POST-COVID HOUSING FINANCE INDUSTRY POISED FOR RESURGENCE: AN ANALYSIS

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Abstract

The demand for housing is inversely correlated with people's income and the cost of building homes. This essay examines how HFCs helped the Indian economy flourish and the issues they solved before and after COVID. In order to analyses the effects of HFCs, we have employed a variety of descriptive statistics. We have also used correlation analysis and co-integration to determine the relationship between variables like the amount of HFCs and its operating revenue, operating expenditures, and profit after tax. It has been demonstrated that the variables exhibit a significant degree of correlation. The hypothesis indicating the existence of a long-run co-integration link was rejected as a result of Johansen's co-integration study. The government's efforts to provide affordable housing considering the current housing crisis aid in maintaining the HFCs industry in post covid situation also.

Keywords: COVID, Housing Finance Companies (HFCs), National Housing Bank (NHB), Loans, Co-Integration

INTRODUCTION

Housing demand and affordability of home development are inversely correlated with people's incomes. This essay examines Housing finance is a crucial component of the world economy since it enables individuals to buy houses and gives them the security of property ownership [11,14]. Moreover, because it promotes employment growth and investment in the building sector, housing financing serves to boost economic activity in the housing industry [19]. The first mortgage loan was given to a homeowner in the United States during the beginning of the 20th century, which is when housing finance began. At the time, a mortgage loan was aimed at providing people the resources to buy a home. Since then, home finance has changed and grown as new mortgage kinds, loan programmes, and other financing choices have appeared. The National Housing Bank (NHB) and the Reserve Bank of India (RBI) are the principal regulatory bodies that control the housing financing industry in India [2].

Banks and housing finance companies (HFCs) provide housing finance in India. Globally recognised industrial homes are entering the housing market as a result of the adoption of many economic reforms and an increase in demand for housing infrastructure across cities. Now, prospective purchasers are receiving loans from public, private, and international banks [18]. HFCs, however, dominate the market. India bulls Housing Finance Ltd, LIC Housing Finance Limited, Housing Development Finance Corporation Limited, PNB Housing Finance Limited, and IIFL Finance Limited are the major participants in the home loan sector [12].

During the pandemic, the lack of employment opportunities and a decline in income caused demand for homes, the housing market, and housing loans to decline [7]. Because of how the second wave of COVID-19 affected their disbursements and collection efficiency (CE) in 2022, home finance businesses did not record any sequential growth in the on-book portfolio [3]. During the pandemic, asset quality decreased across all market groups. The construction finance category was most negatively impacted, then loans against property and residential loans. When compared to 2020–2021, the demand somewhat improves in housing finance in 2021–2022. Following the initial COVID-19 wave, the residential housing market had a considerable recovery. This was largely due to elements like reduced premiums, developers' programmes, and stamp duty in some jurisdictions, as well as cheap loan rates. The current level of inventory indicates that the market will continue to thrive and that sales will increase.

Objectives

- The share of HFCs in the country economy development in terms of GDP growth.

- The initiatives taken by government for affordable housing in COVID pandemic.

- The Problems countered by the HFCS pre and post COVID situations.

- To suggest the resurgence strategies by HFCs to sustain in post pandemic situation.

METHODOLOGY AND DATA COLLECTION FOR ANALYSIS

This is an analytical paper. The information regarding this was primarily gathered from secondary sources, including published sources like the National Housing Bank's annual report, annual reports of various housing financing companies, data from the Central Statistics Office, the Ministry of Statistics and Programme Implementation, the RBI and Press Information Bureau (PIB), the Annual Report of Scheduled Commercial Banks and Others, press releases from different news agencies, etc. Numbers of HFCs units, Operational Income, Operating Expenditures, and Profit after Tax HFCs are the variables used to calculate the suggested connection. Data for these variables was gathered from 2011–12 to 2021–22. While the identified factors are not put up in the same way as they were in past annual reports of Indian HFCs, the research has limited its analytical period to the years 2015–2016 through 2021–2022. Descriptive statistics, correlation analysis, and co-integration analysis were used in the study. Correlation has been used to determine how strongly two variables are related. Co-integration has been used to determine whether long-term relationships between variables are integrated. In order to determine the long-term relationship and trend among the variables, we have employed time series data [5]. The statistical tools include the maximum eigenvalue test calculated with the statistical programme E-views 10, the unit root test, the augmented Dickey-Fuller test, the trace test, and the Johansen's co-integration test.

