International Journal of Economic Literature (INJOLE) e-ISSN: 3026-0221
Vol. 3 No. 3 December 2025, page., 632-652

FACTORS AFFECTING COLLATERAL VALUE AT THE INDONESIAN STATE BANK IN THE PAPUA REGION

Rusmini[1] Elisabet Siahaan [2] Handy Octavianus[2]
[1,2]Sekolah Pasca Sarjana, Program Studi Magister Manajemen Properti dan Penilaian, Universitas Sumatera Utara, Medan
Jl. Prof. T.M. Hanafiah, Kampus USU, Medan, Sumatera Utara
Email Penulis Korespondensi:r39491@gmail.com

Abstract - The importance of accuracy in collateral valuation as one of the main instruments in maintaining banking health, particularly in controlling the *non-performing* loan (*NPL*) ratio. Inaccuracies in collateral analysis, which lead to *overvaluation* or the use of assets that do not have strategic market value, have the potential to cause difficulties in collateral execution and increase the risk of bank losses. This study aims to examine and analyse the factors that influence collateral value at Bank Negara Indonesia (BNI) in the Papua region. The research method uses a quantitative descriptive approach. The research population consists of data on 150 BNI Griya Multiguna consumer credit debtors, specifically residential debtors. A sample of 60 data points was obtained using *purposive sampling*. The data was obtained from five BNI branches in the Papua Region in the form of land legality, land area, building area, building legality, and building construction. The results of multiple linear regression show that land legality, building legality, and building area have a positive and significant effect on collateral value, while land area and building construction have a positive effect but are not statistically significant. The results of this study confirm that legal aspects, including land legality and building legality, as well as building area, are the main determinants of collateral value for residential consumer loans in the Papua Region. These findings are important for banks, appraisers, and stakeholders in the management of residential property-based loans, and encourage more accurate evaluations to minimise the risk of non-performing loans in the Papua region, ultimately benefiting the Government of the Republic of Indonesia.
Keywords: Land legality, Land area, Collateral value, Non-Performing Loan, BNI Papua Region.

INTRODUCTION

The Financial Services Authority (2017) states that banking in Indonesia plays an important role in the economy. Its main function is to collect and distribute public funds with the aim of supporting national development. This objective is pursued in order to equalise improvements in the people's standard of living. In line with this, Dwiastuti (2020) states that in addition to collecting funds from the public, banks also distribute them in the form of loans or credit to the public.

Broadly speaking, credit is divided into two types: unsecured credit and secured credit. Collateral is a common term in loan contracts along with interest rates

and maturity dates (Jimenez, Sales, & Saurina, 2006). The use of collateral is a consequence of *adverse selection*, which is the occurrence of information asymmetry between the parties involved in the transaction. As a result, one party gains an unfair advantage. Stroebel (2016) states that the existence of asymmetric information increases competition among lenders to generate more profitable interest on developed properties.

In accordance with OJK Regulation Number 40/POJK.02/2019 concerning the Assessment of the Quality of Commercial Bank Assets, the collectability status of debtors is divided into five categories, namely collectability 1 (current), which means that the debtor always pays the principal and interest on time. The account is performing well, there are no arrears, and it complies with credit requirements. Collectibility 2 (under special attention) is when the debtor pays the principal and interest arrears within 1-90 days. Collectibility 3 (substandard) is when the debtor pays the principal and interest arrears within 91-120 days. Collectibility 4 (doubtful) if the debtor pays the principal and interest 121-180 days late, and Collectibility 5 (bad) if the debtor pays the principal and interest more than 180 days late.

Collectibility 1 and 2 are still classified as PL (*Performance Loan),* while collectibility 3, 4, and 5 are also referred to as NPL (*non-performance loan*). NPL is one form of indicator of the health of an asset of a financial institution. The calculation is related to the number of debtors who fail to repay their loans as agreed. The causes of NPLs can vary, such as economic crises, political and legal instability, or changes in the borrower's personal circumstances.

Before granting credit facilities, the bank must be confident that the credit provided will be repaid. This confidence is obtained from the results of credit assessments before disbursement and the granting of credit based on trust from the bank (Pohan & Rokan, 2022). Credit defaults can be caused by two things, namely intentional and unintentional factors. Intentional factors relate to customers who consciously intend not to pay their obligations, resulting in loan defaults. Meanwhile, unintentional factors mean that debtors have the will to pay their obligations but are unable to do so.

Reviewing the value of collateral is an important part of the credit risk management process (Song, 2002). The higher the quality and accuracy of the collateral value, the lower the risk of the bank suffering losses when credit problems arise. Conversely, inaccuracy in collateral valuation will make it difficult for banks to execute when debtors default, thereby contributing to an increase in *Non-Performing Loans* (NPLs). This is related to the market value of collateral in the provisioning process. This provisioning is carried out to reduce the initial value of the loan to its current estimated value, taking into account the rate of decline in the value of the loan.

Inaccuracies in valuation can put the bank in a weak position if the liquidation of collateral sales cannot be avoided. which could result in losses for the bank because the price is usually lower than the original price (at the time the loan was granted) or the market price at the time the collateral is sold, resulting in the debtor's obligations to the bank not being fulfilled (Octavianus, Sadalia, Fachrudin, & Syahyunan, 2023). The large number of problematic collateral assets causes banks to incur losses, necessitating analysis before deciding whether an asset is suitable as loan collateral.

The phenomenon of non-performing loans does not only originate from debtors with various factors, but can also be caused by errors in the bank's analysis of collateral (Fauzi, 2018). This needs to be handled quickly so that it does not continue to become *a non-performing loan*. If the percentage of bad loans exceeds the limit set by Bank Indonesia, it will affect the health of the bank (Damayanti, 2015).

In the banking system, collateral value plays an important role as the basis for considering loan approval and as a risk control tool. According to the Indonesian Valuation Standards (SPI) and POJK No. 40/POJK.03/2019, collateral value must reflect fair market value, asset legality, and prospects for use. This value is the main reference in determining *the loan-to-value (LTV)* ratio, so that banks can ensure that the loans granted are commensurate with the collateral's ability to cover the risk of loss. In addition, the accuracy of collateral valuation is part of *the prudential banking* principle in credit risk management.

