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When Policy Meets Perception: A Multidimensional Analysis of Housing Loan Demand Using LTV Ratios and Google Trends

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Abstract: This study investigates whether online search trends can act as early indicators of mortgage loan distribution and housing price dynamics in Indonesia. Adopting insights from previous studies on internet search data, it combines cross-correlation and time-series econometric analyses to assess the link between public interest in housing-related keywords, especially mortgage, and subsequent changes in housing market indicators. Using the ARDL model for the 2014Q1–2024Q4 period, the study finds that GDP growth boosts mortgage demand, while inflation and strict LTV ratios hinder it. A negative long-run relationship is shown by Google Trends, implying that heightened online searches may signal uncertainty or speculation rather than actual demand. In the short term, increasing housing prices and interest rates stimulate mortgage issuance, reflecting anticipatory behavior. Overall, the results enrich digital economics research and provide valuable insights for policymakers and financial institutions in managing real estate dynamics amid evolving post-pandemic consumer behavior.

Keywords: Google Trends, Housing Loan, Macroeconomics

Introduction

The mortgage financing system in Indonesia, called Kredit Pemilikan Rumah (KPR), has changed a lot over the last ten years, from 2014 to 2023. These changes happened because of different economic factors and government rules. In 2014, a more flexible Loan-to-Value (LTV) policy was introduced, which helped increase home sales at first. But this good trend

stopped suddenly because of the COVID-19 pandemic in 2020. The pandemic caused a big drop in people buying homes, even though Bank Indonesia tried to help by lowering interest rates and other steps, as shown in the Statistik Ekonomi dan Keuangan Indonesia (SEKI) reports. The objective of this policy is twofold: to safeguard financial stability and to support mortgage demand, especially among lower-income households (Saraswati et al., 2015; Luangaram & Thepmongkol, 2022; Bian et al., 2018; Zulfikar & Soesilo, 2023).

Despite these efforts to revive the housing market, problems persisted. One big issue was the growing number of non-performing loans (NPLs) in the mortgage area. By the second quarter of 2023, these bad loans were at very high levels. Data from Statistik Perbankan Indonesia (2023) showed that mortgage-related bad loans went up from IDR 2.84 trillion in the first quarter of 2020 to IDR 5.11 trillion in the second quarter of 2020, and peaked at IDR 5.63 trillion in Q2 2023. These numbers show that, even with tighter lending rules, outside factors like lower household incomes and economic worries still make it hard for policies to work well.

A cautionary global benchmark can be drawn from the 2008 U.S. subprime mortgage crisis, in which excessive risk-taking in residential lending catalyzed a broader financial meltdown. This crisis highlighted the systemic risks posed by unregulated housing credit growth, and has since reinforced the importance of macroprudential vigilance in emerging markets (Ardely & Syofyan, 2016; Nugroho et al., 2020).

In Indonesia, mortgage lending remains the dominant mode of residential property financing. Survey data from Bank Indonesia show that KPR accounted for approximately 76.25% of consumer housing finance in Q1 2024 an increase from 75.89% in Q2 2023. As noted by Abdullahi et al. (2020), ease of financing requirements significantly influences consumer decisions to purchase residential property. This strong reliance on mortgage financing, which exceeds 70% of the total property financing market (Roeskamto & Atmadja, 2022), has important implications for both financial stability and access to housing in the context of population growth and urbanization.

KPR growth patterns, based on SEKI data demonstrate post-pandemic recovery trends, with the most substantial growth occurring in Q3 2023. The rise in mortgage uptake during this period is potentially attributable to increased GDP and deflationary pressure reaching -2.88%. Conversely, Q2 2023 recorded the lowest quarterly KPR growth, possibly due to stagnating GDP, escalating inflation, and volatile monetary policy responses. These findings align with prior research, which shows that residential mortgage demand is susceptible to macroeconomic conditions (Andini & Falianty, 2022).