Contribution of HFCs in Indian Economic Growth in Pandemic

Almost 50% of personal and retail loans come from the housing sector, and in bank credit, the proportion of housing loans increased from 13.1 percent in March 2020 to 14.4 percent in June

2022. The overall home loan portfolio increased by 10% after the epidemic. Table 1 shows how HFCs influenced the nation's economic development.

Table 1: Share of HFCs in Country's Economy at the Current Price (in rupees cores)

Year	HFCs GVA	Growth (%)	Total GVA	Share of HFCs in GVA	Total GDP	Share of HFCs in GDP (%)
2015-16	26,26,138	-	1,25,74,499	20.88	1,37,71,874	19.07
2016-17	29,11,437	10.86	1,39,65,220	20.85	1,53,91,669	18.92
2017-18	31,27,212	7.41	1,55,05,665	20.17	1,70,90,042	18.30
2018-19	35,29,498	12.86	1,71,75,128	20.55	1,88,99,668	18.67
2019-20	38,79,338	9.91	1,83,55,109	21.13	2,00,74,856	19.32
2020-21	40,45,760	4.29	1,80,57,810	22.40	1,98,00,914	20.43
2021-22	45,43,303	12.30	2,13,49,399	21.28	2,36,64,637	19.20

Source: National Statistic Office

HFCs' share of the nation's Gross Value Added (GVA) has been steadily rising. Throughout time, the HFCs sector's percentage of overall GVA has risen. As can be seen from the above table, HFCs' growth in gross domestic product (GVA) slightly decreased during the COVID pandemic but quickly increased after it ended. Their share of GVA was 20.88% in 2015–16 and 21.28% in 2021–22, and their share of GDP increased steadily from 2017–18 to 2020–21 during the pandemic. Due to the COVID-19 pandemic and low GDP, home finance company growth slowed in 2020 and 2021; however, in 2022, the economy's residential housing segment have seen a minor comeback [16].

Due to a rise in disbursements brought on by a demand boom, an increase in the number of nuclear families, rising disposable income, and fiscal incentives such as lower stamp duty and interest rates on house loans, the portfolio of home loans has significantly grown during the past six years. Prior to the pandemic, household liabilities and savings showed encouraging indicators of minor shifts, indicating that household leverage posed risks for boosting consumption, supporting company confidence, and guiding economic recovery [15, 17]. The housing supply also appeared to be severely affected in the first few months of 2021, but things improved in the second half of the year as a result of rising demand, falling interest rates, and the expansion of supportive programmes for the affordable housing market [8].

Government Support to Housing Finance Industries Post COVID

The refinance industry seeks to service a market that is quite diversified in terms of both location and socioeconomic groups [10]. In especially for the poor and middle-income group segments, the government has supported and rewarded the Primary Lending Institutions (PLIs) to develop the nation's grassroots credit delivery network for home finance [1]. These actions have made it easier for PLIs, particularly HFCs, to get long-term resources. In order to disburse the 10,000 crore provided by the RBI under the Special Liquidity Facility (SLF) and the 5,000 crore allocated by the RBI under the Additional Special Liquidity Facility, the government introduced a new programme called the Special Refinance Facility (SRF) during the COVID-19 pandemic (ASLF). Between 2018-19 and 2021-22, these businesses distributed a total of almost 1, 10,000 crore (of which 93,819 crore went to HFCs). NHB collaborated with several

international development organizations to direct institutional credit flow towards low-income and unorganized income sectors, energy-efficient and environmentally friendly housing, etc. A new home financing system has developed as a result of refinance programs that NHB created with the intention of supporting and encouraging PLIs [19]. Category-wise Refinance Disbursements by NHB during 2018-19 to 2021-22 was presented in table 2. Refinance disbursement of loans during 2021-22 is 19,313 crores, as compared to 2020-21 year is 34,230 crores. About 73 percent of the disbursements were for loans up to Rs. 25 lakh during 2021-22 due to the second phase of the COVID pandemic situation.

