

## Predicting Intention of Using Mortgage in Financing Homeownership in Nigeria: Application of Theory of Planned Behavior

<sup>1</sup>Hamza Usman, <sup>2</sup>Mohammed Hamisu Garba and <sup>1</sup>Isa Abdullahi

<sup>1</sup>Department of Real Estate and Facilities Management,

<sup>2</sup>Department of Construction Management,  
Universiti Tun Hussein Onn Malaysia, Parit Raja, Malaysia

**Abstract:** Mortgage financing has been the most effective source of financing homeownership. However, 80-90% of homeownership in Nigeria is not through this important source. This study adopted a unique approach of understanding the bane of homeownership through mortgage financing using the Theory of Planned Behavior (TPB). A sample of 300 potential homeowners in Bauchi Metropolis, Nigeria was drawn to respond to the closed ended questionnaires distributed to them. The 235 questionnaires were considered valid for further analysis. Partial Least Square-Structural Equation Modeling (PLS-SEM) was used to analyse the data. It was found that the exogenous constructs of TPB (Attitude toward mortgage, subjective norms and perceived behavioral control) explained 66.9 ( $R^2 = 0.669\%$ ) of the variance of intention of using mortgage in financing homeownership. It was found that subjective norm was the most significant factor that determines intention of using mortgage in financing homeownership. The study recommended that the policy makers should design mortgage policies in such a way as to reflect the diverse aspiration of the people. The mortgage institutions are also recommended to have diverse mortgage windows that accommodate all cultural and social diversities of people. This study contributed to both the body of knowledge in financing homeownership through mortgage and has implications to policy makers, mortgage institutions, investors and the general public.

**Key words:** Homeownership, mortgage financing, theory of planned behavior, PLS-SEM, general public

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### INTRODUCTION

Over the years and all over the world, housing has been considered amongst the most pressing needs of mankind the most important asset of man and an important determinant of quality of life (Adedokun *et al.*, 2012; Nkyi and Dinye, 2013; Afrane *et al.*, 2014). Housing is not merely a mono-effect commodity it has multiplier effects on the overall socio-economic setting of every nation through employment opportunities which neutralizes the adverse effect of unemployment, provides markets for building materials and provides economic and social return to the developers (Wapwera *et al.*, 2011; Windapo and Cattell, 2013).

Despite the roles played by residential housing in the socio-economic development of nations, the supply of this essential commodity, world over, is scarce, however, in varying degree of intensity (FTI Consulting, 2012). This is attributed mostly to high cost of building material, inaccessible and in adequate housing finance, high interest rate, failure of contracting enterprise, failure of

government policies, inadequacy of development land and high cost of infrastructure, amongst others (Windapo and Cartel, 2013; Makinde, 2014).

Although other factors impede homeownership, finance has been regarded universally as the major factor militating against housing delivery (Babawale and Abolore, 2013). Warnock and Warnock (2008) argued that housing finance is a 'binding constraint' that must be considered for sustainable housing development, otherwise, provisions of housing will 'neither be adequate nor affordable'. Finance is an inevitable factor in housing development, because housing development is capital intensive and requires huge capital to succeed. Afrane *et al.* (2014) noted that mortgage is the most effective source of housing finance. He argued that even in developed countries mortgage finance remains inevitable in housing development and acquisition.

Unlike the developed nations where mortgage provide the bulk of their housing needs, mortgage financing do not play significant role in the attainment of homeownership in Nigeria. The 80-90% of homeownership

is achieved through self-help where the homeowners use their hard earned equity to develop their homes (D'Silva *et al.*, 2008). This is also evidenced in the rate of mortgage debt to Gross Domestic Product (GDP) of <1% (FMLHUD, 2014; Johnson, 2014) compared to most advanced countries of above 50% (Pryce and Springis, 2009; Calza *et al.*, 2013; Swidler, 2011) and Malaysia's, an emerging economy, 32%. The lower contribution of mortgage may not be unconnected with the dwindling demand for mortgage financing by Nigerians. A CBN (2014) credit condition survey shows a decline in the demand for mortgage financing which changes by -1.4 in the first quarter of 2013 and mildly changes by 1.4 in the fourth quarter of the same year.