Moreover, the dual role of housing as both a consumption good and an investment asset further complicates demand dynamics. Given its relatively stable appreciation potential, real estate is perceived by Indonesian households as a safer investment compared to other asset classes (Rahadi et al., 2024). However, despite the high cost of housing and its relatively small direct contribution to GDP, property prices in Indonesia continue to rise steadily over time (Girouard et al., 2006), as confirmed by the Residential Property Price Index published by Bank Indonesia.

Interest rates represent another key determinant of mortgage demand. Lower KPR interest rates typically stimulate home purchases, whereas rate hikes tend to depress demand by

increasing borrowing costs (Rahadi et al., 2024; Roeskamto & Atmadja, 2022). Moreover, shifts in Bank Indonesia's policy rates (BI7 DRR) have broader economic repercussions, as abrupt increases may elevate corporate debt burdens, while excessive cuts may overheat property demand (Fauzi et al., 2023).

This gap in understanding points to a critical shortfall: conventional models often fail to capture the real-time, demand-side perceptions of potential homebuyers. Housing is not merely a consumption good but also a key investment asset, meaning purchase decisions are heavily influenced by consumer confidence and intent, which can change rapidly. Recent advances in data science now offer a solution to this problem. Tools like Google Trends provide a high-frequency, aggregated measure of public interest and sentiment by tracking online search behavior for keywords like "KPR" or "*beli rumah*." This digital footprint can serve as a powerful proxy for consumer intent, offering a timely complement to lagging official economic data. As mentioned Varian (2014), Google trends can be to forecast various economic indicators, including those related to the housing and mortgage markets.

Despite the centrality of KPR in Indonesia's economy and the strategic use of LTV policy, a significant research gap persists. Empirical studies have yet to fully integrate these three critical dimensions macroeconomic fundamentals, macroprudential LTV policy, and real-time digital sentiment into a unified analytical framework. The interplay between hard economic data, regulatory policy, and the soft, perceptual data from search trends remains largely unexplored, leaving our understanding of mortgage demand dynamics incomplete.

Literature Review

In order to promote economic stability and make homeownership more accessible, the housing finance is essential. According to Green and Wachter (2005), the development of mortgage markets contributes to financial deepening, household wealth creation, and macroeconomic resilience. In emerging economies such as Indonesia, mortgage lending has become a crucial driver for the property sector and domestic demand (World Bank, 2020). Housing loan demand is generally influenced by macroeconomic indicators, financial policies, and behavioral aspects that shape household decisions (Leung, 2004). Income and economic growth are among the strongest predictors of mortgage uptake. Studies by Gimeno and Martínez-Carrascal (2010) and Arestis and González (2014) demonstrate that GDP growth increases household purchasing power and encourages home financing. Conversely, high inflation erodes real income and increases uncertainty, discouraging long-term borrowing (Öztürk et al., 2021). A reduction in mortgage interest rates lowers borrowing costs, thereby stimulating loan demand (Goodhart & Hofmann, 2008). Yet, in markets with strong housing expectations, consumers may still apply for loans despite higher interest rates, driven by speculative motives or perceived housing scarcity (Tsatsaronis & Zhu, 2004).

Policy instruments such as loan-to-value (LTV) ratios are often used as macroprudential measures to maintain financial stability. Empirical findings show that tightening LTV limits can effectively curb excessive mortgage growth and reduce the probability of housing bubbles (Igan & Kang, 2011; Claessens et al., 2018). In Indonesia, Bank Indonesia's implementation of LTV regulations since 2012 has served as a critical tool to balance housing affordability and financial system soundness (Bank Indonesia, 2022).