Referring to the consumer credit data that has been collected, BNI Papua Region for each branch office shows the occurrence of NPLs, with 162 NPL debtors. From the 5 branches presented in Table 1.2, it shows that out of 3,581 debtors, the Jayapura Branch has 84 NPL debtors or 2.35 per cent of its total debtors. Other branches also show NPLs, such as the Manokwari Branch with 40 NPL debtors or 2.33 per cent of the total 1,719 debtors. Other branches that show relatively low NPL figures are the Sorong Branch, Biak Branch and Merauke Branch, with 22 debtors (0.9 per cent), 10 debtors (0.79 per cent) and 6 debtors (0.37 per cent) respectively.

Overall, the consumer credit ratio at BNI Papua Region was 1.55 per cent NPL compared to the total number of debtors, which was 10,441 debtors. In Bank Indonesia Regulation No. 06/10/PBI/2004 dated 12 April 2004 concerning the Commercial Bank Health Rating System, BNI Papua Region was classified as " " (very healthy) with an NPL of less than 2 per cent. Although the current NPL rate for consumer credit is in the very healthy category, there are still many debtors who are delaying their instalment payments, credits under special supervision and economic slowdown in certain sectors, which have the potential to increase bad debts. In terms of collateral used to secure loans, there has been a decline in the market value of assets, less strategic locations, and a decline in asset quality. Therefore, these

conditions will affect NPL in the future if they cannot be resolved properly at this time.

Initial observations from direct interviews with officers from the BNI Papua Region *Remedial* and *Recovery* Unit show that of the 164 consumer credit NPL debtors, 44 collateral in the form of land and buildings, or 27.16 per cent, are classified as problematic collateral spread across five branch offices. There are 20 collateral items in the Jayapura branch, 6 in the Manokwari branch, 13 in the Sorong branch, 3 in the Biak branch, and 2 in the Merauke branch. This data shows that there is a significant amount of problematic collateral at BNI in the Papua region. Collateral becomes problematic when the debtor is unable to fulfil their obligations, while the collateral cannot be executed.

Careful evaluation at the pre-lending stage is crucial for banks to avoid mispricing, reduce the risk of bad debt, and maintain the health of their credit portfolios in the future. Collateral that has stable value, clear legality, and is easily liquidated will strengthen guarantees and increase the security of the credit provided. Thus, this study emphasises the importance of analysing the factors that determine collateral value before credit is disbursed, so that it can be used as a basis for more accurate, preventive, and sustainable decision-making for banks. Based on this urgency, this study focuses on analysing the factors that influence collateral value at Bank Negara Indonesia in the Papua region.

The research will provide information, references, reviews, and input to banking appraisers and credit decision-makers so that they can apply the principle of prudence in analysing collateral, especially land and building collateral, so that in the end they obtain quality assets that benefit banks and the state.

RESEARCH METHOD

Conceptual Framework

The following is a conceptual framework that describes the model of the relationship between the variables to be studied

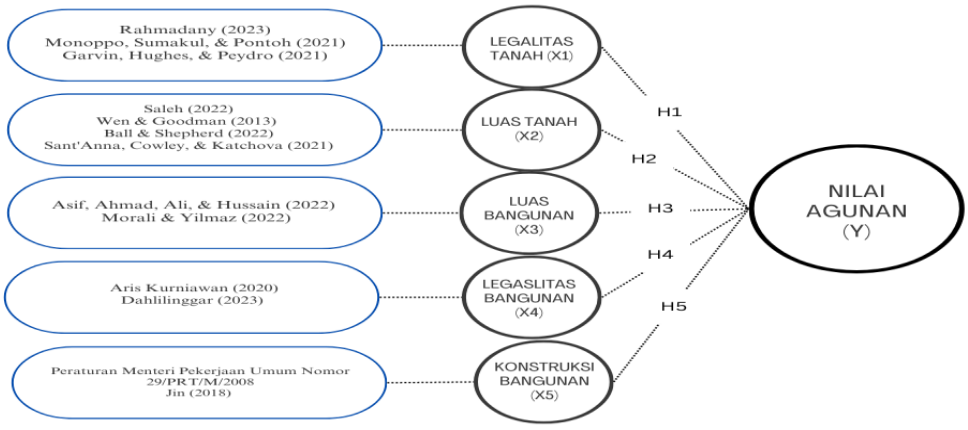

Figure 2.1 Conceptual Framework

Operational Definitions

To facilitate the measurement of research variables, operational definitions of the research were developed. Below are all the variables, operational definitions, and measurement scales used in this study:

Table 2.2 Definitions and Measurement Scales of Research Variables

No	Research Variable	Operational Definition	Measurement Scale
1	Collateral Value (Y)	This is the Loan-to-Value (LTV) ratio of 85% of the market value as determined by the appraiser in accordance with the provisions of PT Bank Negara Indonesia (Persero) Tbk	Ratio
2	Land Legality (X_1)	Land ownership certificate in the form of a land certificate issued by the National Defence Agency	Dummy 1 = SHM 0 = Other Types of Certificates
3	Land Area (X_2)	The total area of land, including all land areas occupied by buildings and areas not covered by buildings. Measured in square metres (m^2)	Ratio
4	Building Area (X_3)	The size of the building based on the Building Permit (IMB) or Building Permit (PBG) or the area of additional buildings measured by length times width in square metres (m^2).	Ratio
5	Building Legality (X_4)	State recognition of a building or structure is evidenced by ownership of a Building Permit (IMB) or Building Occupancy Permit (PBG).	Dummy 1 = Has IMB 0 = No IMB
6	Building Construction (X_5)	Residential buildings are divided into two categories: permanent houses and other constructions.	Dummy 1= Permanent 0 = Other constructions

Population and Sample

The population in this study consisted of all Griya Multiguna debtors at BNI Papua Region, totalling 150 debtors. *Probability sampling* was used as the sampling technique. According to Sugiyono (2012), this is a data collection method carried out by studying, examining, and recording documents relevant to the research object that are available in the form of written notes, images, or recordings. The documentation technique referred to is the collection of data sourced from BNI Papua Region in accordance with the required variables.