Despite these demand challenges, most researches in Nigeria such as Anayochuku (2011), Udeokanem (2012) and Ezimuo *et al.* (2014) and many others; all focused on the supply side of the mortgage neglecting the other side of the coin, demand for mortgage financing which is equally important (Opoku and Muhmin, 2013). In Bauchi state, Nigeria for instance, Aliyu *et al.* (2011) examined the affordability of home acquisition to potential homeowners and found that process is neither affordable nor accessible due to low income, high interest and inaccessibility to long term financing. However, these studies do not consider the potential homeowners who are the ultimate users of the mortgage financing and how the processes affect their general intention of using the mortgage financing to secure their homeownership.

Furthermore, the Theory of Planned Behavior (TPB) which has been used severally to predict people's intention and action in various disciplines has not been explored in mortgage financing literature at least in Nigeria. Therefore, this study attempts to explore the Theory of Planned Behavior (TPB) to predict the intention of potential homeowners of using mortgage in financing homeownership in Bauchi Metropolis, Nigeria. The rest of the paper review relevant literatures and theory of planned behavior. The method used was described follow by research result upon which conclusion is drawn.

**Literature review:** The dominant asset of mankind is his homeownership which is mostly achieved through the dominant liability of mortgage (Hinch *et al.*, 2015). A Eurozone study by Ehrmann and Ziegelmeier (2014) corroborated the dominance of mortgage liability in the aggregate household's debt. The mortgage debt liability in Euro zone area constitutes the average of 63% of the total household's debt. Although, there is consensus on this source of housing finance, literatures on the field vary across countries and regions. While literatures in the advance nations are mostly empirical and dwell mostly on

how the mortgage financing affects the other aspects of the economy, most literatures in developing nations are theoretical in nature and dwell mostly on the problems of financing.

Warnock and Warnock (2008) shows that the housing finance in developing nations differs from that of developed nations. They sampled 62 countries and analyzed the determinants of the size of housing finance using Multiple Regression Analysis (MRA). They found that developing countries are far behind the developed nations in the provision of housing finance with the average size of housing finance to the economy put at 10 and 55%, respectively. The size of housing finance of a country is determined by the legal right for the lender and the borrower, credit information system and macroeconomic condition. These three determinants accounted for 53.5% ( $R^2 = 0.535$ ) of the variation in the size of housing finance. The percentage of mortgage debt to GDP was used as a proxy of the size of housing finance.

In developing economies, emphasis in literatures is on the problems affecting mortgage financing in the countries. In Saudi Arabia, Siwadi (2014) examined how housing finance addressed housing need using descriptive and inferential tool of ANOVA on a sample of 473. They found that majority of the respondents had no access to mortgage finance. For those that had access, only the higher income earners were satisfied with the mortgage loan services. They adduced that overhauling the mortgage institutions alone cannot solve the housing finance debacle unless all the ethical, social and cultural factors are simultaneously addressed.

In Nigeria, the problems of mortgage financing as well as the performance of mortgage institutions were evaluated. However, this is mainly from the supply side of the mortgage with very few related to the demand side. For instance, Anayochukwu (2011) examined the operations of mortgage finance institutions in urban housing development in South-Eastern Nigeria using descriptive statistics on data obtained from 225 respondents. They found that 75.6% were on the opinion that bank lending criteria hindered their ability to access mortgage finance which makes only 11.1% to finance their residential development using mortgage. The 87.6% attributed over population ineffective management and lack of contribution as the factors that militate the achievement of effective mortgage financing in Nigeria. The limitation of the study stemmed from the use of ordinal scoring on nominal questions which are better answered by yes or no; several questions on a single response scale which has the potentiality of making respondent's views been misrepresented. In Bauchi state,

Nigeria, Aliyu *et al.* (2011) examined the problems of finance and affordability for home acquisition using a sample of 200 respondents drawn using stratified random sampling. They found that the constraints to private residential developers were lack of development fund, low income and high interest rate. Low income earners lack access to mortgage finance. The study, however, do not evaluate how these constraints affects respondents intention of using mortgage in financing their residential developments.

Due to inaccessibility to mortgage financing, majority of Nigerian resort to informal housing financing as an alternative means of attaining homeownership. Therefore, in order to obtain the clear picture of the problem at hand, the behavior of potential homeowners is evaluated using the theory of planned behavior.