An increasing quantity of studies highlight the predictive value of Google Trends in the housing sector, as it captures real-time search behavior reflecting market attention and economic sentiment (Choi & Varian, 2012; Goyenko & Sarkissian, 2021; Bork et al., 2022). Wu and Brynjolfsson (2015) observed a strong link between search intensity and short-term housing sales. Likewise, Pavlyshenko (2020) and Vosen and Schmidt (2011) found that search data outperform traditional surveys in forecasting consumer demand. In mortgage-related contexts, increasing searches for housing or loan terms may indicate increased buyer interest or concern (D'Amuri & Marcucci, 2017). However, heightened search activity can also signal uncertainty or risk aversion, depending on the underlying macroeconomic climate (Preis et al., 2013). In the United States, search activity has been shown to forecast housing returns and volatility, with notable variations across metropolitan areas depending on market structure and housing supply elasticity (Gupta & Moodley, 2024). Similarly, in Poland, search volume for terms like “residential property” has been found to outperform traditional economic variables in predicting price trends (Belej, 2022). For instance, increased search interest often precedes property price hikes, suggesting that online behavior serves as a leading indicator of market shifts (Vasileiou et al., 2024). Hence, the inclusion of Google Trends as a variable in mortgage demand analysis enables researchers to capture both policy-driven and perception-driven influences on financial decision-making.

The integration of Google Trends data with machine learning (ML) algorithms has further enhanced forecasting accuracy. In Poland, for example, ML-enhanced models improved the precision of residential price forecasts, revealing the potential of non-traditional data fusion in housing analytics (Rizun & Baj-Rogowska, 2021). The use of Google Trends is not limited to a single geography. In the United States, search-based data has proven especially useful in markets characterized by speculative behavior and supply constraints (Moller et al., 2023). In the United Kingdom, Google Trends has been used to predict not only price trends but also transaction volumes, demonstrating its value to both investors and policymakers (Puhr & Mullner, 2021).

The demonstrated capacity of Google Trends data to anticipate housing market trends has direct implications for policy formulation. In the U.S., search-based models have informed forecasts of housing returns and volatility, enabling central banks and financial regulators to anticipate potential imbalances (Gupta & Moodley, 2024; Bouras et al., 2020). Moreover, search trend data has been used to construct macroeconomic uncertainty indices, which serve as early-warning tools for systemic risk assessment (Boikos et al., 2024).

While the predictive utility of Google Trends is increasingly evident, further research is needed to refine its application. One promising direction is the integration of search data with traditional market indicators, such as interest rates, housing inventories, and affordability metrics to build more comprehensive and robust models (Rizun & Baj-Rogowska, 2021; Mao et al., 2022). Cross-country comparative studies may also offer insights into how regional variations in digital behavior influence housing dynamics (Belej, 2022; Boikos et al., 2024).

Methods

This study examines the determinants of mortgage credit in Indonesia, with a particular focus on the influence of macroeconomic variables and macroprudential policy in the form of the Loan-to-Value (LTV) ratio. Previous studies have indicated that factors such as Gross

Domestic Product, inflation, mortgage interest rates, and the housing price significantly contribute to the dynamics of housing loan demand (Khoirudin & Kurniawan, 2023; Mahardika & Khasanah, 2024). Furthermore, the LTV ratio, as a macroprudential instrument, has been widely studied for its effectiveness in stimulating mortgage lending and maintaining financial system stability (Ayuningtyas, 2022; Ruhulestin, 2023).

This research employs a descriptive quantitative approach using secondary data in the form of quarterly time series from 2014 to 2024. The data are obtained from official sources such as Statistics Indonesia (BPS), Bank Indonesia (BI), the Financial Services Authority (OJK), and the Indonesian Financial and Economic Statistics (SEKI), which serves as the main reference for mortgage credit distribution data. The dependent variable in this study is the growth rate of mortgage loan disbursement, which is used as a proxy for housing credit demand.

In addition, this study incorporates Google Trends data as an extended independent variable. Google Trends is utilized as a proxy to capture public perception and real-time interest in mortgage loans by tracking the search volume for terms such as “KPR” (mortgage), “KPR rumah” (housing mortgage), “KPR murah” (affordable mortgage), “rumah dijual” (house for sale), or “rumah subsidi” (subsidies housing). The inclusion of this variable is grounded in behavioral theory and supported by prior literature, which suggests that online search activity positively correlates with actual housing demand expectations in the market. Thus, integrating Google Trends data allows this study to capture behavioral and sentiment dimensions of housing demand, thereby enriching the predictive power and explanatory depth of the model in analyzing mortgage credit dynamics in Indonesia.