Table 2: Category Wise Refinance Disbursement of Loans by NHB (in Crores)

Years	HFCs	SCBs	Others	Total	% Share of HFCs in Total Disbursement
2018-19	21,734	3,300	141	25,171	86.33
2019-20	27,553	1,550	2,157	31,258	88.14
2020-21	26,905	7,000	325	34,230	78.60
2021-22	17,627	1,000	686	19,313	91.27
Total	**93,819**	**12,850**	**3,309**	**1,09,978**	

Source: National Housing Bank Annual Reports

Beginning with a slow increase up through the first phase of COVID-19, the percentage of home loans disbursed by HFCs then grows quickly in 2021–22, accounting for 91.27% of the total disbursement in the post–COVID pandemic. Table 3 shows the trend in NHB's outstanding refinances to various kinds of PLIs from 2018–19 to 2021–22. Due to the impact of the COVID pandemic crisis, NHB's outstanding refinance loans decreased somewhat from 85,541 in 2020–21 to 73,933 in 2021–22.

Table 3: Category Wise Refinance Outstanding Loans by NHB (in Crores)

Years	HFCs	SCBs	SFBs	RRBs	Others	Total	% Share of HFCs in Total Outstanding
2018-19	50,453	18,315	24	754	166	69,712	72.38
2019-20	65,185	15,440	1,779	988	149	83,541	78.03
2020-21	72,107	12,235	183	871	149	85,545	84.29
2021-22	63,745	8,606	758	675	149	73,933	86.22
Total	**2,51,490**	**65,359**	**1,986**	**3,460**	**629**	**3,12,731**	

Source: National Housing Bank Annual Reports

HFCs made up 63,745 crores of the total outstanding refinancing in 2021–2022 and 72,107 cores in 2020–2021, respectively. Nevertheless, the proportion of outstanding loans held by HFCs steadily rises from 2018–19 to 2021–22; the share HFCs report for those years is 72.38% and 86.22%, respectively. Throughout this study era, the trend in outstanding refinancing for various categories is steadily rising.

Correlation Analysis

Correlation analysis is the preferred method for determining the degree of association between two variables, using simple mathematics [20]. The most common method for calculating the

precise direction of the connection between the chosen variables is correlation. By comparing their relative t-statistics and probability values, the significance level of each association is determined. To achieve stable variance, all the data series have been changed to the logarithmic form. The log transformation is theoretically used to convert numbers into percentages so that they may be compared. To linearize the extremes in the variance of the variable, a log transformation is required. There are significant variances in the quantity of housing loans granted by HFCs with respect to operating income, operating expenditure, and profit after tax. The correlation equation among the variables is as follows:

$$LHFC_t = \alpha_0 + \alpha_1 LOIN_t + \alpha_2 LOEX_t + \alpha_3 LPAT_t + \mu_{1t+} \qquad (1)$$

$$LOIN_t = \beta_0 + \beta_1 LHFC_t + \beta_1 LOEX_t + \beta_1 LPAT_t + \mu_{2t} \qquad (2)$$

$$LOEX_t = \gamma_0 + \gamma_1 LHFC_t + \gamma_2 LOIN_t + \gamma_3 LPAT_t + \mu_{3t} \qquad (3)$$

$$LPAT_t = \delta_0 + \delta_1 LHFC_t + \delta_2 LOIN_t + \delta_3 LOEX_t + \mu_{4t} \qquad (4)$$

Where α_0, β_0, γ_0 and δ_0 are intercept parameters, α_1, α_2, α_3, β_1, β_2, β_3, γ_1, γ_2, γ_3, δ_1, δ_2 and δ_3 are slope.

Coefficients, μ_{1t}, μ_{2t}, μ_{3t}, and μ_{4t} are the error terms in equation 1, 2, 3 and 4.