**Theory of planned behavior:** Theory of Planned Behavior (TPB), according to Ajzen (1991), held that human action or behaviors are guided by three main considerations: attitude toward the behavior, subjective norm and perceived behavioral control which cumulatively produce behavioral intention. These three considerations are produced by 'behavioral belief's, 'normative belief' and 'control belief's respectively. Behavioral beliefs are beliefs about the likely outcomes of the behavior and the evaluations of these outcomes which produces favorable or unfavorable attitude towards the behavior normative beliefs are beliefs about the normative expectations of others and motivation to comply with these expectation produce 'perceived social pressure or subjective norm' and control belief are beliefs about the presence of factors that may encourage or hinder the performance of the behavior and the perceived power of these factors which produce 'Perceived Behavioral Control'. The theory has four major elements.

**Attitude:** Attitude toward a behavior is the individual's positive or negative feelings about performing a behavior. Kama *et al.* (2013) defined attitude as an 'evaluative disposition based upon cognitions, affective reactions, behavioral intentions and past behaviors and it describes general individual feelings of favor or disfavor toward a specific behavior. It is strong indicator of intention to perform a given action'.

**Subjective norms:** This is the social factor in the Theory of Planned Behavior (TPB) that considered perceived social pressure to influence intention to partake or not partake or to comply with expectations of others about engaging in the behavior (Swidi *et al.*, 2014).

**Perceived behavioral control:** Perceived behavioral control is the perceived ability and confidence a person possesses in performing a behavior. Chiou (1998) asserts that perceived behavioral control encompasses two components: the availability of resources needed to engage in the behavior and the self confidence in the ability to conduct the behavior.

**Behavioral intention:** Intention is the intuitive desire to perform a given behavior; the cognitive representation of a person's readiness to perform a given behavior and the immediate antecedent of behavior. The Theory of Planned Behavior (TPB) provided that intention is a function of attitude, subjective norm and perceived behavioral control (Ajzen, 2002).

The Theory of Planned Behavior (TPB) achieved broad empirical supports in various disciplines such as e-commerce, health, technology and Islamic home financing amongst others. These researches established that behavioral intention is influenced by attitude toward the behavior in question, subjective norm and perceived behavioral control. For instance, Alam and Sayuti (2011) used Multiple Regression Analysis (MRA) and found that 29.1% of the variance in behavioral intention is explained by attitude toward the behavior, subjective norm and perceived behavioral control. Similarly, Swidi *et al.* (2014) investigated the applicability of the Theory of Planned Behavior (TPB) with subjective norm as moderating factor using Structural Equation Model (SEM) and found that behavioral intention is influenced by attitude toward the behavior and subjective norm with subjective norm moderating attitude toward the behavior. However, the study did not find significant relationship between perceived behavioral control and behavioral intention. Contrary to this Finding, Gronhoj *et al.*, (2012) found perceived behavioral control, not only affecting behavioral intention but the most important factor in explain variation in behavioral intention.

Interestingly, the Theory of Planned Behavior (TPB) has been successfully applied in Islamic home financing adoption. Amin *et al.* (2014) integrated the Theory of Planned Behavior (TPB) with Innovation Diffusion Theory (IDT) to predict consumer's intention to adopt Islamic home financing in Malaysia. Using Partial Least Square (PLS) technique, they found the three constructs, attitude, subjective norm and perceived behavioral control, of TPB to significantly affect consumer's intention to adopt Islamic home financing at ( $\beta = 0.26$ ,  $p < 0.01$ ), ( $\beta = 0.33$ ,  $p < 0.01$ ) and ( $\beta = 0.11$ ,  $p < 0.01$ ), respectively. Consistent with the above findings,

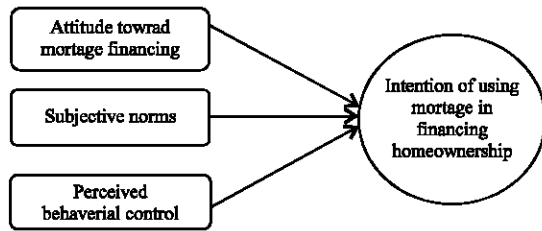


Fig. 1: Direction of alternate hypotheses

Amin *et al.* (2014) use TPB as a sole theoretical base line with additional two constructs of 'Islamicity of Product (IOP)' and 'demographic factor' to examine consumer's acceptance of Islamic home financing. The study employed Ordered Probit Model (OPM) and found that all the constructs of TPB significantly influence consumer's intention to accept Islamic home financing. Of the TPB construct, subjective norm with  $t = 28.04$  and  $p = 0.0000$  was the most important predictor of Islamic home financing acceptance, followed by perceived behavioral control, then attitude with  $t = 11.26$ ,  $p = 0.000$  and  $t = 5.74$ ,  $p = 0.000$ , respectively.