The equation model in the study is a time series regression equation as follows: Mortgage volume (KPR_t) is projected as a linear function of six main independent variables - house price (HP_t), mortgage interest rate (SBK_t), LTV ratio (LTV_t), GDP (PDB_t), inflation (INF_t), and Google Trends index (GT_t) - with additional constants (β_0) and error terms (ε_t). The coefficients β_1 to β_6 each measure the sensitivity of mortgage volume to a one-unit change in the related variable, while holding the other variables constant. Specifically, β_1 captures the elasticity of mortgage demand to property prices, β_2 reflects the response to changes in borrowing costs, β_3 quantifies the effect of LTV policy, β_4 accounts for the impact of macroeconomic conditions through GDP, β_5 captures the effect of price stability through inflation, and β_6 , most innovatively, measures the unique contribution of online search interest as a proxy for consumer sentiment. The error term (ε_t) accommodates variation unexplained by the model and the potential influence of other exogenous factors. This time series approach allows analysis not only of the magnitude of the effect but also of its temporal dynamics throughout the observation quarterly period 2014-2024.

$$KPR_t = \beta_0 + \beta_1 HP_t + \beta_2 SBK_t + \beta_3 LTV_t + \beta_4 PDB_t + \beta_5 INF_t + \beta_6 GT_t + \varepsilon_t$$

Beyond traditional economic determinants, recent studies highlight the growing importance of behavioral and perceptual factors in housing demand. By integrating both policy indicators (LTV, interest rate) and behavioral indicators (Google Trends), housing price, and inflation within the ARDL framework, this study provides a multidimensional perspective on mortgage demand formation. This approach reflects the shift from a purely macro-financial understanding toward an information-driven behavioral framework, recognizing that public

perception, amplified through digital media plays an increasingly important role in shaping real housing market outcomes. Thus, rather than interpreting Google Trends as a direct measure of loan demand, this study positions it as a linking variable that captures how potential buyers' perceptions and intentions respond to macroeconomic and policy signals, ultimately influencing actual housing loan disbursement over time.

Findings

By analyzing macroeconomic data, macroprudential policy (Loan to Value ratio), and online behavioral interest as determined by Google Trends, this study explores the factors that contributed to the increase of mortgage loans (KPR) in Indonesia between Q1 2014 and Q4 2024. During the observation period, mortgage loan growth (KPR) averaged 9.79% with noticeable quarterly fluctuations, ranging from just 2.05% up to 23.59%. The data show positive skewness and high kurtosis, signaling that extreme spikes, especially during turbulent times like the COVID-19 crisis weren't uncommon. The Jarque-Bera test confirms the non-normality of this distribution, underscoring the volatility of Indonesia's mortgage market. Similarly, the Housing Price Index (HP) grew modestly at 2.81% on average but showed signs of cyclical swings and structural shifts, as indicated by its non-normal distribution.

Macroeconomic and policy variables also show interesting dynamics. GDP growth fluctuated widely, from -5.32% during the pandemic to a peak of 7.08%, making it the most volatile factor in the model. Inflation, by contrast, was relatively stable and normally distributed, averaging 3.14%. The LTV ratio remained fairly steady, reflecting measured changes in regulatory policy. Hence, in this study, Google Trends is not treated as a direct proxy for housing demand in the economic sense (i.e., quantity of loans taken), but as a representation of potential demand and perception among potential buyers.

Table 1. **Statistics Descriptive**

	KPR	HP	SBK	LTV	PDB	INF	GT
Mean	9.7850	2.8120	10.8152	92.1818	4.2941	3.1357	36.7880
Median	9.4350	1.9500	11.1900	91.0000	5.0250	2.9750	40.3000
Maximum	23.5900	7.9200	12.7800	98.0000	7.0800	8.4000	63.4000
Minimum	2.0500	0.9600	6.9100	82.0000	-5.3200	0.0000	16.0000
Std. Dev.	3.8218	1.8921	1.6675	6.1048	2.4226	2.1977	14.3376
Skewness	0.9179	1.2399	-0.9383	-0.3377	-2.8392	0.5369	0.0029
Kurtosis	5.5474	3.4635	3.1975	1.5451	10.1272	2.5498	1.6860
Jarque-Bera	18.0764	11.6670	6.5285	4.7173	152.2430	2.4853	3.1656
Probability	0.0001	0.0029	0.0382	0.0945	0.0000	0.2886	0.2054
Sum	430.5400	123.7300	475.8700	4056.0000	188.9400	137.9700	1618.6700
Sum Sq. Dev.	628.0705	153.9381	119.5661	1602.5450	252.3693	207.6831	8839.3910
Observations	44	44	44	44	44	44	44

