THE EFFECT OF LOAN-TO-VALUE POLICY AND MACROECONOMIC VARIABLES ON INDONESIAN PROPERTY CREDIT

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Abstract

Since its first implementation in 2013, Indonesia's Loan-to-Value (LTV) policy has undergone several changes. The implementation of LTV policies in several countries has been quite effective in preventing the occurrence of property bubbles by restraining lending rates in the property sector and preventing nonperforming loans (NPL). On the other hand, the property sector significantly contributes to the economy because it has many links with other economic sectors and employs many workers. This research aims to identify the effect of property prices, loan interest rates, economic growth, NPL, and LTV on property credit in Indonesia. Using an Error Correction Model, this research finds that, in the short run, only economic growth has positive and significant impact on property credit. Meanwhile, in the long run, property credit is influenced by economic growth, credit interest rates, and property prices. The LTV policy does not significantly affect property credit in the short or long run. This implies that other policies, such as VAT exemption and macroprudential incentives, should support LTV. Another finding of this research is that the COVID-19 pandemic does not significantly affect property credit because developers offer some discounts when purchasing power is lower.
Keyword. *Covid19, Property Credit, LTV*

INTRODUCTION

As part of efforts to strengthen national economic recovery, recently the Government and authorities in Indonesia have implemented several policies to encourage the property sector. The choice of the property sector as part of economic recovery efforts was based on several reasons. *First*, the property sector is linked to many activities in other economic sectors so it is expected to have a large multiplier impact on the economy. *Second*, the property sector also absorbs a large number of workers so that it can help control the unemployment rate. *Third*, there is still a high gap in housing needs. Al Ikhsan (2021) stated that the housing sector is one of the keys for the government in restoring the economy.

During the COVID-19 pandemic, several policies were implemented to accelerate the property sector in Indonesia, including providing fiscal incentives in the form of VAT exemption for property purchases, easing the *Loan To Value ratio* to reach 100% since March 2021. The Financial Services Authority also provided a stimulus to loosening regulations of credit restructuring and lower Risk Weighted Assets (RWA) calculations for property loans.

According to Bank Indonesia Financial Stability Study No. 38 March 2022, property credit is all credit related to the property given to MSME debtors and non-MSME debtors,

including credit that is in restructuring status, which includes credit to: (1) Real estate companies, for the procurement of land and buildings including facilities for sale/rent; (2) Contractors, for the construction of buildings, offices, housing and shops; (3) Individuals, for home ownership and renovation.

Even though we have received a lot of policy support, the growth of the property sector has not returned to normal as it was during the pre-pandemic period. Its indicate by property credit growth that still growing lower than before the COVID-19 pandemic. In June 2023, property credit in Indonesia recorded growth of 6.55% *(yoy)*, lower than the end of 2018 which was recorded at 11.37%. Entering 2019, property credit showed a slowdown and continued during the COVID-19 pandemic.

The LTV policy in Indonesia was first implemented in June 2012 with a maximum ratio limit of 70%. However, the effectiveness of the LTV policy requires a fairly long period. This can be seen from the growth rate of KPR > 70 m^2 type which is still quite high, namely 25.5% in July 2013 and apartment ownership credit of 63.3% (Nasution, 2013). Some of reasons for Bank Indonesia to implementing the LTV policy in 2012 were to mitigate credit risk amidst increasing demand for Home Ownership Loans and Motor Vehicle Loans. Another consideration is an unreasonable increase in asset prices so that they do not reflect actual prices and keep growth productive to avoid the risk of excessive growth in property loans and vehicle loans.

As we know, one of the triggers *for the bubble property* in the *subprime case mortgage* in the US is an increase in property prices that are multiples of their real value, thus potentially triggering an increase in credit risk. To prevent this, Bank Indonesia as the monetary authority issued a macroprudential policy in the form of determining the LTV ratio since 2013. This policy is aimed at limiting excessive property credit growth to minimize credit risk. Furthermore, Mishra and Narayan (2015), say that the positive impact of credit on growth after reaching a certain level will affect the stability of the financial system.

