

Characterizing Payment Default of Low-Cost Housing Loans

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Abstract

This study aimed to develop a framework on factors affecting payment default in low-cost housing loans. A total of 462 low-cost housing loan borrowers have participated in the study. Adapted-modified research questionnaire and stratified random sampling technique were employed to gather data from participants. The Exploratory Factor Analysis, Frequency Distribution and Binary Logistic Regression analysis were utilized as statistical tools to analyze the data. It revealed that there were five factors that characterized payment default of low-cost housing loans namely, Loan Effects and Liquidity, Loan Monitoring, Quality or Level of Account Management, Saving Attitude, and Loan Sufficiency/Adequacy. Further, 60 percent of the borrowers are paying their loans on time, meanwhile, 40 percent were paying their loan or before the due date. Using binary logistic regression, the study concluded that loan effects and liquidity ($0.005 < 0.05$), and saving attitude ($0.000 < 0.05$), were found to significantly influence the payment default of borrowers.

Keywords: management, payment default, low-cost housing loan, borrowers, exploratory factor analysis, Philippines.

INTRODUCTION

The Government aimed to meet the rapidly growing demand for housing. To materialize the plan, it provided a loan program for housing to the people. The downturn in the housing of the late 2000s saw dramatic increases in mortgage defaults resulting in mortgage delinquency after the boom of housing credit in the mid-2000s (Campbell & Cocco 2014, p. 1). High rates of payment default of borrowers triggered large losses among many financial institutions and contributed to the large financial crisis. One of the most significant issues facing economists and policymakers was the sharp rise in residential mortgage defaults (Ohanian 2017, p. 1).

Given these dramatic growths and developments, an argument started on how to explain the dramatic increase in mortgage payment default, which resulted in a broad economic and financial crisis (Gerardi, Goette & Meier 2010, p. 2). The growing literature that studies mortgage default and loan repayment performance has contributed a vast amount of profound information on developing models, concepts, and theories that would explicate the continuous growth of loan defaults. Loan default research studies also

help different lending institutions on how to minimize low loan repayment performance and at the same time maximize profit.

The notion of mortgage default is the subject of a significant and developing literature in several countries. In the Philippines, most of the published studies about housing greatly focus on the discussion about housing sustainability, affordability, demand and supply, institutional reforms, and housing preferences. Not much attention is given to studying the factors that affect mortgage default in the Philippines. The government-controlled Home Development Mutual Fund (Pag-IBIG Fund) is one of the Philippines' most important government financial entities and the major financier of the government's housing programs (Tan 2009, p. 120). However, payment default of borrowers through Pag-IBIG Fund has been increasing from an average of 43% from 2011 to 62% in 2014 (Plaza 2016, para. 7). The fundamental issue in this situation is identifying what triggers payment default. Thus, quantifying the relative weight of the factors driving low-cost housing loan payment defaults is critical since they have quite varied consequences for understanding default motives and behaviors, as well as the formulation of economic policy.

This study is anchored on the Economic theory of Gary Becker's New Household Economic Approach (Wiro 1999, p. 9). This approach tackles the rational choice approach which combines maximizing behavior with the analysis of marriage, division of labor, investment in children, etc. Also, Becker presents that basic commodities are for example health, pleasure, sleeping, and children, and the household chooses the best combination of these commodities, a combination which will maximize the household utility function (Wiro 1999, p. 12).

Another theory is presented in the study of Read, Stewart, and La Cava (2014, p. 3), the 'equity' theory of default the choice to default by the borrower is based on a fair assessment and balancing of the advantages of having a payment obligation. It also suggests that when borrowers reach negative equity, they do not immediately default on payments. On the contrary to the first theory, the 'ability-to-pay theory state that borrowers only default when their revenues stop covering their minimum repayments and other significant expenses. They do not purposely default primarily on their equity position. 'Double-trigger' theory of default occasionally combined these two mortgage related notions. It suggests that it is a combination of an adverse income shock and the borrower being in negative equity that results in a default. This discusses the combination of some other types of triggers such as marital issues (death, illness, job loss, etc.) and negative equity.

This study was conducted to develop a framework on factors affecting payment default of low-cost housing loans. Specifically, it seeks to answer the following:

1. To identify the factors that characterize payment default of low-cost housing loans.
2. To identify the rate of payment default of low-cost housing loans.
3. To determine which of the factors significantly influence payment default.

