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Deciphering DHFL's Financial Crisis: A methodology to explore Inconsistent Liquidity

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Abstract:

Government agencies may aid the organization in some form, but the crisis will have an impact on both infrastructure finance and household spendingInfrastructure financing is an important aspect of Non-Banking Housing Finance Companies' operations. There are both technical and historical reasons that banks are cautious of infrastructure.

Infrastructure financing is the one of the main operations of Non-Banking Housing Finance Company (NBFC). The NBFC is not licensed to access the central Bank liquidity. There are specialized and past explanations that banks are hesitant of Infrastructure Financing Companies. Any organization must have stable liquidity that guarantees its sustainability over the long run. There may be many factors influencing to push the firm into illiquidity position. To get around this, look at how the company differs from other businesses in a positive or negative way.

The consistent liquidity of the company ensures its long-term financial viability. There may be many factors are influencing to push the firm in to insolvency position. To get around this, it is very essential to look at how the company differs from other businesses in a positive or negative way. This paper aims to show case the methodology or frame work to bring up the financial inconsistency. The examination of listed housing finance companies based on total assets has been undertaken to uncover financial irregularities. Through this proposed approach, DHFL exhibited notably high levels of inconsistent liquidity.

Key Words: Financial Crisis, Liquidity, consistency, Current Ratio, Quick Ratio, Liquidity management,

Introduction:

Financial crises often stem from various factors, including overvaluation of assets and irrational investor behavior, which can exacerbate market instability (Kashyap et al., 2011)). During such crises, asset prices plummet, leading to difficulties for businesses and consumers in meeting their financial obligations, while financial institutions face liquidity shortages (Ryoo, 2013)

Liquidity is critical for housing finance companies, enabling them to fulfill their commitments, including lending, investments, withdrawals, deposits, and liabilities (Brunnermeier & Pedersen, 2009). Effective liquidity management hinges on the ability to trade assets at prevailing market prices and meet organizational obligations (Acharya et al., 2019)

Maintaining optimal liquidity levels is crucial for firms, as excessive liquidity can signal inefficiency, while insufficient liquidity can erode creditworthiness and stakeholder confidence, potentially leading to legal repercussions and business closure ((Allen et al., 2009)).

A pertinent example is Dewan Housing Finance Limited (DHFL), which faced significant challenges in 2019. Despite reporting profits in previous years, DHFL incurred substantial losses in the fiscal year ending March 31, 2019 (Business Today, 2019). The company's delayed financial disclosures and defaults on interest payments exacerbated concerns among stakeholders (Merwin, 2019).

DHFL's liquidity crisis, ongoing since September 2018, saw the company struggling to meet its financial obligations, resorting to measures like asset securitization and repayment collections & Allegations of misappropriation of funds further tarnished DHFL's reputation (Merwin, 2019).

In response to its liquidity woes, DHFL appointed a new Chief Risk Officer and implemented measures to address its financial challenges (Business Today, 2019). However, the firm's financial mismanagement and alleged diversion of public funds underscored broader systemic risks within the housing finance sector.

Review of literature

(Nair, 2019) Six months after Infrastructures leasing and Financial Services' defaulting on loans ravaged the markets, non-bank loan providers, especially housing financing providers, continue to experience restricted financial liquidity. As an outcome, these lenders' disbursements are growing at a far slower rate, and there is a move closer toward banking institutions. Disbursements from two prominent HFCs—Dewan Housing Finance Ltd and India bulls Housing Finance Ltd—have remained sluggish in the January-March quarter, according to bankers and financiers acquainted with market dynamics. DHFL's contributions in the December 2018 quarter plummeted 96 percent quarter on quarter to Rs 510 crore. While profits for the March quarter have yet to be revealed, rating agency CRISIL recently revised down DHFL's bonds, citing the firm's slower-than-expected liquidity generation, implying that disbursements may have stayed low in the fourth quarter.