The criteria for the target population used as a sample in this study were collateral in the form of land and buildings with the Griya Multiguna Credit Type at BNI Papua Region until August 2024 with the type of building being a residential house. Griya Multiguna is a loan provided to the public with collateral in the form of ready-to-occupy property owned by the applicant or the applicant's spouse (husband/wife) as long as there is no separation of property agreement (bni.co.id). The criteria for this type of credit were determined based on uniform collateral, so that the results could represent the entire population in the research location without neglecting the objectives of the research.

The population size according to the established criteria, namely collateral in the form of land and buildings with Multipurpose Home Loan types at 5 BNI branches in the Papua region up to August 2024, is 150 data points for residential buildings. The results of the calculation using the Slovin formula show that the total sample to be studied is 60 data on collateral in the form of residential buildings with equal probability, namely 12 data for each branch.

The use of a 10% margin of error, limited access to confidential bank collateral data, and the homogeneity of the characteristics of collateral objects in the form of land and buildings in the Papua region. Thus, the sample with this margin can still adequately represent the population. The data is provided in accordance with the required sample, taking into account Law No. 27 of 2022 on Personal Data Protection (PDP). This law regulates the prohibition of personal data use and criminal provisions related to personal data protection. Personal Data Protection encompasses all efforts to protect Personal Data in the processing of Personal Data to guarantee the constitutional rights of Personal Data subjects.

Data Collection

The type of data used in this study is *cross-sectional* data, which is data collected at a specific time on several objects with the aim of describing a particular situation (Arif et al., 2020). This study uses data on multi-purpose home loan debtors. The data obtained is primary data obtained directly from PT. Bank Negara Indonesia (Persero), Tbk. Papua Region.

Data Analysis

The formulation of factors affecting collateral value in this study uses multiple linear regression analysis, which explains the relationship between the dependent variable and factors affecting more than one independent variable. The purpose of multiple linear regression analysis is to measure the intensity of the relationship between two or more variables and to make predictions of the estimated value of Y as the dependent variable on X as the independent variable. The model used to formulate the equation is as follows:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$$

Where:

Y = Collateral value at Bank Negara Indonesia, Papua Branch
X_1 = Land legality
X_2= Land area
X_3= Building area
X_4= Building legality
X_5= Building construction
β_1- β_5= Regression Coefficients of Variables
α = Constant
ε = *Error term*

RESULTS AND DISCUSSION

Land and building legality are required as conditions for applying for credit at a bank. This indicates that the ownership of land and buildings has legal force. Of all BNI branches in the Papua region, 41 debtors have land legality in the form of SHM and 19 debtors only have SHGB. In this study, this is measured as a dummy (1 = SHM; 0 = other types of certificates). In Papua, much of the land is still subject to customary rights or traditional ownership, and inheritance is not always reflected in formal certificates, resulting in relatively lower SHM ownership or obstacles to it, as well as certification and ownership clarification processes that are often time-consuming and face administrative barriers. This situation increases legal uncertainty when land is used as collateral.

Government Regulation No. 18 of 2021 concerning Land Rights, Flats, and Land Registration states that it updates old provisions and clarifies the status of several old documents (e.g. girik or petok) that are no longer recognised as valid proof of ownership unless they have been converted into official certificates. For Papua, this is particularly relevant because much of the customary land (hak ulayat) has not been registered in the national land system. This means that customary land without a converted certificate cannot be valued equally to SHM in collateral. Therefore, banks tend to give a "discount" (*conservative haircut*) on objects without SHM or assess only the value of the land if the legality of the building is incomplete.

The difference in valuation between collateral with Freehold Title Certificates (SHM) and Building Use Rights (HGB) in banking is inseparable from the basic nature of land rights. SHM is the strongest and most comprehensive right without a time limit, while HGB has a certain period that can expire if not renewed. This condition makes banks more cautious with HGB collateral, for example by limiting the maximum credit tenor to 10 years for Griya Multiguna products, so that the credit period does not exceed the validity period of the HGB. Although the cost of upgrading rights from HGB to SHM is relatively small, banks cannot fully rely on debtors to do so, because the administrative process and uncertainty of customer behaviour still pose legal risks. In the context of Papua, this issue is even more

prominent given that there is still a lot of customary land that is difficult to certify. Therefore, banks value SHM higher than HGB or land without certificates, as it provides legal certainty, ease of execution, and protection against non-performing loans (NPLs).

Building construction is divided into two types: permanent and other types. As much as 83% of buildings used as collateral for loans have permanent construction. This means that these buildings are constructed with durable materials such as concrete, brick, steel, and high-quality wood, and are designed to last for a long period of time. Meanwhile, 17% of debtors own houses of other types, namely buildings that use a combination of strong and less durable materials. Generally, the walls are partly made of brick or wood, while the roofs use zinc or asbestos.

Construction in Papua tends to still be partly made of wood or semi-permanent. This is due to geographical and climatic conditions that have high rainfall, potential earthquakes, and humidity that accelerates building damage. In addition, semi-permanent houses (traditional houses) have high cultural value, but their economic value is low in collateral assessment because they are not easy to resell. Most people living in Papua, especially in Jayapura and Sorong, have purchased or built permanent housing. Although the materials are more expensive than those used in non- t structures, permanent buildings are stronger and more durable because they are constructed with strong materials such as concrete, bricks, and cement. Meanwhile, semi-permanent buildings, although the materials are much cheaper, are less sturdy, and maintenance costs will be higher because the materials used are not as strong as permanent buildings.