METHOD

This study used descriptive exploratory factor analysis as part of a quantitative, non-experimental research design. The Home Development Mutual Fund's Low-Cost housing loan borrowers in Davao City served as the study's respondents. A total of 462 respondents were surveyed by the researcher. The sampling

technique used in this study is a stratified random sampling technique to increase the efficiency of sample design concerning the cost and precision. The research survey was conducted in the designated geographic area.

In this research, the researcher used an adapted research questionnaire that is based on related published studies. The researcher modifies the original statement from the adapted questionnaire to reflect and is suited in the context of the present study. Also, the information taken from the key informants’ interviews conducted is included to augment the questionnaire.

The data that was collected includes primary data both from the key informants’ interview conducted and the adapted-modified research questionnaire that is being used in conducting the survey. The key informants’ interview was conducted at separate times to elicit responses which formed part to be possible dimensions of payment default in low-cost housing loans. Based on the response items gathered and the adapted questionnaire, a survey questionnaire was developed and to be responded to by the low-cost housing loan borrowers. The gathering of relevant information was all done during the second semester of the school year 2019-2020.

In this paper, exploratory factor analysis was employed to pinpoint the elements that define low-cost housing loan payment default. The researcher used Bartlett’s test of sphericity and Kaiser-Meyer-Olkin measures of sampling adequacy to investigate the overall measures of intercorrelation under the statistical concerns on the assumptions in Factor Analysis. The researcher used Principal Component Analysis on the extraction method and Orthogonal-Varimax for the rotation method. For factor loadings, the researcher used values greater than ± 0.5 , this value is generally accepted for practical significance. In identifying the variables to be retained in the analysis, the researcher considered communalities greater than 0.50 (Hair et al. 2014, p. 116). To determine the rate of payment default of low-cost housing loans, frequency distribution was utilized. Further, Binary Logistic Regression was used to determine which of the factors significantly influence payment default.

RESULTS AND DISCUSSIONS

Factors that characterize payment default of low-cost housing loans

The factors characterizing payment default of low-cost housing loans are the ones displayed in Table 1. Based on the data analysis, we assessed the KMO as adequate, having a sampling adequacy measure of 0.833, and found appropriate for the data. Furthermore, Bartlett’s Test of Sphericity is 5751.659, and Bartlett’s coefficient is significant (0.000). Resulting from the test, factor analysis could be performed on the data. A value of less than the significant 0.05 level indicates that factor analysis was worthwhile.

Table 1. Rotated component matrix showing the dimensions of financial wellbeing of borrowers

Item	Components				
	1	2	3	4	5
14. Experiencing extreme financial stress that causes loan to default.	0.865				
10. Paying a lower amount than the desired or due payable amount.	0.862				

15. Excessive obligation is affecting loan payments.	0.828	
20. When the price of a house is lower than current outstanding balance, borrowers are choosing to default payments.	0.785	
13. Loss of assets is causing loan payment to default.	0.776	
33. Staff of HDMF is showing favoritism in serving borrowers.	0.763	
21. When monthly payments are no longer affordable, borrowers are choosing to sell the house.	0.701	
28. Loan officers from HDMF are visiting to check if payments are made timely.	0.829	
30. Customer service is important in ensuring that the borrowers are paying their monthly amortization timely.	0.777	
26. Believing that HDMF has all the mechanisms in ensuring that paying loans is timely.	0.776	
24. In changing terms and conditions of loan payments, borrowers are always informed.	0.659	
25. In giving enough information and explanations concerning the loans, borrowers are always informed.	0.777	
27. The HDMF system is providing loan borrowers with reliable, timely, and accurate information about loan status and payments made.	0.773	
29. Loan officers from HDMF are visiting defaulted borrowers to conduct follow-ups on their payments.	0.69	
23. The training provided by the HDMF is useful in managing loans.	0.674	
2. Borrowers are practicing saving.	0.806	
1. Monthly income is enough in covering all expenses.	0.753	
4. Saving for emergency purposes, personal needs & consumption, and repayment of loans.	0.752	
3. Believing that saving is helping borrowers in paying loans.	0.701	

38. The loan amount given by HDMF is enough for the house.					0.801
40. Spending the entire amount given by the Fund for a house.					0.784
39. Receiving the desired amount due from the Fund.					0.752
Eigenvalue	5.404	4.583	2.015	1.832	1.352
% Variance Explained	24.564	20.833	9.16	8.327	6.144
KMO measure of sampling adequacy = 0.833					
Bartlett's test of sphericity $\chi^2 = 5751.659, p < 0.05$					

Note: Items in red are cross-loadings or did not meet the +0.50-coefficient threshold.

