



AN ANALYSIS OF WEAK-FORM EFFICIENCY IN REALTY SECTOR: A STUDY WITH A SPECIAL REFERENCE TO NATIONAL STOCK EXCHANGE

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ABSTRACT

The realty sector one of the most globally recognised sectors. Today realty sector growing 25-30 percent annually. Capital market is one of the significant phases of every financial institution and now it's playing a strategic role in a country's economic growth. The purpose of this study is to test "The Weak Form Efficient Market Hypothesis in National Stock Exchange" by taking the Daily closing prices of selected realty companies. The three conventional ways: Augmented Dickey Fuller Test, Autocorrelation and TGARCH are used to prove the evidences of weak form market efficiency. The evidences have confirmed that during 2015, National Stock Exchanges is not efficient in a weak form.

KEYWORDS: Weak form Efficiency, Autocorrelation & not efficient.

Introduction

In India realty sector is the second largest employer after agriculture and is slated to grow at 30 percent over the next decade. The Indian realty sector market has become one of the most preferred destinations in the Asia Pacific as overseas funds accounted for more than 50 percent of all investment activity in India in 2014, compared with just 26 percent in 2013

A capital market is one in which individuals and institutions trade financial securities. Originations and institutions in the public and private sectors also often sell securities in the capital markets in order to raise funds. Thus, this type of market is composed of both the primary and secondary markets. Government as well as corporations who require capital (funds) to finance its operations and to engage in its own long-term investments utilize this option.

Review of literature

Divyang J Joshi (2012) probed the efficiency level in Indian Stock market and the random walk nature of the stock market by using RUN test & ADF Test for the period from 1st January 2001 to 31st December 2010. They have taken 6 major indices BSE 30, BSE 100, 200, 500, BSE SMALL CAP and BSE MIDCAP for the study. All indices of BSE do not support the weak form of market efficiency. Thus indicate that information regarding yesterday's and today's indices can be used to predict tomorrow's indices.

Misra Vandna (2012) tested weak form of efficiency of Indian stock market for the period of 2001-2011. The study offers supportive evidence for rejection of weak form of efficiency in Indian stock market by endorsing absence of randomness and independence in selected return series. It reveals drifts in market efficiency which offers avenues for devising profitable trading strategies to market participants. Thus suggest that investors with ready accessibility to information and ability to take account of all available information will improve market efficiency.

Sajeela Rabbani, Nida Kamal and Mahwash Salim (2013) tested weak form market efficiency on an emerging stock market Karachi stock exchange Pakistan. Secondary data had taken for twelve years from January 1999 to December 2010 of KSE 100 Index. Analyzed with Augmented Dickey-Fuller test, Autocorrelation function test, Phillip Perron test and Runs test. They found that these tests rejected efficient market hypothesis (EMH) in its weak-form except Runs test. Overall KSE of Pakistan is weak-form inefficient.

Chikoko Laurine and Muparuri William (2013) tested whether Zimbabwe Stock Exchange (ZSE) is efficient or not after the country adopted the multiple currency exchange rate regime. Data collected both daily and weekly closing stock prices over a period of 19 February 2009 to 31 December 2012. Non-parametric and parametric research methods used by tested with partial autocorrelation and runs test. The results of both tests found that the ZSE was not efficient in the weak form when the country used multiple currencies.

Ajay Pandey (2003) investigated the Modeling and Forecasting Volatility in Indian Capital Markets by estimating the performance using various unconditional volatility estimators and conditional volatility models (GARCH and EGARCH) & time-series data of S&PCNX Nifty, a value-weighted index of 50 stocks traded on the National Stock Exchange (NSE) for the period from 1999 to 2001. He found that while conditional volatility models provide less biased esti-

mates, extreme-value estimators are more efficient estimators of realized volatility.

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problems. It includes the overall research design, the sampling procedure, and Data collection method and analysis procedure

Statement of problem

The small and medium investors could be stimulated to save and invest in the capital market only if their securities in the market are suitably priced. But many did not know how to invest the money in correct indices in the Indian Share Market. Besides, the investors do not have any idea about which companies are best in India.

Objectives of the Study

- The main aim of the study is to examine the Market efficiency of selected realty companies
- To examine the stationarity of share price returns of selected realty companies
- To determine the volatility of the selected realty companies

Period of the study

The sample period is 1st January 2015 to December 2015. The data consist of daily return of Realty in NSE.

Source and Collection of Data

The study mainly depends on secondary data. The required data are collected from the CMIE Prowess Corporate Database and www.nseindia.com.

Sample Selection

The 5 realty companies are selected based on the Market Capitalization. They are HDIL, UNITECH, DLF, GODREPROP and PHOENIXLTD

Tools for Analysis

- Augmented Dickey Fuller test
- Autocorrelation Test
- TGARCH

Hypothesis of the study

The first hypothesis involves determining, whether the stock returns are Stationary. The null and alternative hypotheses are

1. H₀: is a Unit Root test

H₁: is Stationary

The third hypothesis involves determining, whether the stock returns are efficient or not. The null and alternative hypotheses are