LHFC = Log of HFCs units

LOIN = Log of Operating Income

LOEX = Log of Operating Expenditure

LPAT = Log of Profit after Tax

Table 4: Correlation Statistics of Number of HFCs, Operating Income, Operating Expenditure

Correlation 't' statistic Probability	LHFC	LOIN	LOEX	LPAT
LHFC	1.000000	0.998804*		0.996756*
LOIN		1.000000		0.986413*
LOEX	0.985573*	0.989043*	1.000000	0.979926*
LPAT				1.000000

Source: Author's Calculation

*1% Significant Level (two tailed).

The correlation statistics of the variables are substantially associated, as shown in table 4, and include the number of HFCs, operational income, operating expenditures, and profit after tax. The correlation coefficient between the LHFC and LPAT (0.996) is strong and statistically significant. Furthermore, they are statistically significant, as are the positive correlations between LHFC and LIOIN (0.998) and LOIN and LPAT (0.986). In addition, the correlation coefficients between LOEX and LPAT, LHFC, and LINVT (0.979, 0.985, and 0.989, respectively) show strong positive correlations among the variables.

Table 5: Unit Root Test

Variables	At Level		1st Difference	
	t-statistics	Probability	t-statistics	Probability
LPAT	0.234000	0.9872	-3.612346	0.0014
LOIN	0.486730	0.9727	-3.678402	0.0038
LHFC	0.317653	0.9572	-3.209831	0.0016
LOEX	0.182756	0.9735	-0.401238	0.8876

Source: Author's Calculation

For the unit root test using the logarithmic transformation of HFC units, Profit after Tax, Operational Income, and Operating Expenditure, it is clear from table 5 that Profit after Tax. Operational Income and HFC units are non-stationary at the level, but at the first difference, or at the 1% level of significance, they become stationary. Yet, both at the level and in the first differential, operating expenses are not stationary. For the second difference, an instrumental variable must be used as a stand-in for the cost. For the sake of examining long-term relationships, we thus only consider three variables: Profit after Tax, Operational Income, and HFC units. Several macroeconomic time series variables exhibit stationarity or trending characteristics. A long-period study of variables may yield false conclusions if the variables have stationary features. The augmented Dickey-Fuller (ADF) test has been run on the chosen data set in order to prevent stationarity.

Table 6: Co-Integration Rank Test (trace)

Hypothesis No. of CE(s)	Eigenvalue	Trace Statistic	5% Critical Value	Probability[1]
None[2]	0.673957	48.20819	33.98377	0.0006
At Most 1[2]	0.480982	25.49824	23.28640	0.0536
At Most 2	0.290167	5.386713	8.385710	0.1987

Source: Author's Calculation

Notes: Trace test indicates two co-integrating equations at the 5% level
[1]P-values
[2]Denotes rejection of the hypothesis at 5% level

Table 7: Co-Integration Rank Test (Maximum Eigne value)

Hypothesis No. of CE(s)	Eigenvalue	Max. Eigen Statistic	5% Critical Value	Probability[1]
None[2]	0.673957	32.75301	23.47690	0.0025
At Most 1[2]	0.480982	15.39874	16.68732	0.0802
At Most 2	0.290167	5.386713	8.385710	0.1987

Source: Author's Calculation

Notes: Max. Eigen Value test indicates co-integrating equations at the 5% level
[1]P-values
[2]Denotes rejection of the hypothesis at 5%

Johansen suggests a sequential testing method that reliably ascertains how many co-integrating relationships exist. The first test is between H0 (r = 0) and H1 (r > 0), where r is the number of co-integrating relationships between the variables. If this null hypothesis is not refuted, it is assumed that there are no co-integrating relationships between the variables. If H0 (r = 0) is not accepted, it is presumed that there is at least one co-integrating connection, at which point H0 (r = 1) is compared to H1 (r > 1). If this null hypothesis is not rejected, it is implied that there is a single co-integrating link. If the null hypothesis is not accepted, it is concluded that there are at least two co-integrating connections. The successive procedure is carried out till the null is not rejected. Table 7 makes it clear that the probability values of 0.0006 and 0.0536, respectively, are statistically significant at zero and at a maximum of one. This suggests that these three variables have a long-term co-integrating connection and that the null hypothesis is rejected. There is hence no need to verify more than 2. The null hypothesis and testing process are the same for the maximum eigenvalue test as they are for the trace statistic. The null hypothesis is disproved at none because the probability value (0.0025) is less than 5, which is less than 5. This demonstrates that the variables have long-run co-integration. Since the null hypothesis is rejected, there is no need to examine at most 1 or at most 2.