The first phase to do time series regression is to check stationary or not the data used in this study by using unit root test. This is important to avoid a spurious regression. Unit root test in this study using Augmented Dickey-Fuller approach.

Table 2. The Result of the Unit Root Test

Variables	ADF Statistics		Integrated
	At Level	First Difference	
KPR	-4.378*(0.0003)***		I(0)
HP	-3.992 (0.0015) ***		I(0)
SBK	1.018 (0.9945)	-8.163 (0.0000) ***	I(1)
LTV	-1.608 (0.4797)	-6.517 (0.0000) ***	I(1)
PDB	-2.751 (0.0656) *		I(0)
INF	-2.435 (0.1321)	-8.279 (0.0000) ***	I(1)
GT	-0.733 (0.838)	-11.442 (0.0000) ***	I(1)

Note : ***,**,*denotes 1%, 5%, 10% significance level

The unit root test results in Table 2 show the stationarity properties of each variable used. The variables kpx, hp, and gdb are proven to be stationary at the [I(0)] level, while the variables sbk, ltx, inf, and gt become stationary after the first differentiation [I(1)]. The presence of a mixture of variables that are stationary at the level and at the first difference [I(1)] forms a prerequisite for applying the Autoregressive Distributed Lag (ARDL) approach and conducting a Bound Test to test for the existence of a long-term cointegration relationship.

Table 3. Bound Test

Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	9.267	10%	2.335	3.673
		5%	2.807	4.323
		1%	3.94	5.873
t-statistic	-7.428	10%	-2.491	-3.971
		5%	-2.855	-4.414
		1%	-3.597	-5.317

The bounds test results, as presented in Table 3, indicate that the null hypothesis of no long-run relationship is rejected. This confirms the existence of a stable cointegration relationship between the variables. Therefore, the ARDL model is suitable for analyzing the dynamics of housing credit behavior, both short-term and long-term.

Table 4. Long-run Result and Diagnostic

Variable	Coeff.	Std. Error	t-Statistic	Prob.
HP	0.2790	0.3240	0.860	0.410
SBK	-0.3570	0.3500	-1.020	0.332
LTV	-0.393*	0.1170	-3.360	0.007
PDB	0.477*	0.0850	5.600	0.000
INF	-0.414*	0.1480	-2.800	0.019
GT	-0.113*	0.0480	-2.360	0.040
Constant	69.972*	29.6590	2.360	0.040**

Note : ***,**,*denotes 1%, 5%, 10% significance level

Table 5. Diagnostic Test Results

Testing	t-Statistic	p-value
Normality : Jarque-Bera test	-2.592	0.99523
Autocorrelation : Breusch-Godfrey LM test	2.547	0.1105
Heteroscedasticity : Breush-Pagan / Cook-Weisberg	0.000	0.9728

The LTV ratio exhibits a negative and significant coefficient of -0.393 ($p = 0.007$), indicating that a one-unit increase in the LTV ratio leads to a 0.393-unit decrease in housing loan disbursement, *ceteris paribus*. This implies that a tighter LTV policy effectively curbs excessive mortgage growth, consistent with its role as a macroprudential tool to maintain financial stability.

