



# The Impact of Mortgage Rates on Mortgage Refinancing

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## ABSTRACT

This paper evaluates the combined effect of current and previous mortgage rates on mortgage refinancing decisions of mortgage holders. The paper inclines on the ontology of a single reality of the interaction between mortgage rates and mortgage refinancing with attendant epistemology that their interaction is measurable. Accordingly, the paper adopts the positivist paradigm and a quantitative technique. It used data on the U.S. Mortgage Bankers Association (MBA) retrieved from the economic and financial database of Fusion Media. Data were analysed using the OLS technique. The findings show that current-actual and previous mortgage rates have a significant positive effect on mortgage refinancing at  $P = 0.05$  and  $P = 0.04$  respectively. The findings have important implication for mortgage lending and refinancing decisions for mortgage bankers (lenders), mortgage borrowers and policy makers. It also provides further research avenue for future researchers to apply the model used in this research for related expanded research. The paper contributes a new model with two genres of mortgage rate (current mortgage rate and previous mortgage rate) and how these two types of mortgage rates influence mortgage refinancing.

**Keywords:** Mortgage Lending, Mortgage Rates, Mortgage Refinancing, Housing

**JEL Classifications:** G21, R21, G32, F65, O18

## 1. INTRODUCTION

A mortgage represents a legally agreed provision of an amount of money from a lender to the borrower, which, authorizes the lender to take possession of the borrower's property if the borrower defaults in repaying the principal amount and the attendant interests to the lender. Accordingly, mortgage loans provide financial capacity to borrowers to purchase housing property; similarly mortgage loans can also be collected on the basis of existing house value which is already owned by the borrower (CFPB, 2023, Martin, 2023). Amongst others, mortgage lending rates constitute an important factor, which might influence the trends in mortgage markets, including impacts on borrowers and lenders' decisions. Majority of research focus on how refinancing impact mortgage rates (Scharfstein and Sunderam, 2013; Brady et al., 2000). However, this paper adopts a slightly different approach and analyses the effect of mortgage rate (actual and previous) on mortgage

refinancing. This different approach is informed by the author's aim to contribute a new line of discussion and model, which is founded on author's argument that the current (actual) and previous mortgage rates should play a pivotal role on borrower's decision to seek for refinancing. Hence this paper contributes a new insight to the theory and practice of mortgage loans and mortgage refinancing.

The problem of this paper inclines on fact that mortgages loans are sine qua none for the acquisition of housing property, yet the impact of mortgage lending rates on mortgage refinancing is somewhat obscure in the literature. Hence this paper argues for the consideration and integration of mortgage rates (actual and previous rates) in the analysis of mortgage refinancing. Accordingly, the paper aims to evaluate the combined effect of current and previous mortgage rates on mortgage refinancing. Accordingly, the results contribute to expand previous studies on mortgage refinancing determinants.

## 2. LITERATURE REVIEW

Extant literature indicates that despite the alluring benefits accruable from mortgage refinancing, some covert barriers may limit some mortgage borrowers from benefiting from the benefits (Lambie-Hanson and Reid, 2018; Gathergood and Weber, 2017). A comparative empirical study on mortgage refinancing (prime and sub-prime borrowers) conducted in the USA post-financial crisis by Lambie-Hanson and Reid (2018) was motivated by implicit factor of social stratification in mortgage refinancing, where they noted the fact that although interest rates had fallen around the 2018 period of study with enabling support from the federal government, yet many mortgage holders who were supposed to benefit from falling interest rates and the attendant refinancing had not benefited from mortgage refinancing. Accordingly, Lambie-Hanson and Reid (2018) read evaluated the degree to which subprime borrowers apply and take refinancing loans which are conditioned on non-mortgage default. They found that beginning in 2009 subprime borrowers were almost half of the prime borrowers in taking up mortgage refinancing even though they still sought for credits which is an indication that they still had refinancing interest. They found that the disparity in mortgage refinancing is partly caused by the tighter credit conditions, which followed the financial crisis including the fact that many borrowers of subprime were not qualified for the refinancing of mortgage on the home affordable refinance program. Furthermore they found that the rates of refinancing were very low comparatively for black borrowers and Hispanic borrowers; they also found that the barriers in refinancing have a long run implication for social stratification and building of wealth (Lambie-Hanson and Reid, 2018).

In another study, researchers contend that concentration in the level of mortgage lending within a locality may have the propensity to reduce mortgage rates (Scharfstein and Sunderam, 2013). This is an interesting finding, which may somewhat align to tangible product market when an oversupply of tangible products may either cause a stagnation or reduction in price.

Furthermore, literature findings show that successful and efficient mortgage refinancing offers important advantages, which includes amongst others, a good reduction in normal monthly payment before refinancing, a decrease in the level of mortgage default occurrences and an enhanced disposable income and attendant ability improvement in the level of borrowers' consumption (Bhagat, 2021).