According to Simorangkir (1991), bank credit can be interpreted as economic stability in economic and trade activities. Economic stability is a manifestation of high economic growth**.** Koong et.al (2017) stated that credit has an important role in directing economic growth so that it is on track.

Research conducted by Wong (2015) shows the LTV policy in Hong Kong was effective in reducing systemic risks associated with the business cycle in the property market.

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LTV limits will be tightened to reduce house demand and growth credit. This finding supports the view that consumer credit will be the target of the LTV rule.

Tantasith, et. al (2018) in their study regarding the implementation of the LTV policy in Thailand stated that the LTV policy was quite effective in influencing bank behavior in managing credit risk more *prudently*. Meanwhile, the impact of LTV on credit distribution can be said to be the next goal. In this study, the impact of policy is not seen from changes in the rate of credit growth in banking, but rather in the application of LTV for new credit disbursement.

There is quite a lot of research regarding the influence of LTV on property credit distribution in Indonesia, including that carried out by Adelia (2023). By making the LTV policy a *dummy* variable, LTV has no significant effect on credit distribution in Indonesia. In general, their research aims to determine the effectiveness of the LTV policy issued by the monetary authority in influencing property credit growth in Indonesia. In contrast to this research, this study was conducted using LTV ratio data expressed in percentage form by Bank Indonesia policy, so this research is expected to obtain the elasticity of changes in the LTV ratio towards property credit distribution in Indonesia.

Apart from LTV, the macroeconomic variables used in this research are also more complete, namely national income (GDP), property prices (IHPR), Consumer Credit Interest Rates (SBKK), NPL, and *dummy* variables to determine the impact of the COVID-19 pandemic. Thus, this research is expected to provide complete information about the dynamics of property credit distribution in Indonesia.

The relationship between economic growth and credit distribution was researched by Guerra (2017) that state the economic growth affects credit distribution. On the supply side, GDP growth is an important variable for banks in encouraging credit in line with rising household and corporate income expectations. Apart from that, Ramlan (2018), stated that housing credit in Malaysia is significantly influenced by the inflation rate, interest rates, and GDP.

The influence of macroeconomic variables on housing credit distribution was also carried out by Viskovic (2015). The results of his research show that economic growth, household income, and installment flexibility have a positive effect on housing credit in Croatia. Meanwhile, an increase in interest rates will have a negative effect.

This study aims to determine the impact of the loan to value policy and macroeconomic variables on property credit, including during the covid-19 pandemic. The benefit of this research is that it obtains empirical results regarding the direct impact of LTV policy and other variables on property credit distribution. In this way, it can become input for decision-makers to formulate appropriate policy designs to encourage the property sector in Indonesia.

RESEARCH METHODS

This research is quantitative research using regression analysis with the *Error Correction Model.* The dependent variable used is property credit data with the independent variables consisting of credit interest rates, economic growth, property price index, level of non-performing loans in the property sector, and a Covid-19 pandemic *dummy to determine the impact of the Covid-19 pandemic.*

The data used in the research is secondary data sourced from Bank Indonesia and the Central Statistics Agency for the period first quarter 2012 to second quarter 2023. The selection of the period in question is adjusted to the beginning of the implementation of the LTV policy in Indonesia in mid-2013 until the latest data availability. Data collection was obtained from the official BI and BPS *websites* consisting of Indonesian Financial Economic Statistics (SEKI), Indonesian Financial System Statistics (SSKI), Residential Property Price Survey (SHPR) publication, and GDP data from BPS.

Remembering that the data used in the research is *a time series* data, data stationary test is carried out and a transformation is carried out in the form of Natural Logarithms (for data in nominal units). The results of the stationary test show that the data used does not pass the level level but is completely stationary at the *first level difference*.

