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Research Article

An Analytical Study on Pre & Post Covid -19 Changes of Inflation and Interest Rate affects on Home Loan

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ABSTRACT

The coronavirus pandemic, which has changed the lives of millions of people worldwide, has been a triggering aspect for every individual in the world. The world economy is affected by the pandemic, which resulted in a recession in the market as the income of the individual got affected, and with low income in hand, there is less home loan buying in the industry. Through government-provided data on the inflation rate and amount of home loans disbursed with SBI home loan interest rates, the study analyses how changes in inflation and interest rates pre- and post-COVID-19 pandemic affected home loans from FY 2017-18 to FY 2022-23.

Keywords: Pandemic, World Economy, Recession, Inflation Rate, Home Loan Disbursed and Interest Rate

Introduction

The COVID-19 pandemic has significantly altered the global economic environment, affecting several sectors, with the housing industry leading the way to the changes. This analytical study aims to analyse the pandemic's complex changes in inflation and interest rates related to home loans. Before the arrival of COVID-19, i.e., 2018-19 and 2019-20, economies went through a stable phase marked by strong growth and low loan rates, which created a favourable atmosphere for the housing industry. But the pandemic's onset brought with it never-before-seen disruptions in the 2020s till 2021, creating complex problems like broken supply chains and altered consumer behaviour continuing even after the lockdown period of 2021-22, following in 2022-23. Global central banks and governments responded to these difficulties by enacting a variety of monetary and fiscal measures designed to lessen the negative effects on the economy. These changes in interest rates and fiscal policies, among other policy interventions, have a direct impact on the housing industry by affecting the demand for and accessibility of home loans. This paper explores the causes of the variations by conducting a thorough comparative examination of inflation rates and interest rate patterns before and after the epidemic.

Inflation

The rate at which prices rise over a specified time is known as inflation. Usually, inflation is measured broadly, as in the case of a country's cost of living increase or general price increase. Prices for goods and services are always subject to change in a market economy. Some costs increase, while others decrease. When prices of goods and services rise generally rather than simply for specific products, it is referred to as inflation; in other words, you can now buy less for Rs. 1 than you could a day ago. In other words, inflation lowers the value of the currency.

Interest rate on home loans

It is defined as the percentage of the principal amount that the home loan lender charges. The interest rate that banks and other non-financial institutions charge determines the size of the house loan. The amount you have to pay to your lender each month for your loan is determined by the interest rate that is applied. Interest rates are typically linked to the repo rate and vary by lender. Each banking institution has a different interest rate on home loans. It differs from person to person as well. The total amount of interest paid might increase significantly with even a slight adjustment in the home loan interest rate. An annual percentage rate (APR) is usually used to indicate the interest rate on a loan. In the case of a loan, the interest rate is charged on the principal, or the whole amount borrowed. The interest rate represents both the lender's rate of return and the borrower's cost of debt. Due to lenders' requirements for reimbursement for the use of funds lost throughout the loan period, the amount owing is typically greater than the amount borrowed.

Review of Literature

Garg and Sharma (2014)[1] comparative study on availing home loans and interest rates of HDFC & SBI Bank. Data analysis with percentages and trend projections method. It was found home loan availing procedure is very difficult in SBI compared to HDFC Bank. HDFC Bank has Flexible loan repayment options, but SBI has fixed repayment options. This study also found that most people prefer fixed rates on home loans and the rate of interest of SBI is less than HDFC Bank. Bhunia (2016)[2] study how Inflation and Interest rates are related to economic growth. Correlation statistics signify that the economic growth of India is negatively correlated with inflation and interest rates. Rao (2021)[3] studies the financial performance of housing finance companies in India. Data analysis standard deviation, and one-way ANOVA. It was found that growth in financial performance was reflected in share price too. Sanchaniya (2021)[4] studies the Effect of Covid-19 on the Real Estate Industry in India. Study conducted on mortgage holders, builders, and the real estate workforce threats and opportunities. It was during the COVID period home values dropped which resulted in the housing supply decreasing and reducing state revenues.

