Does market capitalization matter for the weak - form market efficiency: Recent evidence from Colombo Stock Exchange

Wijethunga **A W G C N** & **Dayaratne D A I**
Department of Accountancy & Finance, Faculty of Management Studies,
Sabaragamuwa University of Sri Lanka

Abstract

This study attempted to examine the weak form efficiency of Colombo Stock Exchange by applying various statistical tests on 110 shares. Importantly, this paper examined whether market capitalization of stocks matters on the degree of weak from efficiency in CSE. To enhance objectives of this study, we applied Runs test, Autocorrelation test and Variance ratio test on high capitalized, moderate capitalized and low capitalized shares sorted as 30th, 70th percentile over the period of 2011 to 2015. The findings of autocorrelation test revealed that existence of weak form efficiency in the market which suggests that stock prices not quickly adjusted to new information and market capitalization does not matter in determining the degree of market efficiency. However, runs test and variance ratio test showed share price adjustments are not efficient under all three market capitalization sorted portfolios. Overall results established that market capitalization matters for weak form efficiency of stocks of CSE. Finally, findings concluded that most of the shares in CSE are inefficiently adjusted to past information and market demonstrates weak form efficient market features. The results imply that investors can pick up undervalued shares in the market largely and can gain abnormal returns significantly. .

Keywords: *Colombo Stock Exchange, Market Capitalization, Weak-form Efficiency*

1. Introduction

From the past the parties interested in predicting the movement of future stock prices attempted to discover models that can predict the future stock prices accurately. The argument of "the stock prices move in random manner" that emerged with the land mark study of Fama (1965) challenged the intuition of technical analysts. Efficient Market Hypothesis (EMH) is the one of the ground breaking theories in finance which evolved during 1965 to 1970s. The proponents of EMH could convince the academic and practitioner community and brought the attention towards their discovery in wider perspective. The wider acceptance of the discovery induced the extensive investigations globally and has contended varying conclusions. As other theories in finance and other disciplines the contenders have formed the so called theory under some set of assumptions. One important assumptions of the EMH is that information is universally shared and stock prices follow

a random walk. One of the assumptions is that there are large number of buyers and sellers who have same expectations towards risk and expected returns. In the finance literature three forms of efficient markets are documented namely, they are weak form market efficiency, semi-strong form market efficiency and strong form market efficiency. However, much of the empirical evidences available for weak-form efficient market hypothesis compared to other two forms.

This paper attempts to examine the prevalence of weak- form market efficiency in CSE. This form of market suggests that all the past information is reflected in the subsequent stock prices. We test the weak form efficient market hypothesis in different approach. One of the capital market assumptions is large number of buyers and sellers in the market, the necessary condition to fulfill this assumption is the there should be large number of shares outstanding for the investors to trade in the market. If the shares are limitedly circulated in the market, it is hardly seen large number of buyers and sellers. The capital market critique argues that when the trading volume is high for a security or portfolio of stocks the market related information will be rapidly processed by the investors and react accordingly. On the other hand competition among the market participants is one of the hallmarks of the market prices to become equilibrium price (Reach to intrinsic value). To be the competition more meaningful, there should be sufficient number of shares in the market to facilitate the trading. As such an argument is developed in this paper that

the market capitalization matters for the efficiency of the market.

Thus, this paper attempts to examine the weak from efficient market hypothesis in CSE for three group of securities namely, high market capitalization, moderate market capitalization and low market capitalization. We look at whether market capitalization of stocks has an influence on the weak-from efficient market hypothesis in CSE.

2. Literature review

With the advent of the EMH invented by Fama (1965; 1970) scholars shed light on the empirical investigation of the EMH in the stock markets. There is plethora of academic papers on testing the weak-form market efficiency in both developed markets and developing markets. Most of these studies have focused on investigating whether the respective market is weak-from efficient or not. Other studies have aimed at discovering the anomalies in the markets such as January effect, day of weak-effect and weekend effect. For example, Mensah, Adom & Pomaa-Berko (2014) examined impact of automation on the efficiency of the Ghana Stock Exchange (GSE) within the framework of weak-form efficient market hypothesis and established that the automation did not improve the overall efficiency of the stock market.

