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## The Future of Mortgage Financing in the Era of Fintech: A Systematic Review

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**Abstract:** Unlocking the mystery of mortgage expansion reveals the roadmap to sustainable growth and financial stability in the midst of emerging economic paradigms. The research intends to uncover unique insights that are essential for guiding the path of sustainable prosperity by disentangling this complex web of relationships. Present study explores USA mortgage loan growth patterns. It examines fintech, innovation, borrowing, non-performing loans, and risk. The paper uses rigorous least squares analysis and modified Dickey-Fuller tests to examine these variables and mortgage growth from 2010 to 2020. The findings show fintech, innovation, borrowing, non-performing loans, risk, and mortgage expansion are linked. Fintech and innovation have negative coefficients, showing that while they can improve market efficiency, they may restrict mortgage growth if not handled carefully. Similarly, the positive coefficient of borrowing shows that it drives mortgage demand and market expansion, indicating economic confidence. Whereas, Non-performing loans also directly affect mortgage growth, suggesting that despite their risks, they can boost lending and the mortgage market. Additionally, risk has a positive coefficient, suggesting that higher risk may boost mortgage growth by encouraging investment. These findings shed light on the complex dynamics of mortgage expansion in the USA economy and highlight the need to include fintech, innovation, borrowing, non-performing loans, and risk in mortgage market regulations and practices. These findings can help policymakers, financial institutions, and stakeholders plan for sustainable mortgage market growth, economic durability, and financial stability. Fintech, innovation, borrowing, non-performing loans, risk, and mortgage growth are empirically linked in this study, adding to current knowledge. This research aims to illuminate these relationships to inform governmental decisions, lending practices, investment,

and USA mortgage market developments. This knowledge can assist build a lasting mortgage market that boosts economic growth and stability.

**Keywords:** finance, fintech mortgage, risk, digital loans, real estate.

## Introduction

Unlocking the potential of the mortgage industry in USA is the crucial element that leads to financial and fostering economic growth. According to Allen et al. (2023), Karkkainen (2023), and Hauptert (2022) Mortgage market is essential for sustainable growth, as indicated by recent results that emphasize key variables such as financial technology (fintech), innovation, borrowing habits, and non-performing loans. These findings highlight the importance of the mortgage market.

Mortgage growth, a key housing market indicator, measures consumer confidence, financial health, and economic resiliency. However, limited finance, strict lending standards, and high interest rates prevent its growth. These concerns worsen housing affordability, homeownership, and economic growth. Reforms that streamline mortgage lending, decrease regulatory hurdles, and improve credit risk management can boost lender and borrower trust. Fostering mortgage product and delivery channel innovation, including using fintech solutions, can increase mortgage financing access and meet different borrower needs. Mortgage demand drives investment in building and allied businesses, creating jobs and economic activity. Increased homeownership promotes social stability, community development, and wealth accumulation, making the economy more resilient and inclusive.

Mortgage growth also drives capital formation and financial intermediation by investing household funds in long-term investments and developing capital markets. Mortgage growth strengthens financial markets and diversifies funding sources, reducing external financing and boosting economic resilience. Understanding and encouraging mortgage growth in USA is crucial for economic growth, social stability, and financial resilience. Policymakers can unleash the housing sector's full potential as a source of sustainable economic development and prosperity in USA by addressing growth bottlenecks, simplifying access to affordable home finance, and supporting mortgage market innovation.

Building ecosystems and improving service delivery channels are two of the most important ways in which commercial banks have contributed to the expansion of the financial technology industry. The rapid growth of financial technology and its incorporation into the operations of commercial banks are both topics that are investigated in different studied like (Hsieh & Lee, 2020; Lee et al., 2020).

Recently, scholars like Fuster et al. (2019), Fuster et al. (2021b), Pierri and Timmer (2020), and Shakya and Smys (2021), have focused on fintech's influence in mortgages. Scholars study how fintech technologies are changing mortgage lending and housing financing. It's becoming clear that fintech can expedite processes, improve accessibility, and change the mortgage market.

With a focus on the effects of fintech, innovation, borrowing, non-performing loans, and risk, the purpose of this study is to investigate the factors that influence the growth of mortgages in the US economy. Specifically, the study will investigate the effects of these elements. Our purpose is to acquire valuable knowledge about the factors that determine the behavior of the mortgage market and their impact on economic growth and financial security by investigating the interaction among these elements. This will be accomplished by examining the interaction among these factors.

The term "fintech," which describes the implementation of cutting-edge technology and digitalization in the realm of financial services, is gaining more and more significance all over the world and is poised to bring about complete transformation in the mortgage industry. Innovation, which includes advances in mortgage products, processes, and delivery channels, is essential for enhancing the efficiency of the market and improving the quality of the experience that customers have. While this is

going on, the act of borrowing money is a significant factor in the stimulation of the demand for mortgages. This is because it reflects the amount of trust that consumers have in the economy.