Conversely, GDP shows a positive and highly significant coefficient of 0.477 ($p = 0.000$), suggesting that a 1% increase in economic output enhances housing loan distribution by 0.477%. This aligns with macroeconomic theory, where robust economic growth boosts consumer confidence, employment, and purchasing power, thereby encouraging mortgage demand. Inflation, on the other hand, has a negative and significant effect with a coefficient of -0.414 ($p = 0.019$). A 1% increase in inflation reduces mortgage disbursement by 0.414%, indicating that rising prices erode household real income and increase the cost of borrowing. Similarly, Google Trends (GT), representing public perception and search behavior, is found to have a significant negative effect (-0.113 , $p = 0.040$). This finding suggests that higher search intensity for housing-related terms does not necessarily translate into actual loan applications; instead, it may signal public uncertainty or speculative interest regarding housing affordability.

Meanwhile, housing prices (HP) and mortgage interest rates (SBK) are statistically insignificant in the long run, with p-values of 0.410 and 0.332, respectively. Although the coefficients (0.279 for HP and -0.357 for SBK) exhibit theoretically consistent directions, they are not strong enough to affect mortgage disbursement significantly over time. This indicates that in the long-term equilibrium, the market may have adjusted to gradual changes in house prices and interest rates through adaptive expectations and policy adjustments.

Table 6. Short-run and ECT Results

Variable	Coeff.	Std. Error	t-Statistic	Prob.
Short-run Coefficients				
D(HP) ₋₂	3.952*	0.8670	4.560	0.001
D(SBK) ₋₃	2.973*	1.1450	2.600	0.027
D(LTV)	-0.412*	0.1380	-2.990	0.014
D(PDB)	0.368*	0.1510	2.440	0.035
D(INF)	-1.128*	0.2620	-4.300	0.002
D(GT)	0.200*	0.0920	2.180	0.055
Error Correction Term				
ECT(-1)	-1.408*	0.3920	-3.590	0.005

Note : ***, **, *denotes 1%, 5%, 10% significance level

The short-run ARDL results (Table 6) reveal more dynamic and immediate responses of housing loan distribution to changes in macroeconomic and behavioral variables. Interestingly, most variables show significant short-term effects, some of which differ in direction from the long-run equilibrium. The change in housing prices (D(HP)) shows a positive and significant coefficient of 3.952 ($p = 0.001$), indicating that a 1% increase in housing prices leads to a 3.952% increase in mortgage disbursement in the short term. This positive response suggests a behavioral tendency among consumers to secure home loans quickly when prices start to rise, a phenomenon commonly referred to as fear of missing out (FOMO) in housing markets.

Similarly, the change in mortgage interest rates (D(SBK)) also displays a positive and significant coefficient of 2.973 ($p = 0.027$). Although this contradicts classical theory, it may reflect a lag effect in monetary policy transmission, where borrowers rush to obtain loans before interest rates rise further, or it may indicate temporary market optimism supported by competitive bank promotions. The short-run effect of LTV (D(LTV)) remains negative and significant (-0.412 , $p = 0.014$), reaffirming that stricter LTV policies immediately constrain credit expansion. GDP continues to exert a positive and significant influence (0.368 , $p = 0.035$), implying that stronger economic activity promptly stimulates mortgage demand.

Meanwhile, inflation (D(INF)) has a strong negative effect (-1.128 , $p = 0.002$), demonstrating that higher inflation quickly suppresses loan demand due to reduced purchasing power and higher cost of living. Lastly, Google Trends (D(GT)) shows a marginally significant positive coefficient (0.200 , $p = 0.055$), suggesting that an increase in online search activity related to housing topics can slightly boost short-term mortgage uptake, possibly reflecting heightened public interest or optimism in the housing sector.

The Error Correction Term (ECT) coefficient is -1.408 and statistically significant ($p = 0.005$), confirming the existence of a stable long-run equilibrium relationship among the variables. The negative and significant sign indicates that any short-run disequilibrium in mortgage disbursement will be corrected in subsequent periods. The magnitude of -1.408 suggests a rapid adjustment speed, where approximately 140.8% of the deviation from the long-run equilibrium is corrected within one quarter. This rapid convergence implies a high degree of responsiveness in Indonesia's housing loan market to macroeconomic and policy shocks.