COVID-19 Impact on Housing Finance Companies

The Indian economy and business, notably the home finance industry, have been significantly impacted by the COVID-19 epidemic. The epidemic and ensuing recession in the economy have reduced demand for mortgages. This is mostly because of the unpredictability of the employment market and income levels. Several people have had financial troubles as a result of delayed loan repayments [13]. The liquidity of housing financing businesses has been impacted by this. Increased credit risk as a result of borrowers having trouble paying back loans and the difficulty businesses have effectively estimating risk due to the general economic unpredictability [4]. The Central Bank of India has slashed interest rates to help the economy in response to the outbreak. Because of this, the home financing business's net interest margin has decreased, which has impacted their profitability. The home finance industry has adopted digital technology more quickly thanks to digital transformation. Businesses are putting more of an emphasis on digital channels for acquiring and maintaining customers, which might eventually lead to cost reductions [9]. Overall, the pandemic's effects on the Indian housing finance industry have been conflicting. Despite a decline in demand, HFCs are implementing digital technology, which could have long-term advantages. Nonetheless, the sector's viability is threatened by the elevated credit risk and postponed loan repayments [6].

CONCLUSION

The home financing industry is vulnerable to changes in government policy and economic conditions. High NPAs brought on by borrowers' incapacity to repay loans present a difficulty for banks, HFCs, and other financial institutions. In the mortgage finance industry, this has resulted in higher risk and decreased profitability. The government has taken several actions to increase the money available in the housing finance industry in order to solve these issues. Under the Affordable Housing finance (AHF) plan, a corpus of Rs 10,000 crore was provided

in 2021–2022. On-lending interest rates have been restricted, Primary Lending Institute (PLI) category-wise, to guarantee that the intended advantage of lower interest rates reaches the ultimate borrowers. Under the AHF program, 7646 crores in refinancing assistance have been given to PLIs for their individual housing loans to 73,632 people in urban and rural regions over the fiscal years 2021–2022. The updated rules will benefit HFC business units by improving their operational income, lowering their operating expenses as a result of the digitalization of technology, and boosting their profits following COVID-19. When the key components of the HFCs industry are empirically analyzed, there is a strong positive correlation between the variables. The results of Johansen's co-integration study with the trace test and maximum eigenvalue test indicate that the variables have a long-run co-integrating relationship, rejecting the null hypothesis. The majority of HFCs are having trouble getting disbursement loans and dealing with unpaid loans during COVID-19. The difficulty of paying HFCs' operational costs. Yet, there are basic problems with HFCs' loan recovery procedures, loan sanction process, loan sanction time, security appraisal, and loan pay out. By introducing several special initiatives to realize the goal of India, the Government of India should take various actions to enhance the Indian HFCs business both before and after the COVID epidemic.

References

1. Accetturo A & Lamorgese A. R & Mocetti S & Pellegrino D (2021). Housing supply elasticity and growth: evidence from Italian cities, Journal of Economic Geography, Oxford University Press, vol. 21(3), pages 367-396. https://academic.oup.com/joeg/article/21/3/367/6043724

2. Bhalla, Dr. Ashwani Kumar and Arora, Parvinder Kumar, Housing Finance in India: Development, Growth and Policy Implications (2008). PCMA Journal of Business, Vol.1, No. 1, pp. 51-63, https://ssrn.com/abstract=1427645

3. Broxterman, D., Gatzlaff, D., Letdin, M. et al. Introduction to Special Issue: Topics Related to Real Estate Market Efficiency. J Real Estate Finan Econ 66, 197–202 (202 https://doi.org/10.1007/s11146-022-09928-7