Yoon and Kim (2023) applied a survival examination on mortgage loans with fixed-rates to look for variations in prepayment patterns based on the income and age of the debtors. The debtors with the highest hazard ratios were those who were younger members of the "X generation" and those who belonged to the income group with the median level of income. We also verified that rules and the impacts of aging change how debtors behave when making prepayments. Last but not least, we verified that there is a sizable prepayment hazard differential among debtors with comparable loan terms. By taking these factors into account, this research will aid in the field's prepayment forecasting model's improvement and encourage additional study of prepayment behavior across a range of debtor and loan characteristics.

Other researchers have looked at the causal impact of refinancing on volatility of interest rates, as an example, Duarte (2008) examined the impact of hedging activities with mortgage-back security (MBS) on the volatility of interest rates and suggests a new model that could integrate these interactions. They found that an inclusion of MBS makes an effective performance modelling in regards to options of interest rates and attendant volatility forecast of interest rates in both optional and real interest rates. The ensuing model which results from the inclusion of MBS information provides for a better description of the pricing of fixed-income types of securities.

Other researchers have sought to analyse whether policies such as Home Affordable Refinancing Program (HARP) may influence the ability of borrowers to shop around for mortgages and how competitive market influence the interest rate of mortgages. Accordingly, Amromin and Kearns (2014). Applied a fuzzy regression discontinuity model, and demonstrated a shift in the interest rate of mortgage which aligns precisely with the HARP eligibility threshold. Amromin and Kearns (2014) results indicate that restrictive competition elevated the interest rates on a 30-year fixed mortgage rate by approximately 15-20 points basis, which thus translates to upper lenders' profits. Amromin and Kearns (2014) findings is a substantial evidence to prove that increases in mortgage pricing ability may translate to higher mortgage market interest rates.

Given the issues surrounding mortgage refinancing, other researchers have sought to understand the determinants of housing debt (Khan et al., 2016); and others explore the determinants of various home mortgage defaults (Wu et al., 2017). This theme also prompts other to evaluate how commercial banks react with diverse decisions in the face of home mortgage default, Hong et al. (2018). Accordingly, in their empirical research, Khan et al. (2016) looked into the variables affecting Malaysian household debt composition in their study. The researchers found that a growth in population, home price, and income level would all have a favorable long-term impact on mortgage debt through the use of the bound test and Autoregressive Distributed Lag (ARDL) modeling approach. On the other hand, a rise in interest rates and living expenses would be detrimental. Moreover, Khan et al. (2016)'s findings lend credence to the idea that households use debt as a way to augment their income in order to finance the rising consumption that comes with rising living expenses.

The importance of mortgage loans especially in contemporary economic environment with different forms of financial crisis have motivated many research, which evaluate various types of mortgage financing (Aarland and Reid, 2023; Agarwal et al., 2023; McCartney and Shah, 2022). Accordingly, some researches have questioned how mortgage default result in different decisions in commercial banks (Hong et al., 2018); others have analysed the interplay between mortgage refinancing and consumer spending (Agarwal et al., 2023); still other researchers have evaluated the effect of neighbourhood decisions on mortgage refinancing decisions (McCartney and Shah, 2022). In the same vein, the effect of refinancing on the housing status of lower income households have also attracted housing welfare economic analysis

of researchers (Aarland and Reid, 2023). Justiniano et al. (2022) evaluated what they termed mortgage rate conundrum given the difficult-to-explain mortgage rate disparity between private security mortgage and government mortgage securities. They studied the interest rates of home mortgages that were privately securitized during the early 2000s credit boom and found a disparity between mortgage and Treasury rates - hence their coinage of mortgage rate conundrum. In recent times, researchers have shown interest towards the understanding of how neighborhood peer influences affect household decision-making. McCartney and Shah (2022) found that families are 7% more likely to refinance their mortgages if a neighbor within a 50-m radius has recently done so. This research was conducted using accurate geolocation data and a nearest-neighbor research methodology. This result is consistent with the idea of word-of-mouth influence because the social impact is higher when neighbors live close by, lower when homeowners are not occupants, and higher when both homeowners and neighbors are of the same racial background. As a result, our results suggest that neighborhood peer effects are important in explaining the differences in refinancing activity between regions.

However, research on mortgage financing is still scarce on the effect of previous and current mortgage rates on mortgage refinancing. This paper therefore contributes by evaluating the combined influence of current and previous mortgage rates on the extent of mortgage refinancing by mortgage debt holders.

### 3. MATERIALS AND METHODS

This paper is inclined on the ontological basis of the existence of mortgage rates and mortgage refinancing; hence the ontological crux of the paper is on the ontology of a single reality (Smith, 2012); specifically on how mortgage rate relates to mortgage refinancing. Therefore, the epistemological stance is the approach to understanding this relationship (Al-Saadi, 2014); the paper thus inclines on the epistemological stance that knowledge can be measured, thus the interaction between mortgage rate and mortgage refinancing can be measured (Al-Saadi, 2014). Given therefore, that both variables of existence are numerical, the research paradigm of positivism becomes apposite. Therefore, paper adopted a positivist paradigm since it sought to examine the how two quantitative mortgage variables relate (namely mortgage rate and mortgage refinancing). Accordingly, the paper applied a quantitative approach. Data on U.S. Mortgage Bankers Association (MBA) Mortgage Refinance Index and Mortgage lending rates Index were collected from the archives of Fusion Media financial and investment index popularly known as Investing.com (Fusion Media, 2023a and 2023b). The data were cross sectional between January 2023 and August 30 2023.