Banks tend to choose permanent structures as collateral because they have a higher value compared to other types of structures. This is because permanent structures use more durable materials and have a stronger structure, giving them a longer lifespan. In the event of default by the debtor, permanent structures are easier to resell to new buyers, allowing the bank to recover the loan it has provided. If there is *an overvaluation* of semi-permanent buildings, the bank risks losing money because the actual sale value at the time of execution is much lower. Meanwhile, if there is *an undervaluation* of permanent buildings, the credit will be too low and potentially lead to a shortage of working capital and default. On the other hand, if buildings without construction standards are used as collateral, there is a greater risk of collapse or damage before the loan is paid off. This means that the bank loses the value of the collateral.

The average distribution shows a tendency for smaller building areas compared to land areas, which may reflect housing patterns or land use in certain areas. A significant difference between land area and building area is seen in the highest category, indicating that properties with large land areas do not always have buildings that are proportional to their land area. The building area in the lowest

category is 35 $m^2$with the highest area being 450 m^2. Meanwhile, in the highest category, the land area is 864 $m^2$and the lowest is 73 m^2. The average building area used as collateral is 137 $m^2$and the average land area is 287 m^2.

Several regulations in assessing the building area for collateral are Financial Services Authority Regulation Number 40/POJK.03/2019 concerning the Assessment of the Quality of Commercial Bank Assets, which requires banks to assess the condition and value of collateral based on actual conditions and quantitative data, including physical measurements (building area and land area). Furthermore, Government Regulation No. 16 of 2021 concerning buildings stipulates that every building must have technical data officially recorded in the Building Permit (PBG), including information on floor area and room functions. This forms the legal basis for building area data for appraisal purposes.

The high cost of building materials in Papua affects building area. Building materials in Papua are expensive due to various factors, primarily high transportation costs and limited access to the region. A large amount of materials must be transported from other islands, such as Java, which results in high costs, especially by air. This is due to the long distances and difficult terrain, so that delivery by land or sea also takes significant time and costs. Infrastructure in the Papua region, such as roads, bridges and ports, is still inadequate, which slows down and increases the cost of distribution for building materials.

In the context of collateral value, higher collateral value on buildings is related to volume of use, capacity, and economic utilisation potential. However, the marginal value of building area will decrease at a certain point. This means that adding area does not always increase value proportionally, especially if the location is not supportive or market demand is limited. In addition, banks consider the building base coefficient (KDB) and building floor coefficient (KLB) to assess the optimal ratio between land area and building area.

Papua is the largest island in Indonesia but has the smallest population, which is why most residents own large tracts of land that have been passed down from generation to generation. Papuans who own large tracts of land are generally indigenous peoples who have customary rights to the land and its natural resources. Indigenous peoples use the land for various purposes such as farming, animal husbandry and searching for other natural resources. Along with development and economic growth, there has been a shift in land ownership from indigenous communities to other parties, including individuals, companies, and the government. Land with large areas but high building material prices has caused a significant imbalance between land area and building area in Papua.

Land area is an important indicator in collateral valuation because it directly affects the market value of the collateralised asset. Based on UUPA No. 5 of 1960 and PP No. 24 of 1997, the land area recorded in the certificate has legal force and forms

the basis for securing collateral rights. The latest regulation, PP No. 18 of 2021, also emphasises the importance of validating physical land data and field maps to ensure legal certainty. In banking practice, the larger the land area, the higher the collateral value, although at a certain point there is a marginal decline in value, especially in areas with low market demand. In the context of Papua, many large areas of land are still under customary ownership or are not yet certified, so they cannot be fully valued due to the high risk of disputes and difficulties in execution. Geographical conditions, limited access, and a narrow property market also affect the value of large plots of land in the region. Therefore, land area assessments must be carried out with caution to avoid over-taxation, which has the potential to increase the risk of non-performing loans (NPLs), while ensuring that the collateral value reflects real market conditions and legal validity.

Normality Test

The normality test was conducted using the Shapiro-Wilk test because the sample size was small, making the test sensitive to deviations from normality in small data sets. The results of the Shapiro-Wilk test can be seen from the prob>z value of 0.63186, which is greater than 0.05 (0.63186 > 0.05). This means that the assumption of normality in the model has been fulfilled or H0 is accepted.

Table 3.1.2 ***Normality Test Results***

Shapiro-Wilk					
Variable	**Obs**	**W**	**V**	**Z**	**Prob>z**
resid	60	0.98426	0.855	-0.337	0.63186

Source: Rusmini, 2025 (Processed Data)

Multicollinearity Test

The multicollinearity test in this study used VIF values, where a value greater than 10 indicates multicollinearity. After conducting the test, it was found that the independent variables used in the study were not related to each other, meaning that multicollinearity did not occur.

Table 3.1.3 Results of Multicollinearity Test

Variable	**VIF**	**1/VIF**
Land Legality	1.97	0.506689
Land Area	1.34	0.744540
Building Area	1.56	0.641461
Building Legality	2.36	0.424406

Building Construction	1.94	0.516381

Source: Rusmini, 2025 (Data Processed

Heteroscedasticity Test

Table 3.1.4. Results of the Bruesch-Pagan/Cook-Weisberg Test for Heteroscedasticity

Bruesch-Pagan/Cook-Weisberg test for heteroscedasticity	
Assumption: Normal error terms	
Variable: Fitted values of ln_y_na	
H0: Constant variance	
Chi-squared (1)	= 0.22
Probability > chi-squared	**= 0.6374**

Source: Rusmini, 2025 (Processed Data)

The heteroscedasticity test was conducted using the Glejser test by regressing the absolute residual values against the independent variable or its transformation. The aim was to obtain the relationship between the independent variable and the residual variability. The results of the heteroscedasticity test show that the Prob > chi2 value of 0.6374 is greater than 0.05. Thus, in the model used, there is no indication of a significant independent variable with residual variability.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) value in this study is used to see how much influence the independent variable (X) has on the collateral value variable (Y). The value of 0.8112 shows how much variation in *the dependent variable* can be explained by the *independent variable*. This means that 81.12% of the variation or change in the dependent variable can be explained by the independent variable in the model. In other words, the regression model has the ability to explain more than half of the total variation that occurs in the dependent variable. The remaining 18.88% reflects the variation that cannot be explained by the regression model. This variation may be due to other factors not included in the model or due to the influence of random variables (*error*).