Despite this, the mortgage market is confronted with challenges, such as the high percentage of non-performing loans and its susceptibility to a variety of hazards, including fluctuations in interest rates and economic volatility. For policymakers and market participants to be able to effectively formulate plans for supporting the long-term and comprehensive development of the mortgage market, it is essential for them to have a thorough understanding of the influence that these elements have on the expansion of mortgages.

Through the application of advanced regression analysis and empirical evidence, the purpose of this study is to provide major insights into the factors that drive the growth of mortgages in the US economy. The purpose of this study is to investigate the relationships that exist between financial technology, innovation, borrowing, non-performing loans, and safety. The purpose of this analysis is to improve the present understanding of the dynamics of the mortgage market and to propose proposals that can be put into practice by regulators, financial institutions, and other stakeholders.

In the following sections of this paper, we will present a comprehensive analysis of our findings, with a particular emphasis on the practical outcomes and the implications of those outcomes for market actors and policymakers. We hope to achieve our goal of gaining a better understanding of the factors that contribute to the expansion of mortgages by conducting in-depth empirical research. The information that has been gathered will subsequently be utilized to make well-informed policy decisions that will contribute to the development of a robust and flexible mortgage market in USA.

### ***Research Problem***

In spite of the fact that the mortgage business in USA is becoming increasingly significant, there is still a significant knowledge gap about the factors that are impacting the expansion of mortgages in the context of the US economy. There has been a limited amount of research that has specifically focused on the interaction between financial technology, innovation, borrowing, non-performing loans, and risk, as well as their combined impact on mortgage growth in USA. Previous studies have investigated a variety of aspects of mortgage markets and the factors that determine them. Because of this gap in the literature, additional research is required in order to accomplish the goal of providing a thorough understanding of the processes that are driving the expansion of the mortgage market in USA.

### ***Research Focus***

This research study examines how fintech, innovation, borrowing, NPLs, and risk affect US mortgage growth. The study's main purpose is to illuminate the intricate relationship between these elements and how they have shaped the mortgage market, which is important to economic growth. The research uses advanced regression analysis and empirical evidence to shed light on mortgage growth dynamics for policymakers, financial institutions, and other stakeholders. The report underlines the need to remove growth barriers, make inexpensive home financing easier to get, and encourage mortgage market innovation to fully exploit the housing industry as a driver of long-term economic growth and prosperity in USA.

### ***Research Aim and Research Questions***

This study investigates the factors affecting mortgage prospects in the US economy from 2010 to 2020. The paper examines how mortgage market expansion affects fintech, innovation, borrowing, NPLs, and risk. This research sheds light on USA's mortgage industry and its effects on economic growth and financial stability. In-depth analysis of these major determinants will achieve this. The major research topic for this study is: How have US mortgages grown from 2010 to 2020? What impact do fintech, innovation, borrowing, NPLs, and risk have on growth? This study seeks to examine the

mortgage market's driving forces and their effects on policymakers, financial institutions, and other stakeholders in the US economy.

*Research hypothesis 1:*

H0: Fintech adoption does not affect US mortgage growth.

H1: Fintech adoption boosts US mortgage growth.

*Research hypothesis 2:*

H0: Mortgage product, process, and delivery channel innovation does not significantly affect mortgage growth in USA.

H1: US mortgage growth is boosted by innovation.

The expansion of mortgage lending in the US economy has important consequences for policymakers, financial institutions, investors, and other individuals or groups with a vested interest. Policymakers can utilize the results to formulate specific rules and regulations with the goal of advancing the sustainable growth of the mortgage industry, facilitating home ownership, encouraging financial inclusivity, and driving economic expansion. Financial institutions in the mortgage market can utilize the findings of this study to improve their lending procedures, product offerings, and risk management techniques. Lenders can improve their assessment of credit risk, customize mortgage products to fit consumer needs, and optimize mortgage lending processes by comprehending the elements that impact mortgage growth. Moreover, this report offers valuable data for investors who are interested in exploring prospects in the US mortgage sector. Investors can make well-informed judgements on mortgage-backed securities, real estate investment, and portfolio diversification strategies by comprehending the factors that drive mortgage growth and market dynamics. Furthermore, a robust mortgage market is crucial for facilitating economic growth, encouraging homeownership, and stimulating investment in housing-related sectors. This study aims to uncover the key elements that influence mortgage growth. By doing so, it can provide valuable insights for developing ways to improve home affordability, boost construction activity, and generate employment opportunities. Ultimately, these efforts can contribute to overall economic growth and stability. This paper contributes to the current body of research on mortgage market dynamics by presenting empirical findings on the influence of fintech, innovation, borrowing, non-performing loans, and risk on mortgage growth in USA. Researchers and scholars can utilize the findings of this study to delve deeper into the complexities of mortgage market dynamics and construct theoretical frameworks for analyzing mortgage market behaviors. The significance of this study lies in its potential to provide valuable insights for policy decisions, enhance lending practices, attract investment, and advance academic understanding of the mortgage market dynamics in USA. Ultimately, this will contribute to the development of a strong and sustainable mortgage market that benefits individuals, communities, and the overall economy.