Next, to find out whether there is a relationship between the similarities in the short term and long term, a cointegration test is carried out. The results of the cointegration test show that there is a relationship between the short-term and long-term equations. By fulfilling the conditions for cointegration in the short-term and long-term equations, the ECM model can be used in this research.

To test that the equation used is free from the problem of random regression, a classic assumption test is carried out which includes the Autocorrelation Test, Heteroscedasticity Test, Multicollinearity Test, Normality Test, and Model Stability Test. Based on the results of

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the analysis and classical assumption test using *Eviews* 9.0, it was found that the model used met the requirements of the classical assumption test except for the normality test. However, if the number of samples /data used has a large sample size (> 30), the normality test can be ignored.

RESULTS AND DISCUSSION

Based on the results of data processing using ECM as a short-term modeling approach, it is known that only the GDP variable has a significant effect on property credit distribution, while other variables do not have a significant effect on d.f. 5%.

Table 1. Short-Term Equation Using ECM

Variables	Coefficient	t- Statistics	Prob.
D(LNIHPR)	0.8445	1.4310	0.1608
D(SBKK)*	-0.0788	-2.0193	0.0507
D(LNGDP)*	0.4512	2.3076	0.0267
D(LTV)	-0.0009	-0.9129	0.3672
D(NPL)	-0.0320	-1.4463	0.1565
D1	-0.0119	-0.9740	0.3364
ECT(-1)	-0.5049	-4.0994	0.0002
C	0.0124	1.3041	0.2003

R *squared* = 0.4635
F *statistic* = 4.5667*

From the ECM estimation results, a statistical F value of 4.56 is obtained with a *probability value of* 0.001, so that in the short-term changes in property prices (IHPR), consumer credit interest rates (SBKK), GDP, LTV, NPL, and *Dummy* together have a significant effect on property credit distribution. Meanwhile, the R-squared value is 0.4635, which means that the independent variable used can explain 46.35% of changes in property credit. The rest is explained by variables outside the variables in this research such as liquidity of funds in banking, *risk banking appetite*, inflation and other variables.

Furthermore, based on the results of long-term analysis, it was found that partially the price variable (IHPR), consumer credit interest rate (SBKK), and income (GDP) had a significant effect, while other variables did not have a significant effect.

Table 2. Long-Term Equation Results

Variables	Coefficient	t- Statistics	Prob.
LNIHPR*	1.5957	6.0729	0.0000
SBKK*	-0.0411	-2.6165	0.0126

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LNGDP*	0.9201	3.0023	0.0047
LTV	0.0024	1.8560	0.0710
NPLs	0.0019	0.0625	0.9505
D1	-0.0327	-1.2743	0.2101
C	-7.3564	-2.0534	0.0468

R *squared* = 0.9867
F *statistic* = 481.67

From the long-term estimation results, the statistical F value is 481.67 with a *statistical value probability of* 0.000, which means that property prices (IHPR), interest rates (SBKK), GDP, LTV, NPL and dummy together *have* a significant effect on property credit distribution. Meanwhile, the R *squared value* amounting to 0.9867, which means that the independent variable used can explain 98.67% of changes in property credit in Indonesia.

a. Effect of Property Prices

Based on short-term estimation results, property prices (IHPR) do not have a significant effect on property credit distribution. This shows that property credit is not sensitive to changes in residential property prices. Research by Yongjia Li and Salman Tahsin (2021) and Valentine et al (2024), states that house prices do not have a significant effect on mortgage distribution.

Failure to implement the LTV policy may occur due to inaccurate determination of the LTV ratio value. According to Professor Candra Fajri Ananda (Brawijaya University), BI cannot determine the amount of LTV without being supported by comprehensive information from the OJK, as the regulator on the micro-prudential side.

Although not significant in the short term, in the long term property prices have a positive and significant influence on mortgage distribution with a coefficient of 1.59. This can be interpreted that in the long term, an increase in property prices of 1 percent will encourage property credit distribution to increase by 1.59 percent. Bank Indonesia study in 2021 stated that there was a positive correlation between the property price index and growth in property credit distribution, which shows that there is a link between price developments and credit distribution.