Studies emphasize the importance of robust liquidity risk management practices for financial institutions, including housing finance companies. Effective liquidity risk management involves assessing funding sources, monitoring cash flows, stress testing, and maintaining adequate liquidity buffers (Gorton & Metrick, 2012). Regulatory responses to financial crises have prompted reforms aimed at strengthening the resilience of financial systems and addressing systemic vulnerabilities. These reforms encompass measures related to capital adequacy, liquidity requirements, risk management standards, and supervisory frameworks (European Central Bank, 2021). Fintech advancements are altering the housing finance market, providing prospects for increased efficiency, risk management, and consumer experience. Fintech solutions include digital lending platforms, blockchain-based securities, and AI-driven risk analytics (Buckley, 2016)

Indiabulls Housing Finance's disbursements fell by 65 percent in the third quarter compared to the previous three months. The corporation experienced a rise in the January-March quarter, but disbursements remained below average. Ashwini Kumar Hooda, deputy managing director of Indiabulls Housing Finance, told Bloomberg Quint that the company met almost 70% of its disbursement target in the three months ending March, up from 40% in the October-December quarter. Prior to the crisis, the corporation disbursed an average of Rs 10,000 crore per quarter, according to Hooda. In this liquidity-constrained environment, Credit Suisse expects disbursement growth for the big HFCs to remain below last year's levels, according to research released last month.

Research Methodology

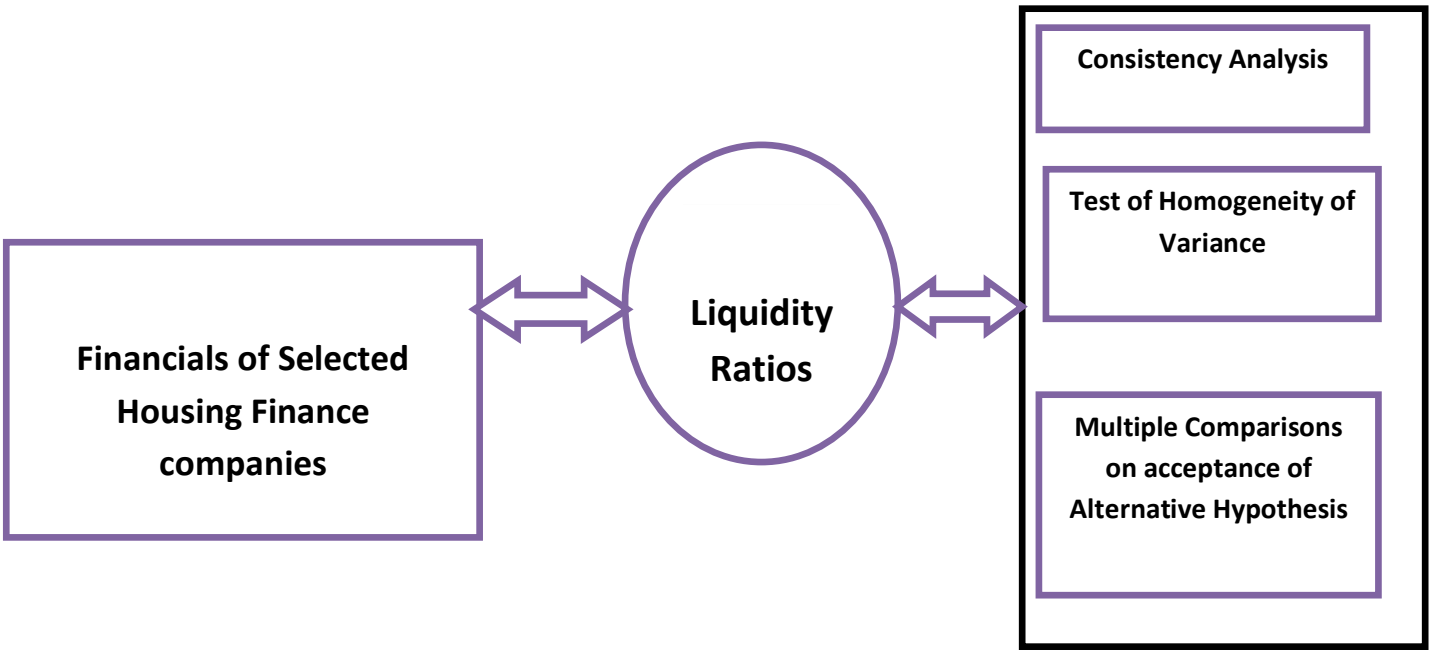
i.) Problem: To identify the financial mal-behavior of Dewan Housing Finance Limited through the consistency analysis.
ii.) Objective: To evaluate the factors affecting for the financial crisis of Dewan Housing Finance Ltd.
iii.) Rationale: From the literature review, it is observed that financial performance measured with various ratios. The review also gives the evidence between the liquidity and profitability. Therefore, the objective of the current study is to diagnose the financial mal- behavior as per the proposed frame work.
iv.) Sampling: Top Nine housing Finance housing finance companies are considered for the study as per their Total Assets. Dewan Housing Finance company is one in the list of top 9 listed Housing Finance companies. Hence it is quite opted to compare the liquidity behavior of Selected Housing Finance with DHFL.
v.) Tools:
❖ To conduct a single component analysis of variance, we test the null hypothesis Ho: $\mu 1 = \mu 1 = \mu 2 = \ldots.: \mu n$ and continue. However, just rejecting the null hypothesis does not guarantee that all population means are different. Furthermore, we have no notion how many means differ from one another or where the variances occur among the specified number of population means. Several comparison tests address this issue. A one-way ANOVA necessitates numerous