How the study is organized: In Section 2, we review all relevant theoretical and empirical works. Section 3 describes the empirical technique, which includes data sources, an empirical model, and an estimating strategy. The empirical study's results and discussion are in Section 4. Section 5 presents the study's findings and policy recommendations.

## **Literature Review**

Serfes et al. (2023) affirmed that recent technological advances have revolutionized financial services for families and businesses, including mortgage financing, with the rise of FinTech, a new business model that relies purely on technology. Information technology changes credit availability and equilibrium interest rates, especially in the mortgage market, depending on market maturity. The

findings provide a supply-side explanation for unsecured loan growth and reveal technologically impacted mortgage lending dynamics.

Financial technology companies are able to improve their ability to identify the trading patterns, investing preferences, and other behavioral characteristics of their clients with the assistance of intelligent decision-making, marketing techniques, and risk management systems. This allows them to optimize loan evaluations and consumer recommendations (Aslan & Sensoy, 2020; Bartlett et al. 2022; Lee et al., 2023).

Thottoli (2024) has investigated the FinTech and verified to be capable of producing a convergence between a variety of research fields, such as accounting, auditing, business finance, economics, management, and business field.

Donaldson et al. (2021) highlighted the revolutionary impact of technology on lending practices that is the source of the relationship between fintech and mortgage. Fintech technologies have revolutionized the mortgage business, providing the foundation for this association. Fintech platforms have brought digital solutions and streamlined processes that improve accessibility to mortgage financing. As a result, these platforms have challenged the old patterns of lending.

Siddik et al. (2023) evaluated the impact that a company's use of financial technology and its level of financial literacy have on various aspects of the company's performance in terms of sustainability. Additionally, the study investigates the impact that access to financial technology plays as a mediator.

Berg et al. (2022) examined the expanding body of literature on financial technology (FinTech) Lending is defined as the supply of credit that is made possible by technology that enhances the interaction between the customer and the lender or that is utilized in the screening and monitoring of borrowers by lenders.

Fuster et al. (2021b) explained that as a result of disruptive technologies, the financial industry is undergoing a revolution. As a result of introducing technical developments to the traditional sector, a great number of new businesses have been successful in capitalizing on new business opportunities. As a consequence of this, for instance, fintech lenders have significantly increased their share of the mortgage industry in the United States, going from 2% in 2010 to 14% in 2020.

Examined the traditional banking processes for screening, screening and monitoring technologies might earn a lender the FinTech designation. Innovative algorithms, data analytics, and automation tools from fintech improve loan screening efficiency and accuracy, helping lenders make better judgements and manage risks. Therefore, further criteria are introduced to exclude traditional banks from FinTech. FinTech platforms must prioritize agility, innovation, and customer-centric operations, unlike traditional banks (Cornelli et al. 2020; Ziegler et al. 2021).

Begley and Srinivasan (2022) assessed the market share of mortgage lending by the four largest banks (Big4) declined from 30% to 23% between 2009 and 2013. This loss can be partially attributable to the greater agility of smaller banks in comparison to fintech lenders. Furthermore, the capacity of fintech lenders to sustain their market share throughout this era may have been impacted by legislative changes and market conditions.

Based on research findings of Liu and Yang (2024), it has been observed that FinTech lenders tend to broaden the availability of mortgages and ease underwriting standards in comparison to non-FinTech lenders. FinTech lenders are able to more effectively capitalize on growth opportunities thanks to the competitive advantage that is acquired from mortgage securitization.

Kaur et al. (2024) studied the extent to which improvements in financial technology simplify direct transactions and enhance the efficiency of mortgage lending. These innovations include crowdfunding and peer-to-peer lending arrangements.

Shen and Huang (2023) conducted a study on the increasing intensity of competition in the domestic and international financial industry. They focused on the emerging trend of financial product innovation as a means to address this competition. Specifically, their research explored the risk management associated with technological advancements and the innovation of financial products.

Jagtiani et al. (2021) confirmed that fintech mortgage lenders lack the same motivation and adaptability as small company and unsecured consumer lenders to utilize alternative data for credit assessments due to strict mortgage origination regulations. Fintech loans closely resemble traditional loans.

Arner et al. (2020) an argument was presented concerning fintech as a crucial driver for financial inclusion, which in turn underpins sustainable balanced development, as embodied in the United Nations Sustainable Development Goals (SDGs). an argument was established relating fintech.