F-test

The F test is used to test the hypothesis of whether all independent variables in the regression model collectively (simultaneously) have a significant effect on the dependent variable. A Prob > F value of 0.0000 indicates that the probability of error in rejecting the null hypothesis is very small (almost zero). With this value being less than 0.05 (0.0000 < 0.05), we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1). This means that the independent variables simultaneously have a significant effect on the dependent variable.

Partial Test (t-test)

The t-test is used in this study to determine the effect of one independent variable (X) individually (partially) on the collateral value variable (Y).

1. Land Legality

   Based on the t-test results, land legality is significant to collateral value, and the null hypothesis ($_{H_0}$) is rejected. The data processing results show that the p-value < α with a value of 0.000 < 0.05. Statistically, the significance of this variable indicates that there is sufficient evidence or a strong enough relationship individually to the collateral value variable in the regression model.

2. Land Area

   Based on the t-test results, land area is not significant to collateral value, and the null hypothesis (H_0) is accepted. Data processing results show that the p-value > α with a value of 0.721 > 0.05. Statistically, the insignificance of this variable indicates that there is insufficient evidence or that it does not have a strong enough individual relationship with the collateral value variable in the regression model.

3. Building Area

   Based on the t-test results, building area is significant to collateral value or the null hypothesis (H_0) is rejected. Data processing results show that the p-value < α with a value of 0.014 < 0.05. This means that statistically there is a relevant relationship to conclude that the independent variable has a partial effect on the dependent variable.

4. Building Legality

   Based on the t-test results, building legality is significant to collateral value, and the null hypothesis (H_0) is rejected. Data processing results show that the p-value < α with a value of 0.007 < 0.05. Statistically, the significance of this variable indicates that there is sufficient evidence or a sufficiently strong individual relationship with the collateral value variable in the regression model.

5. Building Construction

Based on the t-test results, building construction is not significant to the collateral value or the null hypothesis (H_0) is accepted. The data processing results show that the p-value > α with a value of 0.235 > 0.05. This means that statistically there is no relevant relationship to conclude that the independent variable has a partial effect on the dependent variable.

Table 3.1.7 Tabulation of Statistical Test Results

Ln_y_na	Coefficient	Std. error	t	P>|t|	[95% confidence interval]	
Constant	19.12439	0.0865218	221.04	**0.000**	18.95092	19.29785
Land Legality	0.5521146	0.0849455	6.5	**0.000**	0.3818091	0.7224201
Land Area	0.0000562	0.0001564	0.36	**0.721**	-0.0002574	0.0003698
Building Area	0.0009862	0.0003888	2.54	**0.014**	0.0002067	0.0017657
Building Legality	0.3256748	0.1158522	2.81	**0.007**	0.934052	0.5579444
Building Construction	0.1261732	0.1050292	1.20	**0.235**	-0.0843975	0.336744

Discussion Research

Based on the results of data processing, the regression analysis results can be seen in the equation below:

$$collateral\ value = 19{,}12439 + 0.5521146X_{1i} + 0.0000562X_{2i} + 0.0009862X_{3i} + 0.3256748X_{4i} + 0.1261732X_{5i} + \in\_i$$

Therefore, it is necessary to discuss the influence of each independent variable on the dependent variable, as explained below:

Land Legality Has a Positive and Significant Effect on Collateral Value

Based on the t-test results, it is evident that land legality has a positive and significant effect on collateral value. A Freehold Title Certificate is the strongest and most authentic proof of land ownership in Indonesia. A land certificate is a freehold title certificate that grants full ownership of the land to the certificate holder. Ownership certificates are the highest form of credit collateral compared to land use rights and building use rights in accordance with Law Number 4 of 1996 concerning Land Encumbrances and Objects Related to Land in Article 20. Therefore, banks place land legality as a primary requirement for collateral assessment because it provides legal certainty, guarantees market value stability, and facilitates execution in accordance with the principles of prudence and banking regulations.

Based on the data collected, there are two types of collateral used, namely Freehold Title Certificates (SHM) and Building Use Rights Certificates (SHGB). SHM grants full ownership to the holder without any time limit, so it can be inherited by heirs and has a higher value in property transactions. Meanwhile, SHGB only grants rights to the land for a certain period, namely 30 years with an option to extend for 20 years and renew for another 30 years.

In the context of bank loans, SHM is more readily accepted as collateral than SHGB because it provides legal certainty and full ownership to the debtor. Conversely, SHGB has limitations because its ownership status is temporary, so banks tend to be more selective in accepting SHGB as collateral, especially if the certificate's validity period is nearing its end.

In Papua, this difference becomes even more complex given that much of the customary land does not have formal certificates, making it difficult to use as collateral in the banking system. Land ownership in Papua is mostly based on customary rights, which are recognised by custom but do not always have formal legal force in the eyes of banks (David, 2023). In practice, SHM is mostly owned by individuals or companies that have taken care of the legality of their land in accordance with government regulations, while SHGB is often used for housing or businesses built on state land or customary land whose building rights have been transferred. Banks in Papua are generally more cautious in accepting SHGB-based collateral, especially if the status of the land is still related to customary rights. Therefore, the main challenge in Papua is not only the difference between SHM and SHGB, but also the legality of land in general, which remains an important issue in the property and banking sectors in the region.

Manoppo, Sumakul, & Pontoh (2021) and Turner & Walker (2019) emphasise that the status of the certificate is paramount in credit guarantees. Pamungkas & Djajaputra (2024) add that land certificates have high legal force, so they can be used in various financial transactions such as loans and credit. Meanwhile, Sant'Anna, Cowley, & Katchova (2021) add that changes in the value of credit provided by banks are caused by an increase in the value of certificate ownership.