Rationale of study

The significant economic disruptions caused by the pandemic are the driving force behind doing an analytical investigation on the effects of COVID-19 on inflation and home loan interest rates. Changes in the world economy have prompted a detailed examination of the impact on inflation dynamics and home loan interest rates. First, changes in inflation have been brought about by pandemic-related economic volatility, which calls for a thorough comprehension of the underlying causes and their ramifications. Second, the accessibility and affordability of home loans are directly impacted by central banks' responses, which may include changes to interest rates. This research aims to provide insights into the evolution of inflation dynamics and interest rates in the housing sector by disentangling their complex patterns. By providing information on the economic climate to prospective homebuyers and homeowners, this study fulfils a useful purpose—homes are a big investment for individuals and families. Making well-informed decisions is made easier in the face of the COVID-19 pandemic's unparalleled obstacles and uncertainty. The study tackles the critical requirement to understand and negotiate the pandemic's economic effects on housing loans.

Research Objectives

- To study the interest rate on home loans pre- and post-COVID-19.
- To study the changes of home buying pre- and post-COVID-19.
- To study the trend of inflation pre- and post-COVID-19.

Research Methodology

The Study

The present study is exploratory research aimed at identifying the pre- and post-COVID-19 changes in inflation and interest rates on home loans.

Tools for data analysis

MS-Excel, SPSS.

Methods for Data Analysis

Trend analysis, line chart, correlation, regression, and ANOVA. Friedman Test

Data Collection

Secondary data collection through government websites and articles.[5-8]

Inflation rate data is taken on the consumer price index (CPI)[9].

Interest rate data considered from SBI Home loans (persons).

Hypothesis to be tested

- **H_{00}:** There is no significant relation between Inflation and Interest Rate.
- **H_{01}:** There is no significant relation between Interest

Rate and Amount of home loan disbursed.

Timeframe

F.Y-2018-19, 2019-20, 2020-21, 2021-22, 2022-23 (5 years data collected for this study from 2018 to 2023)

Data Interpretation

H_{00}: There is no significant relation between Inflation and Interest Rate.

Table 1 & 2 regression and ANOVA Test R=0.400, which lies between -1 to +1, so there is a linear relationship between Inflation and Interest Rates. R square is 0.160 lies between 0 and 1. Adjusted R square is -.050 as it is negative, P=0.433 since the P value is more than .05 and as Adjusted R Square

Table 1.Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.400[a]	.160	-.050	.7772013
Predictors: (Constant), Inflation rate				

Table 2.ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.459	1	.459	.760	.433[a]
	Residual	2.416	4	.604	-	
	Total	2.875	5	-	-	
a. Predictors: (Constant), Inflation rate						
b. Dependent Variable: Interest Rate						

value negative so the model does not fit and now, we must conduct non-parametric test.

The Friedman Test compares the ranks of means between the related groups, Inflation and Interest Rate of home loans, and indicates how the groups differed. Table 3. Given the ranks of inflation and interest rates of home loans.

Table 4 provides the test statistic (χ2) value of 6.000, degrees of freedom of 1, and the significance level of .014.

Table 3.Friedman Test Table

-	Mean Rank
Inflation rate	1.00
Interest Rate	2.00

Table 4.Friedman Test Statistics

N	6
Chi-square	6.000
df	1
Asymp. Sig.	.014
a. Friedman Test	

The p-value is .014, which is less than .05. We reject the null hypothesis and say that there is a significant relation between inflation and the interest rate of home loans.

H_{01}: There is no significant relation between interest rate and amount of home loan.

Table 5 & 6 regression and ANOVA Test R = 0.163, which lies between -1 and +1, so there is a linear relationship between interest rate and the amount of home loan disbursed. R-squared is 0.027, lying between 0 and 1. Adjusted

Table 5.Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.163[a]	.027	-.217	6985.003
a. Predictors: (Constant), Interest Rate				

Table 6.ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regres -sion	535866-8.756	1	5358668.7 56	.110	.757[a]
	Residual	1.952E8	4	4.879E7	-	
	Total	2.005E8	5	-		
a. Predictors: (Constant), Interest Rate						
b. Dependent Variable: Amount of loans						

R square is -0.217, as it is negative, P = 0.433, since the P value is more than 0.05, and the Adjusted R Square value is negative, so the model does not fit, and now we must conduct a non-parametric test.

The Friedman Test compares the ranks of the means between the related groups, Interest Rate of Home Loan & Amount of Home Loan, and indicates how the groups differed. Table 7 gives the ranks of inflation and interest rates of home loans.