Bratton and Levitin (2020) provided an explanation. In the realm of mortgage formulation, innovation is crucial as it allows for the creation of novel goods, procedures, and means of distribution. Innovative solutions effectively enhance market efficiency and improve customer experience, while maintaining financial stability despite regulatory hurdles.

Rojas (2021) examined the impact of borrowing on the composition of mortgage growth and found that a substantial proportion of credit expansion during the boom period was acquired by borrowers who typically had restricted access to mortgage credit. This implies that borrowing was a crucial factor in driving the increase in mortgages, especially among groups of people who had historically had difficulties in obtaining mortgage loans.

Tölö and Virén (2021) argued that a significant increase in non-performing loans (NPLs) could cause banks to become more cautious about taking risks. This caution may result in the adoption of more stringent lending criteria for individuals applying for mortgages. Banks strive to mitigate the risk of default and minimize the burden of non-performing loans by using more rigorous lending criteria to identify and exclude borrowers with higher risk profiles.

Odhiambo (2023) contributed that despite a shifting pattern in the performance of commercial banks, which is characterized by an increasing number of non-performing loans, the evidence suggests that there has been an increase in the amount of money that is being lent out for mortgages.

Knuth et al. (2024) Highlighted the risks that are linked with mortgage lenders, federal institutions and regulators, and investors are investigated throughout the many stages of mortgage financing in the United. Throughout the course of the mortgage process, it investigates the many methods in which these stakeholders go about experiencing and managing risks associated to climate change.

Larson et al. (2024) asserted that how, behavior of borrowers in mortgage lending, which is impacted by house price and job loss forecasts, generates risks as they make decisions in the midst of altering market conditions. This contributes to the adaptive character of the dynamics of the mortgage market.

Firestone et al. (2023) explained that the setting, risk plays a critical role. Misperceptions about risk that lead to consistently higher loan-to-value decisions suggest that risk concerns related to mortgage lending have not been sufficiently evaluated and managed.

### ***Empirical Literature***

Hauptert and Lee (2024) analyzed the subprime lending across the 104 major metropolitan regions in the United States, of which 57 are considered to be gateways for immigrants, focuses on subprime loans that were originated between the years 2015 and 2017. According to the findings, racial and ethnic tendencies continue to exert a major influence on subprime lending rates within a mortgage credit market that is constantly shifting. This is true at both the metropolitan and tract levels.

Jagtiani et al. (2021) analyzed data from fintech firms to examine their impact on credit access in the assessment areas of depository institutions, which are obligated to submit CRA reports every year. The study found that fintech firms have played a role in diversifying sources of mortgage lending, especially in the aftermath of the 2008 financial crisis when traditional banks restricted mortgage credit. Fintech lenders, being nonbank firms, have acquired substantial market share by providing an alternate choice for customers in need of mortgage financing.

Fuster et al. (2019) state that by employing ordinary least squares (OLS) regression analysis on U.S. mortgage data from 2010 to 2016, we discover a significant influence of FinTech on the mortgage industry. The growing market dominance of FinTech lenders, coupled with their capacity to expedite mortgage application processing compared to conventional lenders, underscores their substantial influence on the distribution and speed of mortgage originations in the United States.

Jagtiani and Lemieux (2019) verified that fintech is exerting a growing impact on the fields of finance and banking. Technology enables banks and fintech lenders to cater to small businesses and customers without the need for physical infrastructure. This study utilizes loan-level data obtained from Lending Club's consumer platform to analyze credit card and debt consolidation loans during the period from 2007 to 2015. US economic trends are analyzed using comparative descriptive techniques.

Agarwal and Chua (2020) examine the impact of FinTech on household payments, lending decisions, and portfolio choices. We focus on providing services such as digital payments, mobile money, FinTech financing, marketplace lending, robo-advising, and crowd-funding. Until recently, there was a lack of empirical evidence for this topic, despite its importance. This paper provides an overview of the empirical findings on household finances that have been documented in the existing literature.

Footnote et al. (2019) utilized the fixed effect model to analyze data from 1985 to 2015 in the United States economy, and we adjusted accordingly. The utilization of information technology in the field of finance, sometimes referred to as "fintech," is expected to bring about significant changes to various aspects of borrowing and lending in the future. Nevertheless, technology has been significantly transforming the consumer and mortgage lending sectors for a substantial period. In the 1990s, the implementation of computer technology enabled mortgage lenders to reduce the processing time for loans and largely replace human assessments of credit risk with default predictions generated by advanced empirical models.

In their study, Chen and Peng (2020) examined multiple commercial banks operating in Taiwan from 2010 to 2017. They analyzed three indicators of financial innovation: research & development expenditure, financial patents, and financial innovation. Ultimately, the report confirms that financial innovation provides support for the innovation-fragility concept.