Land Area Has a Positive and Insignificant Effect on Collateral Value

Based on the t-test results, it is evident that land area has a positive and insignificant effect on collateral value. This means that although there is a tendency for collateral value to increase with larger land areas, it is not strong enough to be the basis for valuation decisions. This could be due to several factors: First, in Papua, the value of an asset is more determined by the legality and legal certainty of the land (Wutoy & Soeratno, 2014). Much of the land in Papua is disputed, customary, or does not have a clear certificate, so even if it is large, its value is low or not fully recognised by banks as collateral.

Second, the characteristics of the property market in Papua are different from those in other regions. The demand for vacant land or large plots of land is not as high as the demand for ready-to-use buildings or land in strategic locations. Much of the land is large but difficult to access or has an unclear status (communal/customary), making it less attractive to investors and buyers when collateral is executed—in other words, the land is not marketable (Weleng, Runtunuwu, & Lumenta, 2025). Third, banks tend to assess collateral more conservatively for land assets in Papua ( ) due to bad experiences during the execution of non-performing loans. The sale process is often difficult due to social, cultural, and legal issues, so banks prioritise the legality and physical condition of the building over the size of the land. Fourth, according to Mabarun, Rahakbauw, & Naufal (2023), the price structure of land in Papua is generally cheaper than the value of the buildings on it (the ratio of land value to total property is only around 36% on average). This means that the contribution of land area to the total value of collateral is indeed smaller than other variables such as the condition and legality of the building.

According to one BNI Papua Region appraiser, a large land area does not always have a high value in Papua, as this can be due to the accessibility of the land. Many areas in Papua are remote and difficult to reach, resulting in low land values due to limited access. The geographical conditions are unique because many areas in Papua are hilly or swampy. Other factors may include a lack of public facilities and underdeveloped infrastructure.

This study is in line with research conducted by Mabarun, Rahakbauw, & Naufal (2023) in Jayapura Regency, which showed that in Sentani District, land values are relatively cheap compared to buildings, with land values contributing only around 36% to the total property value. This indicates that although land area contributes positively, other factors such as building quality and location are more dominant. Wutoy & Soeratno (2014) added that the attractiveness of land area as a factor determining collateral value may be reduced due to the absence of land ownership and building permits in Papua.

Furthermore, social and cultural factors related to land in Papua are viewed more deeply by indigenous communities. This influences the perception of land in an economic context (Iriyanto & Sitorus, 2023). Rusim, Parung, Latif, & Tjaronge (2018) emphasise that aspects of local wisdom often become obstacles in the implementation of collateral valuation, thereby affecting the overall value of land. Therefore, banks and financial institutions apply a more conservative assessment of land area due to unstable market conditions. On the other hand, as a result of this assessment, debtors will experience difficulties in obtaining the necessary financing for property or business development.

Building Area Has a Positive and Significant Effect on Collateral Value

Based on the t-test results, it was proven that building area has a positive and significant effect on collateral value. Building area is closely related to the price of construction materials. The larger the building, the greater the material costs required for its construction. The price of building materials in Papua is expensive due to various factors, mainly high transportation costs and limited access to this region. A large amount of materials must be transported from other islands, such as Java, which results in high costs, especially by air. This is due to the long distance and difficult terrain, so that delivery by land or sea also takes a significant amount of time and money. Infrastructure in the Papua region, such as roads, bridges and ports, is still inadequate, slowing down and increasing the cost of distribution for building materials, resulting in higher bank assessments compared to smaller house sizes.

Large buildings allow for more space to be designed according to its function, which can make residents feel more comfortable and have more room to move around freely. Among the community, owning a large house can increase social status because it is often considered a symbol of wealth and prosperity, giving the impression that the owner of the building has a high social status and strong financial capabilities. This also influences banks in assessing buildings based on their size.

Building size is one of the physical characteristics that most significantly affects property value, as size is a key attribute in determining the usefulness and comfort of a property (Suderajat, Kamalia, & Afandi, 2025). In addition, it reflects the physical capacity and economic function of the property. The larger the building, the higher the market value that can be calculated as collateral, indicating the potential for utilisation, usability, and productivity of the asset. This provides greater confidence for banks regarding the liquidation value and the ability to execute collateral in the event of credit risk problems.

Mampow, Manengkey, & Marunduh (2020) found similar results, namely that building size has a significant influence. An increase in building size affects land and building tax (PBB) revenue and indicates a high market value for the building. A large building can offer more space for activities and increase its attractiveness to potential buyers or tenants.

In Papua, the need for residential and commercial space continues to increase in line with population growth and urbanisation. This makes larger buildings more desirable, thereby increasing collateral value. This means that building size contributes positively to property sales value in areas with high demand, such as housing in developing areas (Alfasyah, 2024). Furthermore, larger buildings are often considered a more stable investment, especially in the context of a developing regional economy such as Papua. This stability is attractive to banks in providing loans, as the investment risk is considered lower (Rusim, Parung, Latif, & Tjaronge, 2018; Octavianus. & Fachrudin, 2022).

Building Legality Has a Positive and Significant Impact on Collateral Value

Based on the t-test results, it is evident that building legality has a positive and significant effect on collateral value, meaning that in this study, building legality in the form of a building permit (IMB) is valued higher by bank appraisers than collateral without an IMB (a letter stating that an IMB is being processed). This is because a letter stating that an IMB is being processed does not guarantee that the IMB will be issued. Secondly, an IMB may be issued, but the size of the house may not be the same as stated in the letter stating that an IMB is being processed. This can occur when a letter stating that an IMB is being processed is issued, but there has been no measurement by the local authorities. It is conditions such as these that cause banks to be more selective in their collateral assessments because there may be risks when credit collateral becomes problematic and the collateral is auctioned/resold.

