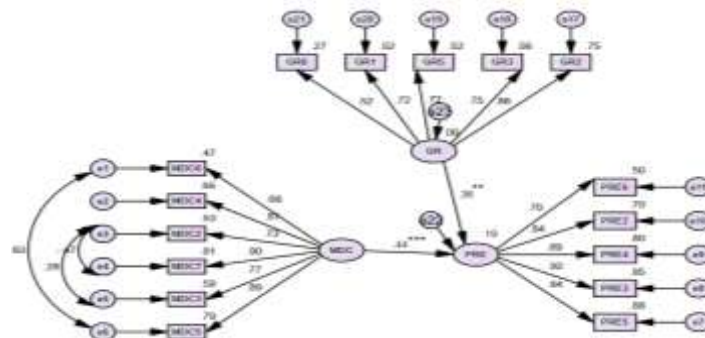
Figure 3 Structural equation modeling with moderator

N=94*p<0.1, **p<0.05; ***p<0.001(two tailed)

To confirm the results of moderation using the SEM, the study employed Moderated Multiple Regression (MMR) analysis. MMR is defined as an inferential procedure which consists of comparing two different least-squares regression equations (Aguinis, 2004). Using MMR analysis in this study, the moderating effect of the variable (product term) was analyzed by interpreting the R² change in the models obtained from the model summaries, and by interpreting the regression coefficients for the product term obtained from the coefficients' tables. The results of the moderated multiple regression (MMR) analysis agreed with the results of the Structural Equation Modeling (SEM) with moderation in which government regulations moderated the relationship between mortgage distribution channels and performance of real estate sector in Kenya, as shown in table 6. From table 6, Model 1 shows that R=0.395, R^2= 0.156 and [F (2, 92) = 9.736, p = 002]. The value of R^2 with a change of 0.156 indicates that 15.6% of the variance in performance of real estate can be accounted by mortgage distribution channels scores and government regulations. This implies that the goodness of fit improves with the introduction of government regulations hence a conclusion that government regulations has a strong positive moderating effect on the relationship between performance of real estate and mortgage distribution channels. Further, R^2 means that 15.6% of the variance in performance of real estate is explained by mortgage distribution channels and government regulations.

Model 2 shows the results after the interaction term (Mortgage distribution channels*Government Regulation) was included in the equation. Table 6 also indicates that the inclusion of the interaction term resulted into an R² change of .075, [F (1, 90) = 3.451, p < 0.05]. The results show a presence of significant moderating effect. In other words, the moderating effect of government regulations explains 7.5% variance in the Performance of real estate, above and beyond the variance by Mortgage distribution channels and Government Regulation. Thus the null hypothesis was rejected and therefore Government Regulation moderates the relationship between Mortgage distribution channels and Performance of real estate.

Table 6 : Variation on Moderated Multiple Regression for Mortgage Distribution Channels

Model	R	R Square	Std. Error of the Estimate	Anova					
				R Square Change	F-Value	df1	df2	Sig. F Change	
1	.395	.156	.30628	.156	9.736	1	92	.002	
2	.481	.231	.30275	.075	3.451	3	90	.020	
a. Predictors: (Constant), MDC									
b. Predictors: (Constant), MDC, GR, MDC * GR									

In table 7, Model 1 indicates that Mortgage distribution channels was statistically significant (p = 0.000; Beta value = 0.420); Government Regulation was also statistically significant (p = 0.000; Beta value=0.321). Equation 1 shows that for a 1-unit increase in Mortgage distribution channels, the Performance of real estate is predicted to increase by 0.420 units, given that the government regulations is held constant. The regression coefficient associated with Government Regulations means that the difference in performance of real estate between firms with high government regulations and firms with low government regulations is 0.321, given that Mortgage distribution channels are held constant. On substitution of the coefficients in the equation $Y = \beta_0 + \beta_1 X_1 + \beta_2 Z + e$ we obtain:
PRE = 1.311 + 0.420 MDC + 0.321GR…………………………………….Equation (1)

Table 7 : Moderated Multiple Regression Model Coefficients for Mortgage Distribution Channels

| Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.311	.327		4.005	.000
	MDC	.420	.092	.499	4.561	.000
2	(Constant)	1.018	.201		5.074	.000
	MDC	.540	.108	.640	4.998	.000
	GR	.321	.085	.436	3.793	.000
	MDC * GR	.155	.057	.895	2.734	.008

Model 2 reveals the details of the inclusion of the interaction term in the model Mortgage distribution channels was found to be significant (p=.000, Beta value=0.540). Government regulations was found to be significant (p=0.000, Beta value=0.321) and Mortgage distribution channels*Government regulations was also found to be significant (p=0.008, Beta value=0.155). On substitution of the coefficients in equation:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 Z + e$ we obtain:

PRE = 1.018 + 0.540 MDC + 0.321GR + 0.155(MDC*GR)………………Equation (2)

The result for Table 7 indicate that for a 1-point increase in the mortgage distribution channels, the Performance of real estate is predicted to increase by 0.540 units, given that government regulation is held constant. The interpretation of the regression coefficients for the interaction term in Equation (2) is that there was a 0.155 difference between the slopes of performance of real estate on mortgage distribution channels between firms with high government regulations.