In order to confirm the veracity of the Theory of Planned Behavior (TPB), Engle *et al.* (2010) conducted a broad analytical review of the theory in twelve countries. They found that behavioral intention in each of the country of their study is determined by attitude toward the behavior, subjective norm and perceived behavioral control although at varying degree of importance. This attest to Ajzen (1991, 2002) proposition that the relative importance of attitude toward the behavior, subjective norm and perceived behavioral control on behavioral intention is expected to vary between and across situations and behavior. Based on the above review it is therefore hypothesized as follows:

- $H_1$ : Attitude toward mortgage has significant effect on intention of using mortgage in financing homeownership
- $H_2$ : Subjective norms have significant effect on intention of using mortgage in financing homeownership
- $H_3$ : Perceived behavioral control has significant effect on intention of using mortgage in financing homeownership (Fig. 1)

Figure 1 shows the direction of the alternate hypotheses which form the research model.

## MATERIALS AND METHODS

This research adopted quantitative research method based on post-positivism philosophy because the nature of research problem is deterministic in nature (Creswell, 2013). A sample of 300 respondents was randomly drawn based on Krejcie and Morgan (1970) table of sample size determination from the target population who are the potential homeowners in Bauchi metropolis, Nigeria. Before the actual survey, the questionnaire instrument was pilot tested. All the constructs were reliable with Cronbach's alpha above the recommended 0.7 (Awang, 2014). Out of the 300 closed-ended questionnaires distributed, 259 were returned and 235 were considered valid for the analysis.

The collected data was analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) in order to test the formulated hypotheses. PLS-SEM is a variance based structural equation modeling that combines both the principal component analysis and multiple regressions analysis in 'predicting the relationship between independent variable and dependent variable by extracting from the predictors a set of orthogonal factors called latent variable which have the best predictive power' (Schwartz *et al.*, 2009). PLS have a number of advantages as put forward by Henseler and Sarstedt (2013), Abdi (2003), Haenlein and Kaplan (2004): PLS involves no assumption about the distribution of the population. In PLS, the normality of the data distribution is not a requisite. PLS has no sample size restriction. It can be used to estimate relationship between latent constructs with several indicators even with small sample size. PLS path modeling is preferred over covariance-based SEM when non-convergent results are likely. PLS involves no assumption on scale of measurement. It accommodates all type all scale whether nominal, ordinal or continuous. PLS eliminates multicollinearity problem.

The choice of PLS was informed by the fact that it strike a balance between the strict assumptions of the covariance-based SEM and the limitations of first generation multivariate techniques. This research also involves latent constructs. Henseler and Sarstedt (2013) contended that PLS path modeling is used, particularly in behaviorism in predicting relationship between latent variables. Similarly, both the sample size of 235 and 5-points likert scale used satisfy the assumption of PLS, because it is not scale of measurement specific (Haelein and Kaplan, 2004).

## RESULTS AND DISCUSSION

**Respondent's profile:** The respondents were mainly males, aged between 30-40 year who were married having up to 7 dependents living with them. This is true

Table 1: Convergent validity and reliability test

Constructs	Items	Factor loadings	t-values	Cronbach's alpha	Average Variance Extracted (AVE)	Composite Reliability (CR)
ATT	ATT1	0.7588	25.6720**	0.9280	0.6996	0.9421
	ATT3	0.8378	35.2999**			
	ATT4	0.8165	30.7438**			
	ATT5	0.8706	56.6122**			
	ATT6	0.8738	45.9361**			
	ATT7	0.8401	38.4413**			
	ATT8	0.8519	44.9471**			
	ATT8	0.8519	44.9471**			
SN	SN1	0.8309	30.3904**	0.9352	0.7556	0.9488
	SN2	0.8928	63.3576**			
	SN3	0.8707	56.6313**			
	SN4	0.8597	38.7630**			
	SN5	0.8763	47.7187**			
	SN6	0.8839	51.1422**			
	SN6	0.8839	51.1422**			
	SN6	0.8839	51.1422**			
PBC	PBC1	0.8583	39.4103**	0.9412	0.7393	0.9520
	PBC2	0.8393	34.2367**			
	PBC3	0.8631	36.2023**			
	PBC4	0.8439	37.4988**			
	PBC5	0.8733	50.7096**			
	PBC6	0.8540	41.9228**			
	PBC7	0.8860	52.8812**			
	PBC7	0.8860	52.8812**			
IUM	IUM1	0.8541	44.5956**	0.9497	0.7682	0.9587
	IUM2	0.8909	54.4365**			
	IUM3	0.8558	39.2270**			
	IUM4	0.8856	57.9940**			
	IUM5	0.8717	51.9014**			
	IUM6	0.8980	66.8157**			
	IUM7	0.8782	44.1992**			
	IUM7	0.8782	44.1992**			