comparisons. In general, multiple comparison tests for means are based on the same underlying assumptions as variance analysis, specifically that the population is/are normally distributed and the variance is uniform. Equal sample sizes are desired in all multiple comparison tests; however, they are occasionally employed with unequal samples.
The order in which pair-wise comparisons are assessed determines the results of multiple comparison testing. The correct method is to compare the largest mean to the smallest, then the largest to the next smaller, and so on, until the largest is compared to the second largest. The second largest is compared to the smallest, then the second smallest, and so on.

❖ **Tukey test multiple comparison tests:** This is a common multiple-comparison test. The hypothesis is divided into two parts: H0 (B=A) and H1 (B ≠ A). Consider four groups: 1, 2, 3, and 4. Tukey's tests compare pairs 1 and 2, 1 and 3, 1 and 4, and so on. Tukey's test is often called the Tukey range test or the Tukey procedure. Tukey's honest significance test.

vi.) Conceptual Framework and Hypothesis development:

Fig 1: Conceptual Framework



Source: Author

Figure 1 depicts the conceptual framework for this investigation. This study discusses how DHFL differs from other selected housing finance organisations in India. There are multiple factors have been influenced for the crisis of DHFL, but this study projected more technically in terms of various liquidity performing variables which are driven from the past records. The present study applies the consistency analysis of liquidity of selected housing finance companies and compared with Dewan Housing Finance Ltd. (DHFL).

Most of the times it is the general thumb rule to analyze the financial behavior of the firm by comparing how it is significantly different from other selected companies. Recently, eye witnessed experience with the insolvency position of the Dewan housing Finance Limited (DHFL) and has been depleted financially due to irrecoverable dues from the clients. This situation geared the researcher to analyze the DHFL's liquidity behavior through the following approaches.

- It is essential to investigate toward the level of consistency in the liquidity of DHFL with compare to other housing finance companies.

- Test the hypothesis in terms of liquidity by considering the liquidity data of all the selected companies. If the null hypothesis is denied, multiple comparisons and Tukey or Duncan tests are required to test the significant liquidity difference between Dewan and other Housing Finance businesses.

Hypotheses Framed:

Null Hypothesis Ho1: The average liquidity ratios of selected housing finance companies in India do not differ significantly.

Null Hypothesis Ho2: There is equality of variance in the Liquidity of selected housing Finance companies

Results and Discussions:

To attain the research objective, the financial data have collected and the liquidity data extracted from the financial data. As per the proposed conceptual frame work, on the liquidity data the following analysis have been carried out to attain the research objective.

i) Consistency analysis

ii) Test of Homogeneity of Variance

i) Consistency analysis of liquidity for selected Housing Finance Companies:

(Brown, 1998) A coefficient of variation more than 30% typically suggests data problems or that the research project is beyond range. Variants having a mean smaller than unity also yielded incorrect results, and the coefficient of variation was extremely large and frequently nonsensical.

According to (Bedeian & Mossholder, 2000), The coefficient of variation is a commonly used statistic for assessing the consequences of group-based disparities across homogeneous organizations. Organizational academics have used CV as a diversity indicator to assess and compare the internal variability of top-management teams, task groups, boards of directors, departments, and other social aggregates across a variety of parameters.

Based on the multiple evidences from the review of literature, it can be confirmed that Coefficient of Variation is the measure of level of diversification or Consistency.