4. Bothlikar, M. S., & Nanda, T. P. (2021). A Thematic Literature Review on The Impact of Covid-19 Pandemic on Indian Real Estate. CSID Journal of Infrastructure Development, 5(1), 83-95. https://doi.org/10.32783/csid-jid.v5i1.255

5. Boyd, John, and Gianni De Nicolò. 2005. The theory of bank risk taking and competition revisited. Journal of Finance 60: 1329–43. https://doi.org/10.1111/j.15406261.2005.00763.x

6. Canepa A, Khaled F. Housing, Housing Finance and Credit Risk. International Journal of Financial Studies. 2018; 6(2):50. https://doi.org/10.3390/ijfs6020050

7. Chegut, A., Eichholtz, P., Holtermans, R. et al. Energy Efficiency Information and Valuation Practices in Rental Housing. J Real Estate Finan Econ 60, 181–204 (2020). https://doi.org/10.1007/s11146-019-09720-0

8. Francke, M., & Korevaar, M. (2021). Housing markets in a pandemic: Evidence from historical outbreaks. Journal of Urban Economics, 123, 1–12. https://doi.org/10.1016/j.jue.2021.103333

9. Favilukis, J., Ludvigson, S. C., & Van Nieuwerburgh, S. (2017). The macroeconomic effects of housing wealth, housing finance, and limited risk sharing in general equilibrium. Journal of Political Economy, 125(1), 140-223. https://ideas.repec.org/a/ucp/jpolec/doi10.1086-689606.html

10. Gerlach, S., & Peng, W. (2005). Bank lending and property prices in Hong Kong. Journal of Banking & Finance, 29(2), 461-481. https://doi.org/10.1016/j.jbankfin.2004.05.015

11. Ghosh, C., Petrova, M (2021). The Effect of Legal Environment and Regulatory Structure on Performance: Cross-Country Evidence from REITs. J Real Estate Finan Econ 63, 40–81 https://doi.org/10.1007/s11146-019-09742-8

12. Ghosh, S. (2017). A Study on Housing Finance Policies and Appraisal Process of Home Loans in India. International Journal of Scientific Research and Management, 2(9). Retrieved from https://www.ijsrm.in/index.php/ijsrm/article/view/1093

13. Iacoviello, Matteo, and Raoul Minetti. 2008. The credit channel of monetary policy: Evidence from the housing Market. Journal of Macroeconomics 30: 69–96. https://doi.org/10.1016/j.jmacro.2006.12.001

14. Keren Horn and Mark Merante (2017), Is home sharing driving up rents? Evidence from Airbnb in Boston. J. Hous. Econ. https://doi.org/10.1016/j.jhe.2017.08.002

15. Kuk, J., Schachter, A., Faber, J. W., & Besbris, M. (2021). The COVID-19 Pandemic and the Rental Market: Evidence From Craigslist. American Behavioural Scientist, 65(12), 1623–1648. https://doi.org/10.1177/00027642211003149

16. Lee, W. H. (2022). Correlation factors and demographic characteristics on homebuyer's purchase decision amid covid-19 pandemic at Pasir Gudang, Johor (Doctoral dissertation, Universiti Tun Hussein Onn Malaysia).

17. Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. Journal of Economic Literature, 35(2), 688–726. http://www.jstor.org/stable/2729790

18. Marcucci, Juri, and Mario Quagliariello. 2008. Is bank portfolio riskiness procyclical? Evidence from Italy using a vector autoregression. Journal of International Financial Markets, Institutions and Money 18: 46–63. https://doi.org/10.1016/j.intfin.2006.05.002

19. Umakant K Holambe and Dr. Subhash Pralhad Desai. (2022). A Study On Growth Of Housing Finance By Some National Bank With Special Reference To Pune. International Journal of Economic Perspectives, 16(2), 58–72. Retrieved from https://ijeponline.org/index.php/journal/article/view/106

20. Windmeijer, Frank. 2005. A finite sample correction for the variance of linear efficient two-step GMM estimators. Journal of Econometrics 126: 25–51. https://doi.org/10.1016/j.jeconom.2004.02.005