The regression model:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

Where:

Y = index of mortgage refinancing,  $\alpha$  = alpha (constant);  $\beta_1$ - $\beta_2$  = regression coefficients;  $X_1$  = current (actual) mortgage rate;  $X_2$  = previous mortgage rate, and  $\epsilon$  = error term.

### 3.1. Results and Discussion

Table 1 presents the OLS result for observations 1-86, where the dependent variable is mortgage refinancing using the January 2022-August 2023 data of the US Mortgage Bank Association refinancing index and the independent variable being the US mortgage rate (current-actual rates and previous rates). The data analysis was conducted with Ordinary Least Square (OLS) using the gretl statistical and econometrics software. Findings from Table 1 show that actual mortgage rate (MR Actual) and previous mortgage rates (MRPrevious) have a significant positive effect on mortgage refinancing at P = 0.05304 with 9.85802 coefficient and at P = 0.04384 with 10.2406 respectively. Furthermore, the results indicate that although current (actual) mortgage rate is positively significant on mortgage refinancing, but previous mortgage rates demonstrate a stronger significant effect on mortgage refinancing both in terms of the P-value and regression coefficient. This finding highlights the importance of historical mortgage rate on refinancing, which further shows that decision to refinance may result from a build-up of mortgage rate trends over a period. This finding appear to align with previous research, which opine that “borrowers should refinance their loans whenever lower interest rates compensates refinancing costs” (Bajo and Barbi, 2018).

Resulting model of mortgage rate effect on refinancing from Table 1.

$$\wedge Mref = 21.0 + 9.86 * MR\_Actua + 10.2 * MRPrev$$

(71.5) (5.02) (5.00)

n = 86, R-squared = 0.631

(Standard errors in parentheses).

### 3.2. Significance and Contribution

The findings of this paper is significant as it provides important investment information for mortgage lenders namely the mortgage bankers association, and other mortgage players such as mortgage rate and refinancing speculators and hedgers for making mortgage investment decisions. The findings also provide mortgage policy makers with information that enables the policy makers to understand when to introduce mortgage monitoring and

**Table 1: Model 1: OLS, using observations 1-86**

Dependent variable: Mortgage refinancing				
Description	Coefficient	Std. Error	t-ratio	P-value
Const	21.0044	71.51	0.2937	0.76970
MR_Actual	9.85802	5.02294	1.9626	0.05304*
MRPrevious	10.2406	5.00327	2.0468	0.04384**
Description	Value	Description	Value	
Mean	751.3826	S.D. dependent	551.0159	
dependent var		var		
Sum squared	9535533	S.E. of	338.9483	
resid		regression		
R-squared	0.630514	Adjusted	0.621611	
		R-squared		
F (2, 83)	70.81825	P-value (F)	1.14e-18	
Log-likelihood	-621.5248	Akaike criterion	1249.050	
Schwarz	1256.413	Hannan-Quinn	1252.013	
criterion				

stabilisation directions and/or policies. Furthermore, the findings on how previous and current mortgage rates exert diverse influence on mortgage refinancing provides a current case material for academic and research discussions in university business schools.

The paper contributes a new model with two genres of mortgage rate (current mortgage rate and previous mortgage rate) and how these two types of mortgage rates influence mortgage refinancing. This is one of the first paper to integrate previous mortgage rate in the model.

#### 4. CONCLUSION

This paper aimed to demonstrate how a combination of current-actual and previous mortgage rates may affect mortgage refinancing. The paper is unique from existing research as it introduces a new model which rather focusses proving that mortgage rates may be a factor that influences mortgage refinancing. Data were analysed with the Ordinary Least Square (OLS) technique. The results from the analysis demonstrate that a combination of current-actual and previous mortgage rates exhibit a significant and positive effect on the quantity of mortgage refinancing at  $P = 0.05$  and  $P = 0.04$  respectively; with previous mortgage rate showing stronger effect on refinancing. This new approach and the attendant findings provide some implications for practice and theory on mortgage lending and refinancing decisions. It will assist mortgage bankers (the lenders), mortgage borrowers and mortgage public policy makers to draw lessons from the findings to strengthen future mortgage policies to the benefits of citizens. The findings of this paper is useful as a current academic study material for university business schools. Furthermore, whilst this paper used only the U.S. mortgage data and refinancing data, future researchers may apply the model presented in this research to conduct an expanded future research whereupon more cross-sectional data and/or time series may be applied across countries. This paper's novel contribution to the literature is on the unique application of two independent variables (actual and previous mortgage rates) to evaluate their combined effect on mortgage refinancing, which thus adds a new light to the mortgage refinancing literature.

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