Significant level \*\*p<0.01; ATT = Attitude toward mortgage financing; SN = Subjective Norms; PBC = Perceived Behavioral Control; IUM = Intention of Using Mortgage in financing homeownership

representative of the study area as it reflects the social setting where males are the heads of the family and cater all the family needs including housing. Their age and marital status corresponded because average marriage age in the study area is mostly 25-35 year. Majority of the respondents attain tertiary education with most of them working as civil servants. The monthly income of the respondents is averagely below N80,000. Most of them were low income earners. This is true of the population where majority of the household's heads earn less than N80,000 a month (NBS, 2012).

**Assessment of measurement models:** The measurement models were assessed by considering their convergent and discriminant validity as recommended by Wong (2013). Convergent validity was achieved whenever the factor loadings are high and statistically significant. A t-statistic value above 1.96 indicate significant outer loading (Wong, 2013). Average Variance Extracted (AVE) is recommended to be above 0.5 while composite reliability is recommended to be above 0.6 (Bagozzi and Yi, 1988). Cronbach's alpha is recommended to be above 0.7 (Awang, 2014). Table 1 shows the result of the convergent validity and the reliability of the measurement models.

The result shows that the AVE of all models is above the recommended 0.6 threshold (Bagozzi and Yi, 1988). Both CR and Cronbach's alpha are above the recommended 0.6 and 0.7, respectively (Bagozzi and Yi,

1988; Awang, 2014). The standardized factor loadings of the items were all significant at 0.001 level with t-statistics above 1.96. The outer models converged at only 4 iterations in the 'stop change criteria' far less than the maximum 300, thus the outer models estimation is good (Wong, 2013). Therefore the convergent validity and reliability of the measurement models were confirmed.

The discriminant validity was assessed using the construct's correlation and the construct's cross loadings. Awang (2014) recommended that for a measurement models to achieve discriminant validity its correlation with other constructs should not be >0.85. On the other hand Fornell and Larcker (1981) established that the discriminant validity of a construct is achieved when "square root" of Average Variance Extracted (AVE) of each of the research construct is greater than the correlation among the other research constructs. The cross-loading among the constructs was assessed to ensure that none of the construct is loading more in another construct than itself.

Table 2 shows the correlation among constructs. The square root of the Average Variance Extracted (AVE) was boldly inserted into the table in diagonal. None the correlation is above 0.85 or the square root of AVE. Also, none of the constructs loads on another construct more than on itself. Therefore, the discriminant validity was confirmed. Therefore, the models were suitable for Partial Least Squares (PLS) regression.