In their study, Kara and Yook (2023) examined loan-level data on a daily basis from 1990 to 2014 in the United States banking sector. They found that policy uncertainty has a significant role in banks' decision-making about mortgage lending.

## **Materials and Methods**

Collecting relevant data on mortgage growth, adoption of financial technology, and controlled variables from reliable sources was the initial stage in the entire process of performing this research. For the purpose of putting the hypothesis of the study to the test, the quarterly data from 2010 to 2020 was extracted and tested. Furthermore, the data on mortgage growth were received from the national bank of USA, whereas the data on the adoption of fintech and controlled factors such as innovation, borrowing, non-performing loans, and risk were taken from the website [fred.stlouisfed.org](http://fred.stlouisfed.org).

Table 1, reveals list of variables, descriptions and their symbols. All of the data that was used in this investigation came from a variety of trustworthy sources, which made it possible to conduct an empirical investigation that was both thorough and trustworthy. The US National Bank is the source of

information regarding mortgage growth, which provides a representation of the percentage of mortgages as a proportion of GDP in the US economy. One of the most important indicators of the dynamics of the mortgage market and the development of the financial sector is this essential characteristic. In addition, the number of automated teller machines across the entire country of USA is a strong indicator of the adoption of financial technology. According to Lee et al. (2023) and Chen et al. (2021) Fintech endeavors to utilize technology to enhance the availability of financial services, mostly through digital platforms and inventive solutions. While, ATMs and fintech embody elements of financial innovation and accessibility, albeit in distinct manners. Fintech seeks to utilize technology to enhance the availability of financial services, primarily through digital platforms and inventive solutions.

This is because the number of ATMs reflects the progress that has been made in banking infrastructure and digitalization efforts. The number of secure internet servers that are unique to USA is used to quantify the level of innovation in the country. This serves to emphasize the technological advancements and digital connectivity that have taken place within the country. Households in USA that borrow money from non-deposit taking microfinance institutions are an indication of borrowing activity. An indicator of credit quality and financial stability, non-performing loans are measured by the ratio of bank non-performing loans to gross loans for USA. This ratio provides information on the quality of credit. Last but not least, the World Uncertainty Index, which provides a complete measurement of economic volatility and risk perception, is able to reflect the risk and uncertainty that are present in the US economy. Collectively, these data sources make it possible to conduct an in-depth investigation into the factors that determine the growth of mortgages in USA. This, in turn, contributes to a more nuanced knowledge of the dynamics of the mortgage market in USA as well as the resilience of the financial sector.

**Table 1**

*List of Variables*

<b>Variable name</b>	<b>Symbol</b>	<b>Description</b>	<b>Source</b>
Mortgage	Mtg	Mortgage ratio as % of GDP	Federal Reserve System
Financial technology	Fintech	Number of ATMs in country	fred.stlouisfed.org
Innovation	Inno	number of secure internet servers	fred.stlouisfed.org
Borrowers	Borr	borrow money from non-deposit taking microfinance institutions	fred.stlouisfed.org
credit quality	NPL	ratio of bank non-performing loans to gross loans for USA	fred.stlouisfed.org
Risk	Rsk	World Uncertainty Index	fred.stlouisfed.org

*Source:* Author's compilation.

### **Model Specification**

Following the formulation of the research model, the theoretical framework and research objectives were taken into consideration. Based on Fuster et al. (2017) The equation that was utilized in the investigation was described as follows:

$$Mortgage = \varkappa_1 + \varkappa_2 Fintech_t + \varkappa_3 Controlled\ variables_t + \mu_t \quad (1)$$

mortgage growth, Fintech signifies the adoption of financial technology, and When it comes to time t, controlled variables are the variables are expressed as X, while the symbol "μ" stands for the error term.

Present study has intended the investigation by focusing on detrimental factor in composition of mortgage growth in USA economy. The proposed model had been presented as

$$Mtg = \alpha_1 + \alpha_2 Ftech_t + \alpha_3 Inno_t + \alpha_4 Borr_t + \alpha_5 Npl_t + \alpha_6 Rsk_t + \mu_t \quad (2)$$

Within equation 2, the letters "Mtg" represent the growth of mortgages, "Ftech" stands for financial technology, "Inno" refers to innovations, "Borr" stands for borrowing, "Npl" stands for non-performing loans, and "Rsk" represents the risk and uncertainty that exists within the US economy. The symbol "α" is used to represent the intercept and slope coefficient. The natural logarithm is used for all of the coefficients in Equation (2), which indicate the elasticity of the parameters. All of the coefficients are in it. The letter "t" represents the time, while the letter "μ" represents the error term of the model.

For the purpose of determining whether or not the time series data are stationary, the Augmented Dickey-Fuller unit root test is utilized. Based on the fact that the Augmented Dickey-Fuller (ADF) test is a well-established econometric technique that is utilized to determine the stationarity of a time series data set, it is highly probable that Awan et al. (2020) utilized this test for unit root. This test is significant in econometric research since it assists in determining whether or not unit roots are present. The existence of unit roots can be an indication of non-stationarity and can make further analysis more difficult. This study confirms the reliability and validity of the data by conducting the ADF test before moving on to the regression analysis phase of the research.