2. H₀: is weak-form efficient

H₁: is not weak-form efficient

Analysis of ADF Test of Selected realty companies

COMPANY	TEST STATISTIC	ADF Test
	SIGNIFICANT LEVEL	LEVEL DIFFERENCE
HDIL	Test Statistic	-45.1922
Test Critical Values	1% Level	-3.43278
	5% Level	-2.8625
	10% Level	-2.56733
UNITECH	Test Statistic	-48.5159
Test Critical Values	1% Level	-3.43278
	5% Level	-2.8625
	10% Level	-2.56733
DLF	Test Statistic	-8.026536
Test Critical Values	1% Level	-3.548208
	5% Level	-2.912631
	10% Level	-2.594027
GODREJPROP	Test Statistic	-53.0393
Test Critical Values	1% Level	-3.43278
	5% Level	-2.8625
	10% Level	-2.56733
PHOENIXLTD	Test Statistic	-43.5774
Test Critical Values	1% Level	-3.43278
	5% Level	-2.8625
	10% Level	-2.56733

Table explained the test critical value for t-statistics by using Augmented Dickey Fuller (ADF) test for the volatility series. If the p value was less than or equal to a specified significance level, often 0.01 (1%), 0.05 (5%), and even 0.1 (10%) the null hypothesis would be rejected. Since the P- Value was 0.000 the null hypothesis was rejected and the cases presented in Table were found to be significant. Hence it could be concluded that the selected companies were stationary at 1%, 5%, 10%, but it does not purely imply that the null hypothesis was true, the data was only found to be consistent with the norms. The results indicated that the test statistic was smaller than the critical value. It was found that the ADF test statistic values were less than the Test Critical Values hence the null hypothesis was rejected. So it can be interpreted that the stock price return for all the selected realty companies were stationary

Analysis of Autocorrelation Test of Selected realty companies

Lags	HDIL	UNITECH	DLF	GODREJPROP	PHOENIXLTD
1	-0.085	-0.041	-0.069	-0.020	-0.058
2	-0.070	-0.053	-0.070	-0.167	-0.163
3	-0.028	-0.001	0.086	-0.083	0.071
4	-0.104	-0.072	-0.097	-0.197	0.141
5	0.077	0.087	-0.149	-0.036	0.034
6	0.006	0.027	0.004	0.123	-0.135
7	0.002	-0.075	-0.102	-0.077	0.332
8	-0.166	0.023	-0.028	0.069	-0.007
9	-0.032	0.020	0.007	-0.187	-0.233
10	0.068	-0.061	-0.028	-0.110	0.125
11	-0.070	-0.068	0.022	0.115	0.155
12	0.015	-0.169	-0.081	0.123	-0.073
13	-0.219	0.012	-0.146	0.074	-0.144
14	-0.125	-0.023	0.072	-0.014	0.099
15	0.187	-0.015	0.072	-0.041	0.118
16	0.124	-0.164	-0.056	-0.007	-0.235
17	-0.048	0.017	0.096	-0.017	-0.142
18	0.065	0.092	-0.006	-0.022	0.159
19	-0.100	0.049	-0.024	-0.023	-0.010
20	0.012	-0.010	0.107	0.002	0.015

Table presents the Autocorrelation of selected Realty for 1st January 2015 to December 2015. It is to be distinguished that there were a total of 20 lags during the study period. From the overall analysis of the returns of selected realty, it is

clear that HDIL had more number of lags with positive autocorrelation value whereas the remaining realty companies recorded low number of lags with positive significant during the study period. Hence the Null Hypothesis "There is no weak form efficiency in the returns of selected realty companies" is accepted

Analysis of TGarch for Selected realty companies

S. No	Selected realty companies	Coefficients - TGARCH (1,1)			
		α_0	α_1	δ	β_1
1	HDIL	1.14E-05 (8.199091)	0.198442 (12.09908)	0.07896 (6.441)	0.761691 (48.96482)
2	UNITECH	0.000127 (36.96659)	0.165958 (14.8167)	-0.16262 (-14.3105)	.887658 (92.24641)
3	DLF	5.75E-05 (10.54985)	0.034469 (4.632397)	0.038309 (1.939197)	0.861318 (87.51994)
4	GODREJPROP	1.22E-03 (2.447025)	1.251842 (76.33815)	0.188343 (15.25866)	0.665294 (75.21049)
5	PHOENIXLTD	7.67E-05 (12.33394)	0.071349 (17.07147)	-0.00482 (-0.11502)	0.896016 (105.3168)

α_0 : constant in the model represents a long-run average;

α_1 : The ARCH term which is the lag of the squared residuals from the mean equation, represents news about Volatility from the previous period;

β_1 : The GARCH term is the last period's forecast variance

δ : Takes the value of 1 if ϵ_{it} is negative, and 0 otherwise, identifying "good news" and "bad news" have a different impact.

The ARCH effect is significant realty companies and the GARCH effect is significant for realty companies. The results thus suggest that positive shocks are observed for realty companies at five per cent level of significance through the asymmetries δ value. This clearly indicates the movement to asymmetrical reaction of realty companies towards the good and bad news of the market.

Conclusion

The overall results of the analysis suggest that the selected realty of NSE are not weak form efficient for the period 1 Jan 2015 to 31 Dec 2015. The distribution of return did not follow normal distribution for selected banks during the period. The statistical values of ADF Test & P-P Test for selected bank were less than the test critical values at 1%, 5% and 10% level of significance. This indicates the fact that the returns data of selected realty attained stationary. Autocorrelation Test which indicates a weak form of inefficient for the period 1 Jan 2015 to 31 Dec 2015 and TGarch indicate the movement to asymmetrical reaction of realty companies towards the good and bad news of the market.

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