Based on the analysis, the data for the five factors explain 69.028% of the cumulative variance of characterized payment defaults of low-cost housing loans. In contrast, the remaining 30.972% is explained by other salient items not included in the scale.

The first factor obtained an eigenvalue of 5.404, explaining 24.564% of the variance in characterized payment default of low-cost housing loans, items are loaded into the first factor, named "**Loan Effects and Liquidity**." The second factor obtained an eigenvalue of 4.583 and explained 20.833% of the variance in characterizing payment default of low-cost housing loans, items are loaded into the second factor, named "**Loan Monitoring**." For the third factor, the obtained eigenvalue is 2.015, explaining 9.16% of the variance in characterized payment defaults of low-cost housing loans, items are included in the third factor, named "**Quality or Level of Account Management**." Furthermore, the fourth factor attained an eigenvalue of 1.832 with a total variance explained of 8.327% of the variance in characterized payment default of low-cost housing loans, items are loaded into the fourth factor, named "**Saving Attitude**." Lastly, the fifth factor has an eigenvalue of 1.352 with a total variance explained of 6.144% and loaded into the fifth factor, "**Loan Sufficiency/Adequacy**."

Among the five factors, Loan Effects and Liquidity revealed an excellent rate of reliability and accuracy that characterized the payment default of low-cost housing loans. The findings are in line in the study by Aidoo and Mensah (2018, Mungure (2015), Awunyoo and Wongnaa (2013), and Louga (2013), who mentioned that the diversion of funds by the borrower contributes to loan payment default. Also, extreme financial stress is also identified as one reason for mortgage payment hardship. This is also due to some reasons, such as excessive obligations, extreme hardship, and payment adjustment (Foote & Willen, 2017). Another, is that negative home equity predicts the payment behavior of the borrower, leading to loan default, the findings are congruent with the implications of the study by Duffy, 2009, Haughwout et al., 2013, Fuster and Willen, 2015, Foote and Willen, 2017, and Ohanian, 2017.

Loan monitoring and Quality or Level of Accounting Management have good item reliability capacity. This is in line with the findings of Kinyera (2014), who stated that the primary cause of loan default is due to lending institutions' lack of attention to borrowers, and Louga (2013), who stated that lending institutions' training helped borrowers use their loans to generate enough income to meet their obligations and avoid payment default. Because of the ineffective monitoring and managing of loans, payment defaults are more common (Kinyera, 2014; Louga, 2013. The added component of loan monitoring, quality, or accounting management is the presence of bias, which is one of the causes of payment default, according to Aidoo and Mensah (2018). Payment default occurs when consumers are provided loans based

on bias. Strengthening client management through good customer service and swiftly attending to customer complaints can help to establish a solid relationship (Kinyera, 2014).

Meanwhile, Saving Attitude and Loan Sufficiency/Adequacy revealed acceptable values that characterized the payment default of low-cost housing loans. This is congruent with what Reta (2011) said about the number of loans being considered a factor in the ability of the borrowers to pay their loans. If the intended amount of the loan is enough for the borrower to use for their target purpose, they will have a positive repayment attitude. Hence, payment defaults are unlikely. However, if the loan amount is insufficient, payment default is likely (Reta, 2011). The study of Louga (2013) showed that borrowers who took out small amounts of loans do not default on their loans and have a good repayment history. The amount of loans is also mentioned as a cause of payment default in the studies of Desta, Lilay, and Wondmagegn (2015) and Jote (2018).

In terms of the saving attitude, Reta's (2011) history of borrowers that demonstrate savings purpose and the borrower's saving habit have also been considered elements that influence the borrower's behavior to fail on their loan payments. Savings, according to Reta (2011), can improve a borrower's financial discipline and serve as a basis for granting a loan. A borrower with more savings is also less likely to default on their loans.