After that, a robust least squares analysis is utilized in order to investigate the connection between the expansion of mortgages and a number of different explanatory variables. These variables include financial technology, innovation, borrowing, non-performing loans, and risk. The use of robust least squares is preferred in order to improve the reliability of the empirical results. This method is capable of providing accurate estimates of parameters, even when there is heteroscedasticity or outliers present in the economic data, which are regular occurrences. An important benefit of robust least square method is its capacity to reduce the impact of outliers, hence preventing these extreme observations from having a disproportionate effect on the regression results (Feng, et al., 2023). In addition, the method of robust least squares offers more accurate estimates than ordinary least squares in cases where the error terms do not follow a normal distribution or when there is a violation of the assumption of homoscedasticity. It is especially suitable for analyzing datasets that may have non-normality or unequal variances, which enhances the validity and reliability of the statistical inferences made from the study.

Through employing the technique of robust least squares analysis, the purpose of this study is to identify the major factors that determine the growth of mortgages in the US economy, while simultaneously resolving potential econometric issues. Through the utilization of this methodological approach, the reliability and validity of the empirical findings are ensured, thereby contributing to a thorough knowledge of the elements that are driving the dynamics of the mortgage market in USA.

## Results and Discussion

Table 2, presents information that is descriptive in nature on significant economic factors in USA. Rates of interest and the demand for housing are the primary drivers of mortgage growth which averages 0.9323% and demonstrates a constant but modest increase. The mean value of 10.4673 for financial technology indicates that there is a typically consistent degree of technological innovation, which may have an impact on the accessibility and efficiency of mortgage opportunities. The Innovation score of 5.9213 shows that the levels of innovation are in the moderate range, which is anticipated to have an impact on the market competitiveness and the diversity of mortgage products. The average amount borrowed is 12.0240, which indicates a steady credit climate. This, in turn, determines the

demand for mortgages and the affordability of mortgages. Non-performing loans have reached a percentage of 3.3094%, and their distribution is skewed, which indicates that there is a potential for credit risk and that it has an impact on mortgage lending standards. The risk value of -0.2151, coupled with a high kurtosis, is indicative of uncertainty, which has the potential to undermine investor confidence and the stability of the mortgage market. Using these figures, one can have a better understanding of the dynamics and risks associated with the mortgage business in USA.

**Table 2**

*Descriptive Statistics*

	Mtg	Ftech	Inn	Borr	Npl	Rsk
Mean	0.9323	10.4673	5.9213	12.0240	3.3094	-0.2151
Median	1.2528	10.4893	4.9544	11.9966	3.3334	-0.2381
Maximum	2.0541	10.6054	9.0997	12.7456	4.0868	0.6952
Minimum	-0.2231	10.3144	2.5145	11.3037	2.5561	-1.2843
Std. Dev.	0.7354	0.0735	2.5039	0.4278	0.5729	0.4752
Skewness	-0.2773	-0.2644	0.0782	-0.0452	0.1141	-0.3506
Kurtosis	1.7869	3.0952	1.2961	2.0045	1.3710	3.8542
Jarque-Bera	3.2622	0.5292	5.3675	1.8320	4.9605	2.2392
Probability	0.1957	0.7675	0.0683	0.4001	0.0837	0.3264

*Note.* Std, Dev indicated standard deviations.

*Source:* Author's development.

Table 3, reveals the pairwise relationships that exist between several economic indicators. There appears to be a significant adverse association between these variables, as seen by the fact that mortgage growth exhibits a strong negative correlation of -0.9636 with innovation. According to this, there is a correlation between the growth of mortgages and a decrease in innovation, and vice versa. In a similar vein, there is a solid positive link between these two variables, as seen by the strong positive correlation of 0.9595 that exists between the rise of mortgages and borrowing. There is a strongly negative correlation of -0.9063 between non-performing loans and mortgage growth, which indicates that there is a considerable inverse association between the two variables. Furthermore, there is a moderately positive correlation of 0.4518 between innovation and risk, which indicates that there is a moderately favorable link between these variables. The findings of these correlations offer valuable insights into the links and possible dependencies that exist among the economic factors that are present in the US economy. Furthermore, they suggest areas that could be of potential interest for further investigation and policy consideration.

**Table 3**

*Correlation Matrix*

	Mtg	Ftech	Inn	Borr	Npl	Rsk
Mtg	1.0000					
Ftech	-0.3746	1.0000				
Inn	-0.9636	0.2830	1.0000			

Borr	0.9595	-0.2863	-0.9502	1.0000		
Npl	-0.9063	0.1228	0.9561	-0.9242	1.0000	
Rsk	-0.3262	0.2881	0.4518	-0.3226	0.3059	1.0000

*Source:* Author's development.