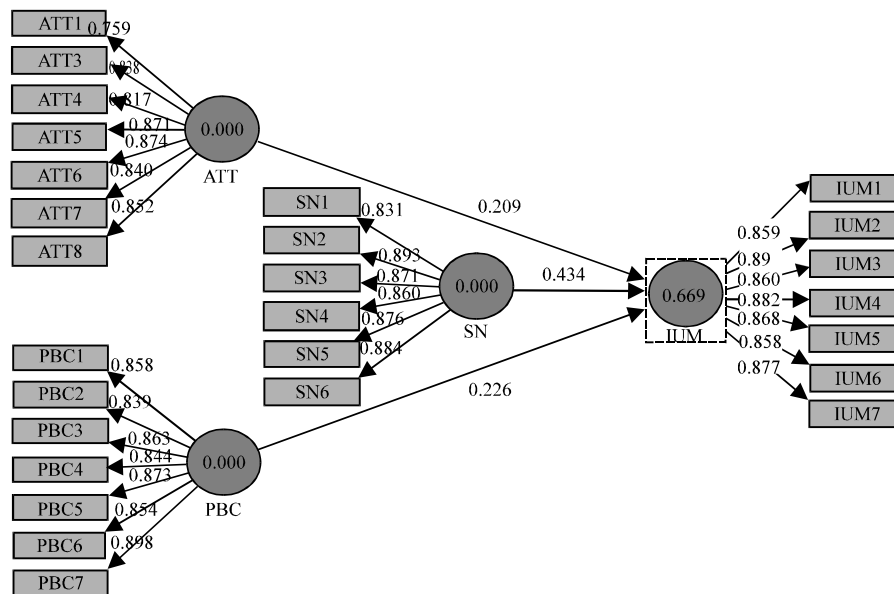


Fig. 2: Structural model

Table 2: Discriminant validity

Constructs	ATT	SN	PBC	IUM
ATT	0.8364			
SN	0.8346	0.8693		
PBC	0.8296	0.7930	0.8598	
IUM	0.7570	0.7865	0.7419	0.8765

Table 3: Hypotheses testing

H	Path	Weight	t-statistic	SE	Decision
H <sub>1</sub>	ATT → IUM	0.209	2.449*	0.085	Accept
H <sub>2</sub>	SN → IUM	0.434	4.712**	0.091	Accept
H <sub>3</sub>	PBC → IUM	0.226	2.477*	0.092	Accept

Significant level \*\*p&lt;0.01; \*p&lt;0.5

**Structural model:** The result of the structural model is shown in Fig. 2. The model shows an R<sup>2</sup> value of 0.669. This means that 66.9% of the variance of intention of using mortgage financing is explained by the exogenous TPB constructs of attitude toward mortgage financing, subjective norms, perceived behavioral control. Subjective norm has the highest path weight of 0.434 followed by perceived behavioral control with 0.226 and the least is attitude toward mortgage financing with path weight of 0.209 which are all significant.

The formulated hypotheses were tested using the result of the structural model as presented in Table 3 below. All the three formulated hypotheses were accepted. It shows that attitude toward mortgage, subjective norms and perceived behavioral control have significant effect on intention of using mortgage in financing homeownership. This finding confirms that of Amin *et al.* (2013, 2014), Gronhoj *et al.* (2012) and Ringim (2014) who found all the exogenous constructs of TPB having significant influence on intention. Subjective norm

was found to be the significant factor affecting intention of using mortgage in financing homeownership. This finding is similar to that of Amin *et al.* (2013) who found subjective norm as the most significant factor that influence intention of adopting Islamic home financing in Malaysia.

The finding also confirms that of Engle *et al.* (2010) and Bang *et al.* (2014) who found subjective norm as not just an indicator but the most significant predictor of intention in their respective research. This confirms the social influence on people to act or not act considering how people important to them may consider such action (Swidi *et al.*, 2014). This is not surprising due to social stigma attached to borrowing. Pirinsky found people who are likely to borrow are mostly people who are likely to deviate from social norms. Therefore, potential homeowners are likely to have intention of using mortgages in financing their homeownership if the social influence on it is positive. However, if the social influence do not favor mortgage financing they are likely not to have intention of using it. Thus, intention of using mortgage in financing homeownership is likely to be high if people have favorable attitude toward mortgage, subjective norm and perceived behavioral control and vice versa.

## CONCLUSION

Unlike many countries, homeownership is mostly not attained through mortgage financing in Nigeria. This is attributed to many factors. This study used the Theory of

Planned Behavior (TPB) to examine the bane of homeownership through mortgage financing in Nigeria. The study found that intention of using mortgage in financing homeownership was significantly affected by attitude toward mortgage, subjective norms and perceived behavioral control. The finding indicated that the low financing of homeownership through mortgage was explained by social influence on mortgage financing, people's attitude toward mortgage and their perceived ability or otherwise to use mortgage financing. These cumulatively explained 66.9% of the variance in intention of using mortgage in financing homeownership.

This research contributed to both the body of knowledge in financing homeownership through mortgage and has implications to policy makers, mortgage institutions, investors and the general public. It is therefore recommended that the policy makers should design mortgage policies in such a way as to reflect the diverse aspiration of the people. The mortgage institutions are also recommended to have diverse mortgage windows that accommodate all cultural and social diversities of people.

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