According to Rahayu, Nurjaya, & Winarno (2022) and Purbandari (2013), anyone who owns a building certificate can apply for a loan from a bank. The building certificate, as proof of legality, is a consideration in the collateral assessment for loan applications, as it has legal legitimacy and avoids potential disputes or threats of demolition. From an economic and collateral perspective, the legality of a building has a higher sale value and collateral value because it is legally recognised by the market and banks. In addition, there are technical standards for buildings, which guarantee the safety, comfort, and security of the occupants. In the context of banking, the legality of a building facilitates the process of assessment, collateral execution, and transfer of rights because its existence is legally recognised.

Compiled from several sources, namely Worabai (2023), the Papua Provincial Government (2006), Pojok Papua (2022), Jayapura City Regulation Number 19 of 2022 concerning Building Permits, and Jayapura Regency Regulation Number 1 of 2016 concerning Building Permits, it was found that the legality of buildings in Papua still largely disregards existing regulations, resulting in many buildings being constructed without clear legality. Furthermore, public awareness regarding building legality remains low, and regulations and law enforcement are still weak.

Building Construction Has a Positive and Insignificant Effect on Collateral Value

Based on the t-test results, it was proven that building construction has a positive and insignificant effect on collateral value. The insignificance of building construction on collateral value indicates that there are differences in perception between appraisers ( ), field conditions, and the lack of uniformity in construction standards, which means that this factor does not always consistently reflect market value. Building construction is closely related to the quality of building materials. According to one BNI Papua Region appraisal, some collateral with permanent construction but poorly maintained buildings, such as peeling paint and cracked

walls, can reduce the collateral value. In the field, buildings with permanent construction but located in less strategic areas far from the city centre were also found, resulting in a lower appraisal of these buildings compared to other constructions located in the city centre (Iriyanto & Sitorus, 2023). Some buildings with permanent construction with a minimalist design or limited interior space can also reduce the value of the building.

The increase in property value due to construction activities has a direct impact on the collateral value used for loans. Financial institutions tend to give higher valuations to collateral in the form of properties with good construction quality and located in areas with adequate infrastructure (BPTPM, 2023). This increases the borrower's ability to obtain larger loans with more favourable terms.

The insignificance of building construction on collateral value indicates that differences in perception between appraisers, field conditions, and inconsistencies in construction standards mean that this factor does not always consistently reflect market value. As a result, although good construction can increase the comfort and durability of a building, this is not always proportional to an increase in collateral value that can be formally recognised by banks. In collateral execution schemes, the bank's main focus is on *resale value* or asset liquidation potential. This value is determined more by location, legality, and building size than by construction quality. In other words, a building with standard construction but complete legality and a large area will still be easier to market and valued higher than a building with solid construction but without strong legality.

CONCLUSION AND RECOMMENDATIONS

Based on the research findings and discussions conducted at PT. Bank Negara Indonesia (Persero) Tbk. Papua Region, the following conclusions can be drawn:

1. Land legality has a positive and significant effect on collateral value at Bank Negara Indonesia Papua Region.
2. Land area has a positive but insignificant effect on collateral value at Bank Negara Indonesia Papua Region.
3. The size of the building has a positive and significant effect on the collateral value at Bank Negara Indonesia in the Papua Region.
4. The legality of buildings has a positive and significant effect on collateral value at Bank Negara Indonesia in the Papua Region.
5. Building construction has a positive but insignificant effect on collateral value at Bank Negara Indonesia in the Papua Region.

Recommendations

1. Banks must continue to apply the principle of prudence, especially for appraisals and credit decisions, not only as a formality but to truly reflect fair market value,

particularly for loans secured by land and residential buildings. Bank assessments should not only consider the physical **condition** of the building, but also take into account **the state of maintenance, the surrounding environment, and the owner's reputation for maintaining the asset.**

2. The public is expected to immediately legalise their land and building assets in the form of SHM and PBG so that when they are used as collateral at banks, they are not only legally sound, but their value will also be higher than land and buildings without legality.
3. Public and government appraisers should strengthen appraisal standards and guidelines as well as transparency and accountability so that standard appraisal reports are easy to understand by banks, auditors and supervisory agencies.
4. Academics and researchers can further develop research models by adopting a mixed approach, such as data analysis combined with in-depth interviews with appraisers, to identify additional variables like the distance of the collateral from the main road or the availability of public facilities around the collateral that may influence the bank's collateral valuation.

ACKNOWLEDGEMENTS

The researcher would like to express his gratitude to PT. Bank Negara Indonesia (Persero) Tbk. Papua Region for their support and assistance in providing data and information for this research. The author also extends sincere gratitude to the lecturers, all teaching staff and administrative staff, as well as fellow students of the Master's Programme in Property Management and Valuation at the Graduate School of the University of North Sumatra, who have kindly provided their time and information required for the completion of this thesis.

REFERENCES

Adiyanto, M. R. (2020). Penentuan Nilai Pasar Properti Tanah Kosong Di Desa Sedati Gede Sidoarjo. *Media Trend: Berkala Kajian Ekonomi dan Studi Pembangunan, 15*(2), 308-318. doi:http://dx.doi.org/10.21107/mediatrend.v15i2.7438

Alfasyah, R. M. (2024). *Pengaruh Harga Rumah, Luas Bangunan, Kematangan Ekonomi, Pertumbuhan Ekonomi, dan Inflasi Terhadap Permintaan Kredit Pemilikan Rumah (KPR) Bersubsidi Program Fasilitas Likuiditas Pembiayaan Perumahan (FLPP) (Studi Kasus FLPP Tahun 2022 di Jawa Barat) .* Jakarta: Universitas Islam Negeri Syarif Hidayatullah.

Bank Indonesia. (2024, April 26). *Survei Perbankan Triwulan I 2024: Penyaluran Kredit Baru Tumbuh Positif*. Diambil kembali dari Bank Indonesia: https://www.bi.go.id/id/publikasi/ruang-media/news-release/Pages/sp_268224.aspx

Bian, X., Lin, Z., & Liu, Y. (2018). House Price, Loan to Value Ration, and Credit Rick. *Journal of Banking & Finance, 92*, 1-12. doi:https://doi.org/10.1016/j.jbankfin.2018.04.006

BPTPM. (2023, Januari 24). *Penjaminan Kredit Konstruksi*. Diambil kembali dari Jamkrida Papua:

Dahlilinggar, W. L. (2023). *Faktor-Faktor Yang Mempengaruhi Nilai Agunan Kredit Pada Bank Umum dan Bank Perkreditan Rakyat Provinsi Yogyakarta.* Surakarta: Universitas Sebelas Maret.