Table 1: Consistency analysis of selected liquidity Ratios for Selected HF Companies

HF company	C.V (%) of Current Ratio	C.V (%) of Quick Ratio
HDFC	97.05%	97.05%
LIC HF	97.05%	97.05%
CAN FIN	88.82%	91.73%
GRUH	79.42%	79.45%
DEWAN	168.33%	168.30%
GIC	70.70%	70.70%

INDIA BULLS	79.64%	79.64%
REPCO	76.73%	76.83%
PNB	60.77%	65.25%

Source Descriptive Statistics

Table 1 demonstrates the liquidity coefficient variation for a sample of Indian housing finance providers. The coefficient of variation can serve as a measure of consistency.

The level of consistency will be higher if the coefficient of variance is lower when compared to other selected home finance organizations, and lower if the coefficient of variation is greater.

(S.Md.Karimulla Basha, 2017) The C.V is highest for Dewan Housing Finance Company and it is very less for PNB Housing Finance Company that means there is high variability and less consistency in the Liquidity ratios of DEWAN Housing Finance Company and for PNB it is high consistency and less variable compare to other housing finance companies.

(Karimulla Basha & Noorbasha, 2017) highlighted the notable performance variations across key financial metrics. REPCO and CAN FIN exhibit strong operating profitability compared to others, while INDIA BULLS lags behind. HDFC leads in cash profit margin and adjusted profit after tax, whereas DEWAN is bottom in these categories. India Bulls has the highest average return on capital employed (ROCE), although PNB Housing Finance performs more consistently than LIC HF. GRUH leads in return on net worth (RONW), with the highest average and more stability, whereas GIC consistently ranks bottom across all criteria.

Test of Homogeneity of Variance along with Multiple comparisons on acceptance of Alternative Hypothesis and Tukey's Honesty Test

Many parametric statistical methods rely on an assumption of homoscedasticity. This presumption implies that the variation within each population is identical across all populations, whether there are two or more. This assumption is used in several statistical tests, including the two-sample t-test and ANOVA. If the variances are not uniform, they are considered heterogeneous. If this is the case, we refer to the underlying populations, or random variables, as heteroscedastic.
(Levene, 1960) Levine's test converts the dependent values into absolute values of deviations from group means or square deviations, which are then utilized as the new dependent variable values in an ANOVA test.

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Table 2: Application of Levine's Statistics to test the homogeneity of variance on the Current Ratio of selected Housing Finance Companies

Null Hypothesis Ho: There is equality of variance in the Liquidity of selected housing Finance companies.							
CURRENT RATIO				QUICK RATIO			
Levene Statistic	df1	df2	Sig.	Levene Statistic	df1	df2	Sig.
12.891	8	99	.000	12.891	8	99	.000

Source: SPSS output

Since the p-value (Sig.) for both the Current Ratio and Quick Ratio is less than 0.05, the null hypothesis is rejected. This indicates a statistically significant difference in the variances of liquidity among the selected housing finance companies for both ratios. In other words, the variances are not equal.

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Table 3: Analysis of variance of liquidity ratio of selected Housing Finance companies in India

ANOVA										
CURRENT RATIO						QUICK RATIO				
	Sum of Squares	Df	Mean Square	F	Sig.	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	12783.272	8	1597.909	11.152	.000	12782.632	8	1597.829	11.160	.000
Within Groups	14184.663	99	143.279			14174.357	99	143.175		
Total	26967.935	107				26956.989	107			

Source: SPSS output

The above table displays the results of the ANOVA analysis and the Levene statistic used to evaluate homogeneity of Variance. The above table exhibits the results of the ANOVA. The p-value for the column sig is 0.000. The null hypothesis is rejected because the p-value is 0.000, which is less than the 0.05 threshold. Therefore, a significant difference is found in the means of liquidity ratios among the selected housing finance companies in India.