Integrating the long-run and short-run results provides meaningful insights into how policy, macroeconomic fundamentals, and public perception jointly shape the dynamics of housing loan demand in Indonesia. In the long run, economic fundamentals dominate: GDP growth sustains mortgage expansion, while higher inflation and tighter LTV policies constrain it. The negative long-run association between Google Trends and mortgage disbursement indicates that online search intensity may serve as a proxy for market caution or speculative monitoring rather than real purchasing action.

In the short run, behavioral and perceptual factors play a stronger role. Rapid responses to housing price movements and interest rate changes demonstrate that borrowers react quickly to perceived market opportunities and policy signals. The temporary positive response to

higher interest rates reflects adaptive behavior and the lagged effect of monetary policy transmission. Moreover, the marginal role of Google Trends in the short run suggests that digital search behavior can capture shifts in market sentiment that precede actual financial decisions.

From a policy standpoint, these results imply that macroprudential instruments such as LTV ratios remain effective in controlling credit growth, both in the short and long term. However, the findings also highlight that public perception and behavioral responses, as captured through Google Trends, are increasingly relevant in understanding modern credit dynamics. Thus, policymakers should complement traditional economic indicators with behavioral analytics to design more responsive and adaptive housing credit policies.

The results are in line with those of Rahadi et al. (2024), Roeskamto & Atmadja (2022), and Fauzia et al. (2018), who contend that changes in housing prices have a big impact on mortgage demand and consumer expectations. A recent study by Nurkhayati and Fitriady (2024), reveal a somewhat counterintuitive dynamic: rising house prices as captured by the House Price are positively associated with greater mortgage disbursements. While classical demand theory suggests that higher prices typically suppress demand, this pattern may reflect a growing perception of housing as an investment asset. The persistent appreciation in property values, particularly driven by the finite nature of land, may reinforce consumer expectations of long-term gains, thereby sustaining or even increasing demand for mortgage financing despite rising costs.

This highlights the importance of macroeconomic stability in fostering credit growth in the housing market (Andini & Falianty, 2022). These test results align with previous research by Andini & Falianty (2022), which states that housing demand is highly dependent on a country's economic growth and stability. According to this study, Gross Domestic Product (GDP) growth significantly influences mortgage lending growth, meaning that a country's economic income will determine its standard of living. A statement issued by Paul R. Krugman (2018) in his research states that income is one of the factors influencing a person's ability to purchase a home. This corroborates the findings of this study, which found that higher income leads to higher levels of well-being in meeting needs. High population well-being, which leads to a high human development index, will lead to increased income levels and community well-being. Another study that aligns with this is the study by Nugroho et al. (2018), which concluded that each region's GDP has a positive and significant influence on house prices. Therefore, given that GDP levels in different regions have the same positive influence, it can be concluded that the mortgage growth rate also increases in line with GDP growth.

Rising inflation likely reduces actual household income and heightens macroeconomic uncertainty, thereby lowering the demand for long-term credit, such as KPR. This aligns with results from Khoirudin & Kurniawan (2023), highlighting the negative impact of inflation on housing finance dynamics. The results of this study align with those of Arifin & Amri (2024), who concluded that inflation not only reduces people's purchasing power but also has broader impacts, including the distribution of financing by banking institutions. Rising consumer prices tend to make people reconsider their credit requests, particularly mortgage loan. Another study by Maiti et al. (2020) found that rising inflation significantly reduced

bank credit. In the short-term, the results of this study and those of Maiti et al. (2020) share a similar negative relationship between inflation or the consumer price index and mortgage growth.

Unexpectedly, the mortgage interest rate (SBK) does not demonstrate a statistically significant effect on KPR growth. This finding indicates that adjustments in interest rates were either negligible in influencing consumer behavior or that mortgage borrowers in Indonesia show a lower sensitivity to interest changes, perhaps because of fixed-rate loan arrangements or information disparities in the financial system. The Loan to Value (LTV) ratio functions as a macroprudential tool which demonstrates a substantial negative effect on mortgage growth. The unexpected result seems to contradict the purpose of LTV increases because they aim to facilitate credit access yet the data shows the opposite effect. The introduction of higher LTV ratios occurred mainly during economic slowdowns such as the COVID-19 pandemic when market demand was already weak. The research demonstrates how macroprudential policy implementation depends on specific circumstances which Zulfikar & Soesilo (2023) and Ayuningtyas (2022) also identified.