Table 4, depicts Augmented unit root results. According to the table of findings for the augmented Dickey-Fuller test, the probability values that are related with each variable are lower than 0.1%. The conclusion that can be drawn from this is that there is substantial evidence to refute the null hypothesis of a unit root, which suggests that all variables are stationary at the level. To put it another way, the variables that make up the economy, such as mortgage growth, financial technology, innovation, borrowing, non-performing loans, and risk, do not display any behavior that is non-stationary. The fact that the series are stationary at the level indicates that they do not have a trend component and that they fluctuate around a constant mean when measured over time. Therefore, these findings provide confidence that the variables can be analyzed without the need for differencing or transformation to attain stationarity. This makes it possible to model the US economy in a manner that is more trustworthy and robust.

**Table 4**

*Results of Augmented Dicky Fuller Unit Root Test*

Variables	t-Statistic	Prob.*
Mtg	-1.8081	0.0675
Ftech	-3.4574	0.0574
Inn	-5.9415	0.0001
Borr	-0.9524	0.0299
Npl	-6.8387	0.0000
Rsk	-3.2807	0.0222

*Note.* Null hypothesis is tested @ 1%, 5% and 10% level of significance.

*Source:* Author's development.

The results of robust least squares are shown in table 5. As for the Fintech is concern, it is clear that a one-percent increase in financial technology in the US economy decreases mortgage growth by 0.7869 percent. This negative coefficient shows that fintech technologies may increase mortgage industry efficiency and lower costs, limiting mortgage growth. Fintech can streamline mortgage processes, decreasing intermediary costs and transaction costs. Technological disruptions may temporarily slow mortgage growth if not properly deployed. This conclusion matches Duan and Li (2024), demonstrating a similar pattern across economic circumstances.

In USA, a one-percent increase in innovation reduces mortgage growth by 0.3081 percent. This negative coefficient suggests that rapid mortgage product or process innovation may decrease mortgage growth by creating uncertainty or complexity. Innovation can improve mortgage industry efficiency and product differentiation, but excessive innovation without market understanding or regulatory oversight may cause market instability or lender and borrower reluctance, slowing mortgage growth. These findings match Hsu et al. (2021), demonstrating a pattern across economic studies.

For the controlled variable "borrowing," the coefficient estimate of 0.5318 shows that borrower activity increases mortgage growth by 0.5318 percent. This positive coefficient shows that increased

borrowing activity may increase mortgage demand and growth. Higher borrowing levels indicate economic confidence, which boosts consumer spending and real estate investment, increasing mortgage demand and growth. This finding supports Rojas (2021), demonstrating research consistency.

NPLs also affect mortgage growth in the model. A one-percent rise in NPLs increases mortgage growth by 0.4387 percent. This positive link shows that high non-performing loans may boost lending and mortgage growth. NPLs are frequently intrinsic to lending and may be controlled through rigorous risk management methods, so they can reduce any negative impact on mortgage growth. These findings match Huljak et al. (2022), showing study consistency.

The controlled variable "risk" also affects mortgage growth. The data demonstrates that mortgage growth increases 0.2568 percent per percent risk. Investment and mortgage growth may increase with a positive coefficient because market risk increases returns or profitability. The mortgage market is risky; therefore, lenders try to balance risk and return. Higher interest rates or risk premiums may encourage lenders to lend more, increasing mortgage growth. This result matches Lina et al. (2021), demonstrating research coherence.

**Table 5**

*Results of Robust Least Squares*

Variable	Coefficient	Std. Error	Prob.
Ftech	0.7869	0.3460	0.0229
Inn	0.3081	0.0478	0.0000
Borr	0.5318	0.1679	0.0015
Npl	-0.4387	0.1614	0.0066
Rsk	-0.2568	0.0587	0.0000
C	3.2029	4.6518	0.4911
Robust Statistics			
R-squared	0.9150		
Adjusted R-squared	0.9038		

*Note.* M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered),

Method: M-estimation

*Source:* Author’s development.

The findings of this study are consistent with and contribute to the current body of literature on the dynamics of the mortgage market. In specifically, the findings pertain to the impact that finance technology, innovation, borrowing, non-performing loans, and risk have on the expansion of the mortgage market. This research highlights the significance of understanding the complex interplay among these variables for the purpose of achieving sustainable economic development and financial stability. This is accomplished by synthesizing evidence from Allen et al. (2023), Fuster et al. (2019), Fuster et al. (2021a), Hauptert (2022), Karkkainen (2023), Pierri and Timmer (2020), and Shakya and Smys (2021). In addition to extending the conclusions of previous research, the findings of this study provide further evidence. For example, the negative coefficient of fintech adoption on mortgage growth is consistent with the findings of Duan and Li (2024), which indicates that there is the possibility for a trade-off between the improvements in efficiency and the limitations on market expansion. Additionally, the negative impact that innovation has on the growth of the mortgage market is a reflection of the

worries that Hsu et al. (2021) have raised regarding the unexpected consequences that might arise from rapid innovation in the absence of regulatory control.