It essential to find out which companies are having the significant difference in the liquidity ratios. Hence post-hoc analysis was conducted and the results of post-hoc analysis are as follows

Table 4: Post-Hoc Multiple comparisons to test the significance difference between mean current ratios among the selected Housing Finance companies in India

HF Comp	HDFC	LIC HF	CAN FIN	GRUH	DEWAN	GIC	INDIA BULLS	REPCO	PNB
HDFC	-								
LIC HF	P=1 NS								
CAN FIN	NS (P=0.824)	NS (P=0.824)							
GRUH	NS (P=0.955)	NS (P=0.955)	NS (P=1.00)						

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DEWAN	**S (P=0.00)**	**S (P=0.00)**	**S (P=0.00)**	**S (P=0.00)**					
GIC	NS (P=0.991)	NS (P=0.991)	NS (P=0.255)	NS (P=0.467)	**S (P=0.00)**				
INDIA BULLS	NS (P=1.00)	NS (P=1.00)	NS (P=0.751)	NS (P=0.910)	**S (p=0.00)**	NS (P=1.00)			
REPCO	NS (p=0.998)	NS (p=0.998)	NS (p=0.431)	NS (p=0.652)	**S (p=0.00)**	NS (p=1.00)	NS (p=1,000)		
PNB	NS (p=0.873)	NS (P=0.873)	NS (p=1.00)	NS (p=1.00)	**S (P=0.00)**	NS (p=0.371)	NS (p=0.807	NS (P=0.528)	

Source : SPSS output (NS : Not Significant, S : Significant)

The Table indicates the multiple comparisons of current ratio between the selected housing companies in India. There is no significant difference in the current ratios of specified housing finance companies in India, with the exception of Dewan home Finance.

As indicated in the table there is no significance difference between the current ratios of selected housing finance companies in India. There is no significance. The current ratio of Dewan Housing Finance having a significant difference with all selected housing finance companies. The post-hoc analysis clearly shows that Dewan Housing Finance company limited having unique financial behavior compare to other Housing Finance companies.

The other alternative way to check the homogeneity of the companies with the help of Tukey's Honesty test or Duncan's Test. The results of Tukey's Honesty test are mentioned in the following table.

Table 5: Application of Tukey's Honesty Significance test for Current Ratio of Selected Housing Finance Companies

CURRENT RATIO			
Tukey HSD			
HF COMP	**N**	**Subset for alpha = 0.05**	
		1	**2**
GIC	14	1.10643	
REPCO	10	1.55200	
INDIA BULLS	10	3.95000	
HDFC	14	5.27000	
LIC HF	14	5.27000	
GRUH	14	10.69214	
CANFIN	14	12.32357	
PNB	9	12.70889	

DEWAN	9		43.05667
Sig.		.335	1.000
Means for groups in homogeneous subsets are displayed.			
a. Uses HM Sample Size = 11.548.			
b. The group sizes are unequal. The HM of the group sizes is used. Type I error levels are not guaranteed.			

Source : SPSS output

The above output gives the Homogeneous subsets. As per the current ratio of selected housing finance companies two homogeneous subsets are formed. Subset 1 includes HDFC, LIC HF, and INDIA BULLS, CAN FIN, GIC, GRUH and PNB .The subset 2 included one company DEWAN HOUSING FINANCE.

Table6 : Post Hoc Multiple comparisons to test the significance difference between mean Quick ratios among the selected Housing Finance companies in India

HF Comp	**HDFC**	**LIC HF**	**CAN FIN**	**GRUH**	**DEWAN**	**GIC**	**INDIA BULLS**	**REPCO**	**PNB**
HDFC	-								
LIC HF	P=1 NS								
CAN FIN	NS (P=O.824)	NS (P=0.824)							
GRUH	NS (P=0.956)	NS (P=0.956)	NS (P=1.00)						
DEWAN	**S** **(P=0.00)**	**S** **(P=0.00)**	**S** **(P=0.00)**	**S** **(P=0.00)**					
GIC	NS (P=0.991)	NS (P=0.991)	NS (P=0.254)	NS (P=0.470)	**S** **(P=0.00)**				
INDIA BULLS	NS (P=1.00)	NS (P=1.00)	NS (P=0.751)	NS (P=0.911)	**S** **(p=0.00)**	NS (P=1.00)			
REPCO	NS (p=0.998)	NS (p=0.998)	NS (p=0.430)	NS (p=0.655)	**S** **(p=0.00)**	NS (p=1.00)	NS (p=1,000)		
PNB	NS	NS	NS	NS	**S**	NS	NS	NS	

	(p=0.873)	(P=0.873)	(p=1.00)	(p=1.00)	**(P=0.00)**	(p=0.371)	(p=0.806	(P=0.527)	

Source: Derived from SPSS output

The table 6 indicates the multiple comparisons of quick ratios between the selected housing finance companies in India. It is notice that except for Dewan home Finance, the quick ratios of selected housing finance companies in India do not differ much. The quick ratio of Dewan Housing Finance having a significant difference with all selected Housing Finance companies in India.