Koetter & Poghosyan (2010) also stated that house prices have a positive and significant influence on mortgage distribution. The positive relationship between property prices and property credit distribution in the long term is because the majority of housing needs still rely on mortgages from banks as a source of financing for home purchases. An

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increase in house prices will be followed by an increase in the need for greater funds to buy a house, which will ultimately trigger an increase in financing sources, including mortgages.

b. Effect of Credit Interest Rates

In the short-term equation, interest rates do not have a significant effect on property credit distribution. An increase in interest will cause the burden of installments that must be paid by debtors to increase, which can ultimately reduce interest and demand for credit from banks. From a consumer perspective, high credit interest rates will encourage the use of existing funds for other needs rather than paying more expensive credit interest.

High credit interest rates can also make people reluctant to buy a house and invest at the same time. From the banking side, high credit interest rates risk increasing the risk of bad credit, thereby encouraging banks to be more selective in disbursing credit.

The negative influence of interest rates on property lending becomes significant in the long term with a coefficient of -0.0411. These results are in line with classical theory and several previous studies including Siravati (2018), Wenten (2021), (Rombe, 2021) and Ardely (2023). An increase in credit interest rates will cause the cost of borrowing money to be higher and reduce demand for credit. The significance of the influence of interest rates in the long term is possible because consumers need time to calculate their ability to pay installments.

c. Influence of GDP Variables

Base on estimation results show that the GDP variable has a positive and significant effect on property credit distribution in Indonesia with respective coefficients of 0.4512 in the short term, and 0.9201 in the long-term equation. As economic growth increases, people's income will increase and drive demand for property both to meet residential needs and investment purposes.

Residential property price survey in the second quarter of 2023 shows that from the consumer side, KPR facilities still dominate the main type of financing in purchasing residential property with share of 76.02%. Meanwhile on the banking side, improving economic growth also provides an opportunity to offer credit in larger amounts, which also shows that the banking business in general still tends to be procyclical. These two conditions encourage an increase in demand for property credit.

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The findings in this research are in line with research by Siravati (2018), and Adelia (2023) which states that people's income has a positive effect on property credit distribution. Research conducted by Ardely (2023) using the ARDL model also found that in the long term, the GDP variable has a positive effect on property credit distribution in Indonesia.

d. *The Loan To Value* ratio

The short-term and long-term estimation results found that the LTV policy did not have a significant effect on property credit distribution in Indonesia. This finding is similar to research conducted by Siravati (2018) and Adelia (2023). Oh Hwa Se (2013) stated that failure to implement the LTV policy could occur due to irregularities in its implementation. One of them is the availability of financing sources for property ownership other than bank credit so that people still have alternatives other than mortgages.

Limited or segmented targets for LTV policies can also cause the resulting impact to be less than optimal. The LTV easing policy issued by Bank Indonesia only provides a maximum financing limit, so that it is still possible for banks to provide financing with a lower proportion or still require a down payment.

Another thing that contributes to the insignificance of the LTV policy is the existence of a subsidized KPR program for middle and lower-class people. The exception to the LTV provisions for subsidized KPR means that the impact of the LTV relaxation is relatively limited. In reality, the distribution of new property loans by banks is implemented carefully because it has a relatively long period with a relatively high level of risk of uncertainty.

Taufik, (2021) state that tightening LTV is quite effective in restraining property credit distribution, but the impact of relaxing LTV on property credit is less significant in encouraging property credit. Similar to these results, Tantasith (2018) found that easing LTV encouraged banks to increase the LTV ratio in certain sectors while tightening LTV would lead banks to be stricter in lending.

e. Effect of Non-Performing Loan / NPL

The short-term and long-term estimation results show that the NPL variable does not have a significant effect on property credit. This could be because banks consider that NPL is not the main reason in distributing property credit. Data on the NPL ratio for property loans during the research period was relatively low (2.01% to 3.48%) or still below 5 percent, which is the maximum limit for banks to implement a 100% LTV policy.