Moreover, Önder & Şimga-Mugan (2006) investigated economic and political news affect on the market activity of two countries, Argentina and Turkey and documented that political and economic

news influence the volatility and trading volume of both markets. When the market is volatile and trading volume is high market tend to be more efficient. Al–Abdulqader, Hannah, & Power (2007) examined whether investors can outperform the market by trading on the basis of historical information in the Saudi Stock Market (SSM). They used filter rule and moving average strategy and the results suggested that the SSM is more efficient than other markets. Poshakwale (1996) tested the weak-form efficiency of the Bombay Stock Exchange (BSE) by applying the autocorrelation and runs test for the daily return series and presented evidence concentrating on the weak-form efficiency and on the day of weak effect in BSM under consideration that variance is time dependent. Irfan, Irfan & Awais, (2010) tested the weak-form efficiency in Karachi Stock Exchange (KSE) 100 indexes for the period 1999 to 2009. The study applied different tests such as unit root, autocorrelation test and ARIMA. All parametric methods strongly recommended that both return series do not follow random walk model and reject the hypothesis of weak-form efficiency and established that KSE is not efficient in weak-form. Laurence, Cai & Qian (1997) attempted to examine the weak-form efficiency in Shanghai and the Shenzen exchanges in China. In the Chinese markets two types of shares are traded A type and B type. Both types are traded in both markets. The results suggested that A type of shares are weak-form efficient while B type shares are not efficient.

Importantly, the tests on weak –form efficiency and random walk of stock prices are very popular both in emerging markets and developed markets. Thus, studies on these tests are directed for the comparison of the modalities in both markets. For example, Worthington & Higgs (2005) examined the weak-form efficiency in Asian Emerging and Developed Equity Markets comprising ten emerging markets and five developed markets. They applied different models such as serial correlation, runs test, several unit root tests and multiple variance ratio test. They derived varying results depending on the type of results for both markets. Highlights of findings revealed that all emerging markets are inefficient and out of five developed markets only three markets demonstrated random walk properties. Borges (2010) examined the random walk behavior of stock prices in six European countries for the period from 1993 to 2007 using daily and monthly data. The study applied different tests for the investigation. The tests applied are *Serial correlation test, a runs test, an augmented Dickey-Fuller test and the multiple variance ratio test.* The findings reported mixed results for daily data and monthly data. The results suggested that monthly prices and returns follow random walk for all six countries and different results are reported for the daily data.

It is observed that numerous studies have been conducted in developed markets and emerging markets on weak-

form efficiency globally. They have applied different data sets such as daily, weekly and monthly. Most of the studies have applied price indexes, share prices and return series for the different statistical models. This study uses the commonly used models by previous researchers in a new perspective. This paper argues that market capitalization of the stock matters for the weak-form efficiency of CSE. Though sufficient weak-form tests are conducted in CSE for the price series which are also very common to global evidences, papers looked at the weak-form efficiency in grouping stocks based on market capitalization is a new approach.

3. Data and construction of market capitalization sorted portfolios

Data used in this study include daily return data of Colombo Stock Exchange (CSE) from January 2011 to December 2015. This period is valid sample to investigate the post war period. It is useful to test the weak-form efficiency of the CSE in the post war scenario as in the peaceful environment the market capitalization of the CSE experienced very high and sometimes highly volatile. Daily trading data is obtained from data Library of CSE. For the purpose of various tests daily returns were produced by using daily trading prices as follows.

$$R_t = \ln(p_t / p_{t-1}) \qquad (1)$$

Where, R_t is daily return. ln stands for natural logarithms. Share price at time t denotes from P_t and P_{t-1} is share price at time $t-1$

There were 266 companies listed during 2011 in Sri Lankan Capital Market. We eliminated all the companies which were newly listed and delisted during the sample period of 2011 to 2015 to satisfy the inclusion of similar companies throughout the period.