Double-Trigger theory, states that borrowers have the option to default on their loans based on the resource utilization, judgment, and utility maximization processes of borrowers, as well as discernment and weighing of financial implications and the benefit of having a mortgage payment (Read et al., 2014; Wiro, 1999). Moreover, the results provided statistical evidence on the assumption of the study, which provided that a relationship must exist between common factors and measured variables (Fabrigar & Wegener, 2012), hence the discussed findings above.

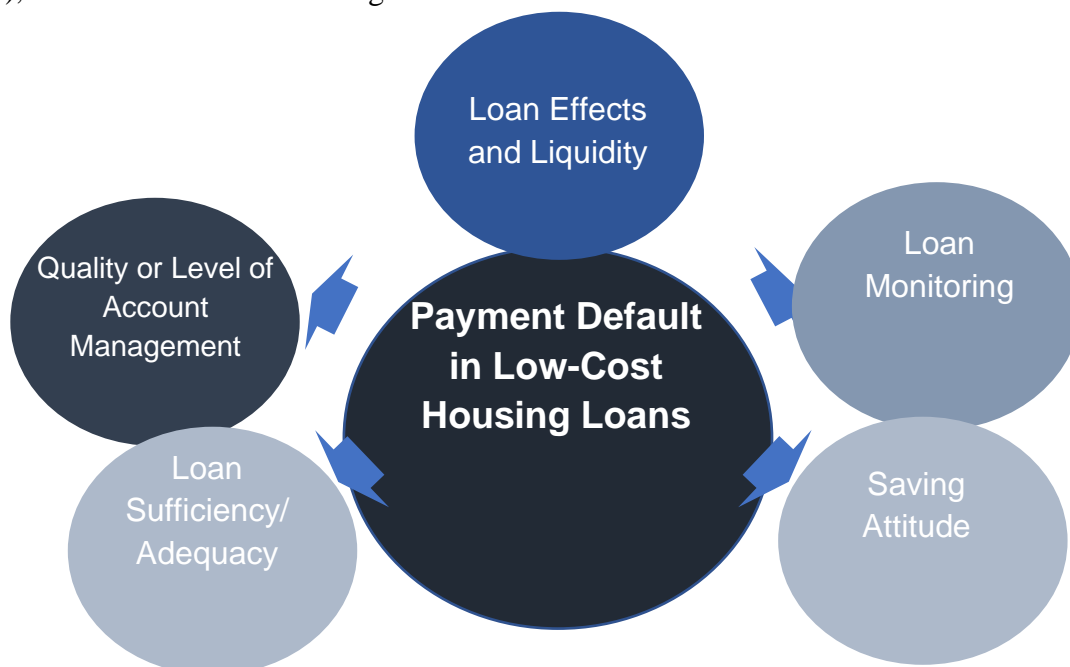


Figure 3. Final Framework Showing the Measures of Payment Default of Low-Cost Housing Loans

Table 2. Reliability tests of the constructed factors

Factors	Reliability by Cronbach's α
Factor 1. Loan Effects and Liquidity	0.905
Factor 2. Loan Monitoring	0.839
Factor 3. Quality or Level of Account Management	0.808
Factor 4. Saving Attitude	0.780
Factor 5. Loan Sufficiency/Adequacy	0.782

Table 2 shows the result of the reliability of the items by Cronbach's alpha to determine if the generated item loadings per factor have acceptable internal consistency values. The (Loan Effects and Liquidity), (Loan Monitoring), (Quality or Level of Account Management), (Saving Attitude), and (Loan Sufficiency/Adequacy) have Cronbach's alpha values of 0.905 (excellent), 0.839 (good), 0.808 (good), 0.780 (acceptable), and 0.782 (acceptable), respectively, which confirmed the reliability of the scale. It shows that these factors exhibit a correlation with their grouping items, and thus they are internally consistent.

Rate of payment default of low-cost housing loans

Table 3. Have you ever been late in paying your housing loan in the past six months?