Although this study offers vital insights into the elements that affect the rise of mortgages in the USA economy, it is important to recognize the limitations of contemporary research in this particular environment. In addition to the potential drawbacks of using secondary data sources, such as potential inaccuracies and incomplete information, there is also a difficulty in accurately portraying the ever-changing character of the current economic system. The dynamic nature of the USA economy, marked by swift technology progress, changing consumer habits, and the emergence of new financial tools, poses challenges that conventional research methods may find difficult to effectively tackle. Similarly, the concept of a knowledge-based economy is subject to restrictions caused by the dynamic nature of technology and the spread of information. The integration of fintech and the development of innovative mortgage products are essential elements of this significant change. However, their quick progress presents difficulties in appropriately evaluating their long-term consequences. Conventional research methods may have difficulty capturing all of these effects, so it is necessary to consider other approaches like machine learning or qualitative studies.

Considering the applicability of the results may be limited by the distinctive attributes of the mortgage market in the United States. The study's findings may have limited generalizability due to differences in regulatory frameworks, market structures, and socio-economic dynamics among various areas and demographic groupings. Hence, it is advisable to exercise caution when applying the findings to different geographic regions or economic frameworks. Moreover, in order to overcome these limitations, future research should aim to adopt a multidisciplinary strategy that incorporates various views and approaches. Researchers can enhance our comprehension of mortgage market dynamics and make valuable contributions to policy decisions and industry practices by embracing the intricacies of the knowledge-based economy and recognizing the inherent uncertainties.

## **Conclusions and Implications**

The results of this research shed light on the significant impact that financial technology (fintech) and innovation have had on the expansion of the mortgage market within the US economy. The fact that fintech and innovation have negative coefficients indicates that they have the ability to disrupt conventional mortgage procedures while simultaneously improving the efficiency of the sector and lowering prices. Nevertheless, the negative consequences that have been noticed also underscore the necessity of cautious deployment in order to safeguard against the possibility of disruptions and guarantee a seamless transition towards a mortgage landscape that is driven more by technological advancements.

Similarly, the fact that the coefficient for borrowing is positive indicates that it plays a significant part in boosting the demand for mortgages and the expansion of the market. This serves as a barometer of the investors' confidence in the economy. This conclusion highlights the significance of cultivating an environment that is conducive to lending in order to offer support for the expansion of the mortgage market in a sustainable manner and to achieve broader economic growth goals.

Similar to the previous point, the fact that there is a positive link between non-performing loans and the increase of mortgages highlights the complex relationship that exists between lending activity and risk management. Although high levels of non-performing loans may indicate an increase in lending and mortgage growth, it is vital to implement risk mitigation techniques that are successful in order to prevent unfavorable repercussions on market stability and encourage confidence among borrowers.

In addition, the fact that risk has a beneficial impact on the expansion of mortgages brings to light the delicate equilibrium that exists in the mortgage market between risk and reward options. As a result of the fact that lenders are driven to extend credit in response to improved returns or profitability, comprehensive risk management systems and regulatory monitoring are required in order to protect

against potential vulnerabilities and ensure market resilience. In general, the findings of this study offer useful insights into the dynamics of mortgage growth in USA. Particularly, the research highlights the significant role that fintech, innovation, borrowing, non-performing loans, and risk play in determining market dynamics. By gaining a knowledge of these characteristics and resolving their implications, policymakers, financial institutions, and other stakeholders may create an environment that is conducive to the growth of the mortgage market in a sustainable manner and contribute to the achievement of broader economic development goals when they do so. This highlights the significance of taking preventative actions to seize the opportunities presented by developing technologies while simultaneously limiting the dangers that are connected with them in order to guarantee the long-term health and resilience of the mortgage market in USA.

### ***Suggestions for Future Research***

One of the unresolved parts of the problem that goes beyond the scope of our research is the requirement for additional research on the intersection between economic inequality and sustainability in the United States. It is also necessary to do extensive research in order to gain a knowledge of the vulnerabilities of the financial system to future crises, particularly with regard to the dangers posed by cybersecurity. There are a number of recommendations for future research investigations, some of which include performing in-depth evaluations of the influence that structure change has on economic stability, researching new solutions to address income and wealth inequality, and improving cybersecurity measures to limit risks to financial security. Additionally, interdisciplinary approaches that incorporate expertise in economics, and cybersecurity can provide holistic insights into the process of addressing these complex difficulties that are currently confronting the economy of the United States.

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