It is very common to see thin trading in frontier stock exchanges, like CSE due to small country effect. Since few transactions occur in these markets prices tend to be more volatile and less liquid. If such volatile series are used for the test results will be bias. Therefore, to overcome this issue we considered stocks which have 200 or more than 200 trading days for each year from 2011 to 2015 and other firms dropped from the initially selected sample. This filtering rule dropped 103 companies form the initial sample and 163 stocks were qualified for the portfolio categorization. Then, these stocks were classified into three categories based on market capitalization. This resulted for the formation of three portfolios namely, high capitalization stocks, moderate capitalization stocks and low capitalization stocks. The procedure used by Kenneth R. French is followed for grouping of stocks as high, moderate and low capitalization. Therefore, this study used 30th and 70th percentiles for categorization of return series to three portfolios. First, we sort the stocks in descending order based on the market capitalization. The stocks which were sorted up to range of 30th percentile are considered as high capitalization stocks and stocks which were in between 30th and 70th percentiles are classified into moderate capitalization stocks. At the end, stocks which were fallen to 70th percentile and above are considered as low capitalization stocks. We did this exercise for the entire

sample period from 2011 to 2015.

According to categorization 63 stocks, 66 stocks and 34 stocks were qualified into high cap, moderate cap and low cap categories in respectively in year 2011. Generally, market capitalization of a company is not constant and it is changing with time due to the fluctuations of market price of particular stock and number of outstanding shares. We observed that the stocks were not remained in one portfolio throughout the period. For example a stock which was grouped as high capitalization in

2011 can be grouped under moderate or low capitalization in subsequent years within the sample period. It is a necessary condition to have uniform set of stocks for each portfolio throughout the sample period to establish the uniformity of the conclusions of the findings. To ascertain that we identified stocks which were changed in capitalization position during the sample period. 14 high cap stocks, 27 moderate cap stocks and 12 low cap companies are rejected from this study due to changes in the market capitalization position through the years. Table 1 states the summary of the

sample selection.

	High Cap	Moderate Cap	Low cap	Total
Stocks (After filtering for thin trading)	63	66	34	163
Removed due to uniformity issues	14	27	12	53
Firms used for the tests	49	39	22	110

Table 1: Summary of Sample selection

4. Statistical models

Econometric models and empirical evidences suggest three popular models to examine the serial dependence of a time series data such as Runs test, Autocorrelation test and variance ratio test. These models have been used widely to examine weak form efficiency of individual stocks in several studies.

Runs Test

At the beginning, we adopted Runs test. Runs test is a nonparametric analysis it is used to measure randomness of return series. It captures the sequences of price increase or decrease of a stock. In other words, it is a tool to count the number of runs in the price changes. The runs test observed number of

runs compares with the expected number of runs apply with Fama's (1965) assumption of the price change of a stock is random and independent. If the actual number of runs exceeds the expected runs is generated a positive Z value. On contrary, when the actual number of runs falls below the expected runs, negative z value is obtained. Positive Z value indicates positive serial correlation in the return series. On the other hand negative Z value implies negative serial correlation in return series itself. All positive and negative expected runs for a share can be obtained from following equation.

$$m = \frac{\left[N(N+1) - \sum_{i=1}^{3} n_i^2 \right]}{n} \qquad (2)$$

Where, m denotes from expected number of runs and N is the total number of return observations. N stands for number of price changes of each sing (it means positive, negative or zero).

Standard error of expected number of runs is indicated as follows,

$$\sigma_m = \left[\frac{\sum\limits_{i=1}^{3} n_i^2 \left[\sum\limits_{i=1}^{3} n_i^2 + N(N+1) \right] - 2N \sum\limits_{i=1}^{3} n_i^3 - N^3}{N^2(N-1)} \right]$$

In this test null hypothesis of the sequence was produced in a random manner is tested against the alternative hypothesis of the sequence was not produced in a random manner. The test statistic is,

$$Z = \frac{\left[R + \frac{1}{2} \right] - m}{\sigma_m} \qquad (4)$$

Where, R is the actual runs. m indicates the expected number of runs. σ_m is the standard error of expected runs.