Variables	F	%
No	277	60.0
Yes	185	40.0
Total	462	100

Presented in Table 3 is the rating of payment default for low-cost housing loans of the respondents. It shows the values of frequency and percentage, revealing that most of the respondents did not experience being late in paying their housing loan in the past six months, which comprises 60 percent of the total respondents. Meanwhile, 40% of 185 respondents have fallen behind on their mortgage payments. The findings, reflect a positive light for the lenders, with almost 60 percent of the borrowers of the Home Development Mutual Fund in Davao City paying their monthly responsibilities on or before the scheduled payment schedule.

Factors significantly influence payment default

Table 4. Binary Logistic Regression Model Summary

	B	S.E.	Wald	df	Sig.	Exp(B)
Factor 1. Loan Effects and Liquidity	0.386	0.139	7.755	1	0.005	1.471
Factor 2. Loan Monitoring	0.09	0.137	0.431	1	0.511	1.094
Factor 3. Quality or Level of Account Management	0.057	0.134	0.184	1	0.668	1.059
Factor 4. Saving Attitude	-0.726	0.144	25.332	1	0.000	0.484
Factor 5. Loan Sufficiency/Adequacy	0.044	0.121	0.132	1	0.716	1.045

In Table 4, the result of the binary logistic regression shows that factors like saving attitude, loan effects, and liquidity significantly influence the payment default of low-cost housing loans. The table shows that the p-value of loan effects and liquidity (0.005) and saving attitude (0.000) is less than 0.05, the alpha level of significance. These factors are statistically significant in influencing the payment default. Moreover, the p-value of the following factors, loan monitoring (0.511), quality or level of account

management (0.668), and loan sufficiency/adequacy (0.716) revealed values that are greater than the level of significance. These values do not significantly influence the payment default of low-cost home loans. Loan Effects and Liquidity: Extreme financial stress due to some reasons, such as excessive obligations, extreme hardship, and payment adjustment is identified as reasons to payment hardships (Foote & Willen 2017). Also, negative home equity predicts the payment behavior of the borrower, leading to loan default (Duffy, 2009; Haughwout et al., 2013; Fuster & Willen, 2015; Foote & Willen, 2017; and Ohanian, 2017) Borrowers who perceive the home equity of their housing loan positively will result to paying the loan on time. To perceive home equity positively, borrowers must believe that their investment and loan repayment will not outweigh the equity they will gain.

In terms of the Saving Attitude, Reta (2011) mentioned that savings can improve the financial discipline of the borrower and may serve as a basis to grant a loan. Also, borrowers with higher savings have a low rate of defaulting on their loans (Haile, 2018), which has a positive effect on their loan repayment performance. Moreover, the borrower's savings for future use, emergency, consumption, repayment of loans, and personal use characterize the tendency for payment defaults. This could further support the findings of the study that indeed, saving attitudes have the capacity to predict and influence the payment default of loans of borrowers.

CONCLUSION AND RECOMMENDATION

Based on the findings of the study, after the data has been treated with appropriate statistical tools, it revealed that there were five factors that characterized payment default of low-cost housing loans namely, Loan Effects and Liquidity, Loan Monitoring, Quality or Level of Account Management, Saving Attitude, and Loan Sufficiency/Adequacy.

Also, most of the Home Development Mutual Fund in Davao City borrowers are paying on time. The items of the questionnaire, measure the main phenomena, and measures as it is intended to measure. Further, 60 percent of the borrowers are paying their loans on time, meanwhile, 40 percent were paying their loan or before the due date.

On the other hand, among the five factors that were identified in the study, only two were found to significantly influence the payment default of low-cost housing loans. Using binary logistic regression, the study concluded that loan effects and liquidity, and saving attitude predict the payment default of borrowers. Hence, these are factors that could be used to anchor a framework on factors affecting payment default in low-cost housing loans in the context of borrowers from Davao City.

Based on the conclusions drawn, the following are recommended; To the Home Development Mutual Fund and other public and private financial institutions, the study recommended that they begin to recognize the factors that influence the payment default of borrowers. This is one step to crafting payment policies that cover, efficient, and dynamic processes to support the home loan financing of borrowers. Through this, effective and efficient service to their respective loan borrowers may be attained.

The study has presently revealed the factors that predicted the payment default of borrowers from the Home Development Mutual Fund in Davao City. To future researchers, exploration of other factors that define the issues faced by borrowers may be done. Also, respondents of the study may include borrowers from public and private institutions to ensure whether the factors are unique to the sample population or are applicable to every sector of home loan financing.

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