Damayanti, R. (2015). Analisis Kredit Guna Penanggulangan Kredit Bermasalah Pada PT PNM Ulamm Unit Nglegok Kabupaten Blitar. *Riset Mahasiswa Ekonomi, 2*(2), 189-205. Diambil kembali dari https://journal.stieken.ac.id/index.php/ritmik/article/view/237

European Central Bank. (2017). *Guidance to Banks on Non-Performing Loans.* European Central Bank.

Fauzi, A. (2018). Kredit Macet, NPL dan Pengaruhnya Terhadap Kinerja Perusahaan pada Perusahaan Pembiayaan. *Jurnal Manajemen dan Bisnis, 2*(1), 27-36. doi:https://doi.org/10.55264/jumabis.v2i1.16

Luck, S., & Santos, J. A. (2023). The Valuation of Collateral in Bank Lending. *Journal of Financial and Quantitative Analysis, 59*(5), 2038-2067. doi:10.1017/S0022109023000704

Mabarun, A., Rahakbauw, H. Z., & Naufal, M. F. (2023). Kontribusi Nilai Tanah Terhadap Nilai Properti Pada Sektor Perumahan di Distrik Sentani Kabupaten Jayapura Provinsi Papua. *Journal of Comprehensive Science, 2*(8), 1404-1407.

Mampow, G. L., Manengkey, J., & Marunduh, A. (2020). Pengaruh Luas Lahan, Luas Bangunan, dan Tata Letak Tanah Terhadap Penerimaan Pajak Bumi dan Bangunan Di Kabupaten Minahasa Tahun 2015-2017. *Jurnal Akuntansi Manado*, 13-18. doi:http://dx.doi.org/10.53682/jaim.v1i2.364

Monoppo, R. A., Sumakul, T. F., & Pontoh, K. C. (2021). Kajian Yuridis Sertifikat Tanah Sebagai Jaminan Dalam Perjanjian Kredit. *Lex Privatum, IX*(3), 195-205.

Octavianus, H., Sadalia, I., Fachrudin, K. A., & Syahyunan. (2023). Houw Does Liquidity Risk Interact with Credit Risk? A Comparison Study of Indonesia and Malaysia Banking. *The Seybold Report, 18*(03), 521-532. doi:10.17605/OSF.IO/SA4M9

Pemprov Papua. (2006, September 06). *Tahun 2010 semua Pemda diharapkan miliki Perda Bangunan Gedung*. Diambil kembali dari Pemerintah Provinsi Papua: https://www.papua.go.id/view-detail-berita-808/undefined

Pohan, K. I., & Rokan, M. K. (2022). Analisis Permasalahan Kredit Macet. *Journal of Economics, Business, and Enterpreneurship, 3*(1), 21-24. doi:https://doi.org/10.29303/alexandria.v3i1.174

Pojok Papua. (2022, Februari 22). *Pemda Mimika Mulai Tertibkan Bangunan Tanpa IMB*. Diambil kembali dari Pojok Papua.id: https://www.pojokpapua.id/2022/02/22/pemda-mimika-mulai-tertibkan-bangunan-tanpa-imb/

Rahayu, E., Nurjaya, I. N., & Winarno, B. (2022). *Perlindungan Hukum Bagi Kreditor Pemegang Hak Tanggungan Atas Pemberian Kredit Dengan Jaminan Hak Gun Bangunan Terhadap Debitor Yang Wanprestasi.* Malang: Universitas Brawijaya.

Rusim, D. A., Parung, H., Latif, R. U., & Tjaronge, W. (2018). Analisis Risiko Terhadap Waktu Pelaksanaan Pada Pembangunan Infrastruktur Jalan di Jayapura. *Prosiding Seminar Nasional Teknik Sipik 2018* (hal. 193-199).

Said, N., Miru, A., & Ridwan, N. F. (2021). Kekuatan Hukum Klausula Jaminan Dalam Perjanjian Utang Piutang Yang Tidak Dituangkan Dalam Akta Tersendiri. *PAPUA Law Journal, 6*(1), 1-17.

Sant'Anna, A. C., Cowley, C., & Katchova, A. L. (2021). Examining the Relationship between Land Values and Credit Availability. *Journal of Agricultural and Applied Economics, 53*(3), 209-228.

Song, I. (2002). *Collateral in Loan Classification and Provisioning.* International Monetary Fund. Diambil kembali dari https://www.imf.org/external/pubs/ft/wp/2002/wp02122.pdf

Suderajat, A., Kamalia, A. Z., & Afandi, D. (2025). Segmentasi Harga Pasar Properti Rumah Menggunakan Algoritma K-Means Berdasarkan Lokasi, Harga, dan Luas Bangunan. *DINAMIK, 30*(2), 180-192. doi:http://dx.doi.org/10.35315/dinamik.v30i2.10182

Weleng, A. M., Runtunuwu, Y. B., & Lumenta, H. N. (2025). Analisis Hukum Keududkan Tanah Adat di Papua. *Khatulistiwa: Jurnal Pendidikan dan Sosial Humaniora, 5*(2), 378-381. doi:https://doi.org/10.55606/khatulistiwa.v5i2.5795

Worabai, L. H. (2023). *Efektivitas Penertiban Retribusi Izin Mendirikan Bangunan Di Kota Jayapura Provinsi Papua.* IPDN.

Wutoy, E., & Soeratno. (2014). *Faktor-Faktor Yang Mempengaruhi Nilai Aset Tanah Milik Pemerintah Provinsi Papua Di Distrik Jayapura Utara Kota Jayapura.* Yogyakarta: Universitas Gadjah Mada.