The slope regressing performance of real estate on mortgage distribution channels is steeper for firms with high government regulations as compared to real estate firms with low government regulations, as shown in figure 4. Results based on equation (2) led to the conclusion that there was a significant moderating effect of government regulations.
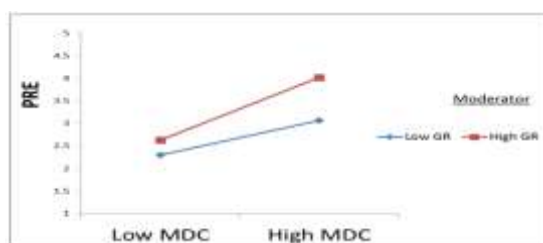
Figure 4: Slope of Performance of Real Estate on Mortgage Distribution Channels for Government Regulations

V.   Discussion and Conclusion

Mortgage distribution channels had a positive relationship with performance in the real estate sector. In this regard the null hypothesis that mortgage distribution channels had no relationship with performance of the real estate sector in Kenya was rejected. The mortgage distribution channels were depository, specialized lending and the secondary market. The secondary market was found to be the most significant in unlocking affordability of mortgages in Kenya. This is due to the fact that it allows participants in the mortgage system to access capital from investors globally as majority of home buyers do not have sufficient savings to purchase a home right away. Decline in the size of the secondary market reduces the amount of capital available for mortgage lending and in turn, borrower's options for financing home ownership.

The findings resonated with Kibati, Gekara and Mungatu (2014) study on the Role of Mortgage Distribution Channels on Housing Affordability among the Low Income Earners in Kenya which demonstrated that mortgage distribution channels influence affordability of housing by low income earners in Kenya. The study findings also agreed with another study by Mwathi (2013) on Financing Sources of Real Estate Firms in Kenya with a special interest on mortgage financing, savings, venture capital and equity financing which demonstrated that mortgage financing is one of the most used source of financing, with equity and venture capital being the least source of financing used.

The study findings also agreed with the Modern Mortgage Lending Model which alludes to the fact that there are a wide variety of investors ranging from depositories to mutual funds, bond insurance companies, and direct credit and pension schemes. The quality of mortgages produced by the primary market becomes much more important in a secondary mortgage market which separates the act of making mortgage loans from the act of holding mortgage loans. The basic principle of a secondary mortgage market is to make capital market investments as the long-term source for the mortgage market, thus mitigating risks of interest rate and credit risk. The findings were also in line with the Mortgage Credit Intermediation Model which describes the mortgage markets as that which relies on the existence of a network of intermediation ranging from specially

regulated institution, building societies, housing co-operative and mortgage lending commercial banks (Chiquier & Lea, 2009).

Significant moderating effect was also reported in the relationship between mortgage distribution channels and performance of real estate when the interaction term (mortgage distribution channels *government regulations) was included. These results corroborated the earlier findings when structural equation modeling (SEM) with moderation was carried out, where mortgage distribution channels *government regulations was found to be significant at p<0.001 level. Consequently, the null hypothesis that a government regulation does not moderate the relationship between mortgage distribution channels and performance of real estate was rejected. The results led to the conclusion that there was a significant moderating effect of government regulations on the relationship between mortgage distribution channels and performance of real estate in Kenya. Literature supports this finding for example, Lieser and Groh (2011) study on the determinants of international real estate investments among 47 European Countries from 2000 to 2009 demonstrated that political instability of a country, legal framework, socio –cultural issue and administrative bureaucracy are major hurdles to real estate development. Further congruence on moderating role of government regulations on the performance of real estate was demonstrated by the works of Eldelstein, Qian and Tsang (2010) who argued that the required rate of return on investment in real estate sector is directly affected by macro economic factors, stable legal environment and corporate governance.

The findings were also in line with the structural form theory which postulated that the success in the performance of the real estate sector in Sub-Saharan Africa (SSA) depends on favorable macroeconomic, institutional, legal and regulatory environment marked by availability of long term funding. The study findings further agreed with the regulation theory which elucidates the need for regulation in the market to correct inequitable market practices which may deter growth in any economic sector due to information imperfections in market transactions. Through regulation it is assumed that the whole society would benefit instead of few individuals/institutions.

The study demonstrated that access to long term mortgage finance is limited as the channels available have the capacity yet potential homeowners may not qualify due to a variety of reasons. To make homeownership attractive and easier some real estate developers and financiers should develop new strategies to unlock uptake. For example the zero-down house sales strategy would tap into the market comprising people whose income levels enable them to make monthly payments but cannot get a lump sum. Under this strategy, the potential home buyer begins paying the monthly installments as the construction, which lasts between 18 and 24 months, begins. Once the housing unit is completed, the buyer can rent it out or occupy it as the scheme is converted into a negotiated mortgage that either lowers or maintain the monthly installments.

In the advent of new technologies the dominant strategy among mortgage providers should be to offer a variety of channels through which mortgages can be originated. The multi-channel approach has become increasingly important as competition in the mortgage market intensifies thus enabling lenders to potentially extend their market presence more cost effectively. This may be done by also developing a vibrant secondary mortgage market which has the potential of unlocking long term financing sources. The secondary market is credited for bringing investors of all walks of life in the housing industry.

This study adds to the body of knowledge by paying more attention to the effect of government regulations on the relationship between mortgage distribution channels and performance of real estate. Moreover, the study has focused its attention on the state of mortgage financing in one of the developing countries, Kenya, which has previously attracted little or no attention given the scanty literature in the area of mortgage distribution channels. This study is of value in providing empirical suggestions to mortgage finance borrowers and the government of Kenya can adopt in order to improve on home ownership levels as well as performance in the real estate sector. Overall, the study has also demonstrated that there exists a positive relationship between mortgage distribution channels and real estate performance. It has also demonstrated that government regulations moderates the relationship between mortgage distribution channels and performance of real estate firms indicating that continued increase of favorable government regulations would probably maintain this positive relationship.

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