The research introduces Google Trends (GT) as an innovative proxy to measure public interest and perceived housing demand, which stands out as the study's main contribution. The analysis reveals that higher online searches about KPR (e.g., “rumah dijual”, “KPR”) correspond with reduced actual mortgage disbursements. The observed countercyclical pattern indicates that people search for homes but choose not to buy because of affordability issues and economic uncertainty and speculative reasons. The findings support behavioural research by Gupta & Moodley (2024) and Vasileiou et al. (2024), which shows that online activities demonstrate both potential demand and hidden doubts that prevent actual purchasing decisions.

The interaction between LTV and Google Trends further enriches this interpretation. As LTV policies become more restrictive, potential buyers may increase online searches to gather more information about financing alternatives, developer promotions, or property price expectations. This information-seeking response amplifies the GT index, yet it does not always translate into higher credit uptake due to tightened credit access. Consequently, the transmission from policy to perception becomes evident, regulatory constraints (LTV) indirectly influence consumer sentiment (GT), which then feeds back into mortgage growth outcomes.

The dual mechanism, policy-driven financial constraints and perception-driven behavioral responses illustrate the multidimensional nature of housing finance in the digital economy. While traditional macroprudential policies directly regulate lending capacity, the digital environment introduces an information-based feedback loop where perception, shaped by online information, can either reinforce or mitigate policy impacts.

Conclusion

This study investigated the determinants of housing loan demand in Indonesia from 2014Q1 to 2024Q4, focusing on the interplay between macroeconomic variables, macroprudential policies, and behavioral perceptions as captured through Google Trends data. Using the

Autoregressive Distributed Lag (ARDL) model, the analysis provides empirical evidence that both policy instruments (Loan-to-Value ratio) and digital perception indicators (Google Trends) significantly influence the growth of mortgage lending, though through distinct mechanisms. In the long run, LTV ratio, GDP, inflation, and Google Trends are found to significantly affect mortgage volume. A tighter LTV policy reduces credit growth, confirming its effectiveness as a macroprudential tool to curb excessive leverage in the housing sector. However, it also implies potential constraints on credit accessibility for new homebuyers, particularly among lower and middle-income households. This underscores the need for policy calibration that balances financial stability with inclusive access to housing finance. Meanwhile, Google Trends, representing the perception and information-seeking behavior of potential buyers, shows a contrasting dynamic: a positive short-run effect but a negative long-run relationship with mortgage growth. This finding reveals that increased online search activity initially signals growing market attention but may later reflect rising uncertainty or cautious sentiment, leading to slower realization of housing loans. Hence, digital search intensity operates as a perception channel, transmitting policy and macroeconomic signals into behavioral responses that ultimately shape real credit outcomes.

The interaction between LTV and Google Trends highlights a broader insight: in the digital era, traditional policy measures not only influence financial variables directly but also indirectly affect public sentiment and market perception. When credit conditions tighten, potential buyers actively seek information online, amplifying the perception response even before financial data capture the real adjustment. This underscores the importance of integrating behavioral analytics and digital sentiment indicators into housing market monitoring and policy formulation. From a policy perspective, the results suggest that maintaining a stable and inclusive mortgage market requires a dual approach. Quantitative regulations such as LTV must be complemented by strategic communication and transparency efforts, ensuring that policy intentions are clearly understood by the public. Enhancing the reliability of online housing information and financial education initiatives can help mitigate perception bias and sustain market confidence. This study contributes to the literature by bridging the gap between policy-driven financial mechanisms and perception-driven behavioral dynamics in explaining mortgage demand. It provides empirical support for a multidimensional framework where policy meets perception, offering valuable insights for regulators, financial institutions, and housing developers in the age of digital information. Future research could extend this framework by incorporating sentiment analysis from social media data or by testing nonlinear dynamics between perception and credit behavior across different economic cycles.

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