Table 7: Application of Tukey's Honesty Significance test for Quick Ratio of Selected Housing Finance Companies

QUICK RATIO			
Tukey HSD			
HF COMP	**N**	**Subset for alpha = 0.05**	
		1	**2**
GIC	14	1.10643	
REPCO	10	1.55200	
INDIA BULLS	10	3.95000	
HDFC	14	5.27000	
LIC HF	14	5.27000	
GRUH	14	10.67000	
CANFIN	14	12.32357	
PNB	9	12.70889	
DEWAN	9		43.05667
Sig.		.335	1.000
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 11.548.			
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.			

The above output gives the Homogeneous subsets. As per the Quick ratio of selected housing finance companies two homogeneous subsets are formed. Subset 1 includes HDFC, LIC HF, and INDIA BULLS, CAN FIN, GIC, GRUH and PNB. The subset 2 included one company DEWAN HOUSING FINANCE.

Conclusion:

Building upon prior research that concentrated on predicting profitability through liquidity and investment valuation ratios, no specific models have been proposed thus far to assess the crisis level arising from inconsistent liquidity. To address this gap, the researcher undertook a study examining a financial crisis scenario to validate a newly proposed model aimed at diagnosing financial crises due to insolvency positions. This model amalgamates various statistical tools to evaluate its effectiveness.

The analysis reveals that DHFL demonstrates significantly higher consistency in liquidity compared to other housing finance companies. The null hypothesis (HO1) stating no difference in liquidity among the selected housing finance companies is rejected, indicating a substantial variance in liquidity levels among them. To discern which companies contributed to the rejection of the null hypothesis, a post-hoc analysis was conducted. This analysis suggests that, barring Dewan Housing Finance Limited (DHFL), there is no noteworthy difference in liquidity among the selected housing

finance companies. Consequently, it is inferred that DHFL exhibits considerably higher liquidity risk compared to its counterparts within the housing finance sector.

References:

1. Acharya, V., Review, L. P.-C. F., issue, special, & 2019, undefined. (2019). Economics with Market Liquidity Risk. *Papers.Ssrn.Com*, *8*, 111–125. https://doi.org/10.1561/104.00000083
2. Allen, F., Babus, A., & Carletti, E. (2009). Financial Crises: Theory and Evidence. *Annual Review of Financial Economics*, *1*(1), 97–116. https://doi.org/10.1146/ANNUREV.FINANCIAL.050808.114321
3. Bedeian, A. G., & Mossholder, K. W. (2000). On the Use of the Coefficient of Variation as a Measure of Diversity. *Organizational Research Methods*, *3*(3), 285–297. https://doi.org/10.1177/109442810033005
4. Brown, C. E. (1998). Coefficient of Variation. In *Applied Multivariate Statistics in Geohydrology and Related Sciences*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-80328-4_13
5. Buckley, R. (2016). *THE EVOLUTION OF FINTECH : A NEW POST-CRISIS PARADIGM ? January*. https://doi.org/10.2139/ssrn.2676553
6. Gorton, G., & Metrick, A. (2012). Securitized banking and the run on repo $. *Journal of Financial Economics*, *104*(3), 425–451. https://doi.org/10.1016/j.jfineco.2011.03.016
7. Karimulla Basha, S. M., & Noorbasha, A. (2017). www.ijemr.in A Study on Consistency in Profitability towards Selected Listed Housing Finance Companies in India. *International Journal of Exclusive Management Research*, *7*, 11. www.ijemr.in
8. Kashyap, A., Berner, R., Review, C. G.-I. E., & 2011, U. (2011). The Macroprudential Toolkit. *IMF Econonomic Review*, *59*(2), 145–161. https://doi.org/10.1057/imfer.2011.4
9. Ryoo, S. (2013). Bank profitability, leverage and financial instability: A minsky-harrod model. *Cambridge Journal of Economics*, *37*(5), 1127–1160. https://doi.org/10.1093/cje/bes078
10. S.Md.Karimulla Basha, P. N. A. (2017). LIQUIDITY ANALYSIS : AN EMPIRICAL STUDY TOWARDS SELECTED HOUSING. *International Journal of Creative Research Thoughts*, *5*(4), 2814–2823.