Autocorrelation test

This is widely used test to detect the dependence of time series data on the past data series (past memory) which is also very popular among the researches to used as a tool to examine the weak form efficiency of the stock returns. For example, (Chaudhuri (1991), Poshakwale (1996), Liu (2003), Cooray & Wickramasinghe (2005) etc.). In the current study we employed the same test for each of the stocks in the three portfolios to examine weak form efficiency of stock returns. Relationship between current stock returns with its previous lag is captured by Autocorrelation test. Significant negative autocorrelation coefficients at different lags

indicate weak form efficiency prevails in the return series. .

Variance Test Ratio

The variance test ratio is also well established in the econometric methodology to test the weak-form efficiency introduced by Lo & MacKinlay (1988) individual variance test. Variance ratio test compares the variance of different time series data over different time intervals. According to Lo & MacKinlay (1988) if data series follows random walk, it implies from variance of q period should be p times and it differs from variance of the another period. The variance ratio is,

$$VR(J) = \frac{\sigma^2(J)}{\sigma^2(1)} \qquad (5)$$

If VR (J) =1 means that null hypothesis of stock follows weak from efficiency will be accepted and reject the alternative of stock not follows weak form efficiency.

5. Result and discussion

Table 2 presents the test results of runs test summarized in to three panels. The panel 1 presents the test results for high capitalization stocks, panel 2 summaries the moderate capitalization stocks and panel 3 reports the low capitalization stocks.

Results of runs test for high capitalized stocks

The summary presented on panel 1 of Table 2 reports that 20 stocks have statistically significant values *(JKH ,BUKI, SLTL, COMB, DIAL, SPEN, AHPL, SAMP, HAYL, AHUN, LOFC, NDB, LLUB, EXPO, SINS, RCL,SEYB, LIOC, DIPD, VEPL)* at 5% and

10% significant levels. It means that rejection of null hypothesis of successive price changes is independent and random for these stocks. Rest of [29] stocks is statistically not significant and it clearly shows that acceptance of null hypothesis. In other terms, 20 stocks are not weak-form efficient and there is no random walk behavior of successive prices. However, rest of ([29] shares is efficient and subsequent prices are randomly distributed. If more meaning fully expressed, 41% of high capitalized stocks dependent on past prices. The results suggest that investors can predict the market return because the stock prices are not in random walk. On the other hand 59% of high capitalized sample follows random walk. In other words of the successive price changes do not follow past prices.

Results of runs test for moderate capitalized stocks

Panel 2 of Table 2 indicates runs statistics of moderate capitalized stocks. The test statistics imply that successive returns for all stocks dependent except stocks abbreviated as *MBSL, BFL, CDB, HASU, TAFL, SFS,SIRA, EDEN, CSEC, VFIN, CSD, CFVF, CTLD,STAF.* Under the low

capitalization sample, 26% of stocks indicated weak –form efficiency and rest of 64% indicate that those stocks are not efficient during the period of 2011 to 2015.

Results of runs test for low capitalization stocks

Panel 3 of Table 2 presents runs test results for low capitalization stocks. Based on the results we have sufficient evidence to reject null hypothesis of successive price changes are independent and accept alternative of successive price changes are dependent. In other words all 21 stocks are not weak-form efficient. The results imply that investors can predict the behavior of future movement of stock prices and return based on past price series.

Specially, runs test result indicates that a clear positive relationship of weak from efficiency with market capitalization of stocks. In here, we identified 59%, 26% and 0% weak form efficient stocks under high, moderate and low capitalization in respectively. In other words, when market capitalization drops the price adjustment to the new information is not efficient. It means if market capitalization drops in a particular stock then there is a high probability to become as an inefficient stock.