Table 8 provides the test statistic (χ2) value of 6.000, degrees of freedom of 1, and the significance level of .014. The p-value is .014, which is less than .05. We reject the null hypothesis and say that there is a significant relation between the interest rate of a home loan & the amount of a home loan.

Table 7.Ranks

-	Mean Rank
Interest Rate	1.00
Amount of loans	2.00

Table 8.Friedman Test Statistics

N	6
Chi-square	6.000
df	1
Asymp. Sig.	.014

From correlation table 9, it has been seen that the inflation and interest rates of home loans are negatively correlated with each other. The interest rate of a home loan & the amount of a home loan are positively correlated with each other.

Here, Chart 1 reflects the changes in the inflation rate pre- and post-COVID-19. The data reflects a mixed pattern of inflation rates over the years, with periods of both increase and decrease. Overall, while there are fluctuations in inflation rates, the data suggests a general trend of inflation varying within a moderate to high range over the analysed period, resulting in the increasing linear trend.

Table 9.Correlation Table

1.Inflation and Interest Rate of home loan	-0.39
2.Interest Rate of home loan & amount of home loan	0.16

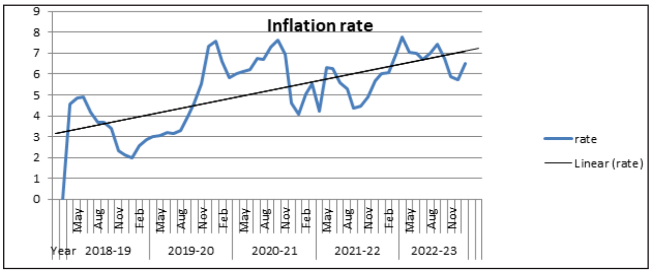

Figure 1.Changes of Inflation Rate

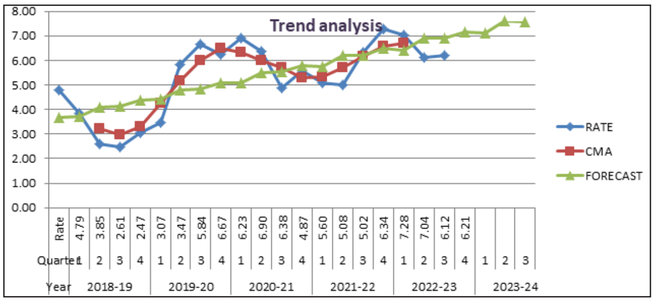

Figure 2.Trend Analysis of actual and forecasted inflation

Chart 2 reflects the trend analysis of actual and forecasted inflation rates overall; the forecasted inflation rates exhibit a consistent upward trend over the previous five-year period. Inflation rates show a gradual increase from 2018 to 2023, indicating sustained inflationary pressures that will impact every aspect of the economy, including home buying.

Results

- From the non-parametric test, it has been found that there is a significant relationship between inflation & interest rates as per table 4.
- It has been found that there is a significant relationship between interest rates and the amount of home loan as per table 8.
- Inflation and interest rates of home loans are negatively correlated with each other, which means when one increases or decreases, the other moves in the opposite direction. As per the normal economic scenario, they should be positively correlated with each other here due to the shorter time frame, and during the Covid period from 2020-2022, the government of India wanted people to spend more, so it was a relaxation in lowering interest on home loans. From correlation table 9, the interest rate of a home loan & the amount of a home loan are positively correlated from the data analysis. It is expected it should be negatively correlated, which means an increase in home loan interest rates adversely affects home buying, but there are certain other factors like the time value of money, the inflation factor, the amount of money, income increase, spending increase, etc., that may have some impact.
- Inflation rates show a gradual increase from 2018 to 2023, indicating sustained inflationary pressures in the Indian economy.

Conclusion

Pre- and post-COVID-19 changes in inflation, the interest rate on home loans, and the number of home loans The whole data analysed from 2018 to 2023, the years 2020-21 were considered as the Covid period. It has been found from the non-parametric test that there is a significant relationship between inflation and the interest rate of a home loan and the interest rate of a home loan & the amount of a home loan. As this study is restricted to only a five-year database and other economic factors like income, spending, saving, investment, people's expectations, etc., have not been considered, there is further scope for study with other variables. Also, from the trend analysis of the inflation rate and the forecast, which was conducted through the moving averages method, it has been found that the inflation trend was moving in a positive direction.

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