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The low level of property credit NPL was made possible by several factors, including the OJK policy of relaxing credit restructuring provisions during the pandemic so that the NPL level could be controlled. Apart from that, during the pandemic, the Government also issued various policy packages to reduce the impact on the economy so that property credit distribution was not too affected. Cristie's research results (2021) also show that the non-performing credit (NPL) ratio does not have a significant effect on KPR distribution.

f. Influence of Covid19

In the short-term and long-term equation models, the Covid19 pandemic which lasted from the first quarter of 2020 to the fourth quarter of 2022 had a negative but insignificant influence on property credit distribution in Indonesia. Study by Lowardi (2021) also shows that the COVID-19 pandemic has had a negative and insignificant effect on the liquidity conditions and solvency of large-scale property companies.

Sarayar (2022), also stated that the COVID-19 pandemic did not affect the distribution of subsidized housing loans. Market Results Behaviour survey that conducted by Indonesia Property Watch (IPW) in September 2020, stated that 68.09 percent of respondents were interested in buying property during the Covid-19 pandemic considering cheaper prices and supported by promotions from developers, as well as flexible installments (Bisnis.com, 2021).

Another factor that supports property credit not being affected during the COVID-19 pandemic is the existence of government and authority policies that make the property sector one of the priority sectors in efforts to recover the economy. Some of the stimuli provided to the property sector during the COVID-19 pandemic include LTV relaxation, VAT exemption for property purchases, and lower RWA calculations for property credit types.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the analysis and discussion, several things can be concluded from this research as follows:

a. In the short term, property credit distribution in Indonesia is only influenced by the level of economic growth as a proxy for measuring people's purchasing power. This shows that income level is still the main factor that people consider when buying property, including through credit.

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b. In the long term, property price variables and the level of economic growth have a positive and significant effect on property credit, while interest rate variables have a negative and significant effect on property credit distribution. The increase in property prices in the long term will encourage an increase in the nominal credit submitted to banks. On the other hand, an increase in credit interest rates will restrain demand for credit because with higher interest rates the installment burden becomes greater.

c. The LTV policy as a policy instrument to encourage property credit does not have a significant effect, especially from a short-term perspective. This is because the determination of LTV only regulates the upper limit of permitted financing, so in practice, the LTV imposed by banks on consumers (potential debtors) will depend on the policies of each channeling bank.

d. The non-performing loan (NPL) ratio and pandemic conditions also did not have a significant effect on property credit distribution. This is due to the maintained banking conditions in Indonesia as reflected in the NPL ratio which never exceeded 5% during the research period. On the other hand, policy stimulus from the government and related authorities during the pandemic was able to restore economic conditions in a relatively short time so it did not have a lasting impact.

Based on the results of this research, several suggestions that can be submitted as a contribution to this research are:

a. Property credit as a source of financing for people to have livable housing must be supported by maintaining adequate economic growth. Better economic growth will have an impact on increasing people's purchasing power, including owning a house and increasing the amount of savings that can be invested in the property sector.

b. An increase in property prices in the long term can cause property credit to increase which can trigger a property sector *bubble*. Therefore, in the medium - long term, property prices must be controlled.

c. From the consumer perspective, so that the LTV policy can be more optimal in encouraging property credit, it needs to be supported by other incentives that can be directly felt by potential consumers. The VAT exemption incentive for purchasing property < IDR 2 billion is expected to increase people interest in owning property.

d. From the banking side, relaxing the policy on the upper limit on the LTV ratio needs to be followed by providing incentives whose impact can be felt directly by banks. Bank

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Indonesia's macroprudential liquidity incentive policy for banks distributing property loans can encourage banks to be more active in distributing property loans. This policy will complement the stimulus from OJK as the authority for financial and banking institutions which previously provided incentives for lower RWA calculations for property loans.

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