Table 2: Results of Runs Test

Panel 1: High Capitalization Stocks						
Stock	K=Mean	Cases<K	Cases>K	No. of Runs	Z-Value	P-value
JKH	-.0004	574	623	473	-7.270	.000*
CARS	-.0003	467	642	555	.820	.412
BUKI	-.0005	479	651	594	2.504	.012*
CTC	.0009	691	452	549	.092	.927
SLTL	.0000	549	628	655	3.993	.000*
COMB	-.0005	516	683	535	-3.174	.002*
DIAL	-.0001	378	824	561	2.794	.005*
SPEN	-.0008	424	520	494	1.703	.089**
NEST	.0010	715	399	535	1.423	.155
HNB	-.0007	447	504	486	.730	.465
CARG	-.0001	448	614	540	1.320	.187
DIST	.0003	703	489	589	.671	.502
LOLC	-.0003	552	632	568	-1.303	.193
AHPL	-.0011	479	602	604	4.285	.000*
SAMP	-.0001	581	621	564	-2.157	.031*
DFCC	-.0001	567	632	579	-1.144	.253
HAYL	-.0001	448	623	550	1.746	.081**
VONE	-.0003	487	593	522	-.848	.396
AHUN	-.0004	539	619	627	2.940	.003*
LOFC	-.0012	351	724	518	3.068	.002*
NDB	-.0005	557	642	521	-4.442	.000*
CFIN	-.0009	431	975	585	-.864	.388
GUAR	-.0003	488	582	543	.686	.493
LLUB	.0008	876	318	426	-3.084	.002*
KHL	-.0003	432	764	563	.632	.527
EXPO	-.0005	388	709	548	3.004	.003*
RICH	-.0002	391	811	547	1.208	.227
HHL	.0006	687	513	589	.036	.971
BRWN	-.0008	560	609	587	.148	.882
SINS	-.0002	404	679	538	1.977	.048*
DOCK	-.0005	487	651	558	-.011	.991
RCL	-.0008	545	636	643	3.222	.001*
SHL	-.0001	462	616	532	.187	.852
NTB	.0000	686	516	583	-.411	.681
LGL	.0004	682	520	601	.583	.560
OSEA	.0003	768	427	570	1.270	.204
SEYB	.0000	541	646	644	3.169	.002*
LHCL	.0006	716	479	596	1.265	.206
CINV	-.0004	552	594	596	1.348	.178
LIOC	.0006	714	479	586	.702	.483
UML	-.0002	558	617	621	1.989	.047*
CCS	-.0002	448	593	522	.670	.503
TYKO	-.0001	512	668	587	.374	.708
PABC	-.0005	518	680	591	.115	.908
UBC	-.0006	512	634	553	-.867	.386
DIPD	-.0001	459	622	570	2.540	.011*
VEPL	.0000	374	824	549	2.256	.024*

Panel 2: Moderate Capitalization Stocks

Stock	K=Mean	Cases<K	Cases>K	No. of Runs	Z-Value	P-value
MBSL	0.0000	583	617	592	-.492	.622
CHOT	0.0000	457	657	612	4.457	.000*
LMF	0.0000	409	604	525	2.368	.018*
FLCH	0.0000	269	866	458	3.820	.000*
COLO	0.0000	442	649	562	2.208	.027*
SERV	0.0000	496	682	623	2.851	.004*
VLL	0.0000	360	796	543	3.172	.002*
EAST	0.0000	528	658	627	2.360	.018*
LCEM	0.0000	537	619	654	4.608	.000*
CLPL	0.0000	517	541	602	4.448	.000*
BFL	-0.0008	570	607	593	.238	.812
HPWR	0.0000	497	678	653	4.690	.000*
CWM	0.0000	476	545	573	4.016	.000*
CDB	0.0000	546	611	593	.904	.366
HASU	0.0000	459	623	550	1.272	.203
RAL	0.0000	345	852	561	4.855	.000*
KGAL	0.0000	510	616	592	1.985	.047*
RHTL	0.0000	519	621	622	3.319	.001*
TAFL	-0.0018	595	598	587	-.608	.543
ATL	0.0000	251	947	467	6.039	.000*
RHL	0.0000	551	607	635	3.321	.001*
KAHA	0.0000	453	554	619	7.616	.000*
SFS	0.0000	381	709	501	.290	.772
SIRA	0.0000	88	150	125	1.823	.068
BBH	0.0000	495	673	659	5.248	.000*
PAP	0.0000	298	900	513	4.970	.000*
EDEN	0.0000	496	653	607	2.540	.011
CSEC	0.0000	533	616	593	1.216	.224
BOGA	-0.0007	553	553	612	3.490	.000*
CSD	0.0000	485	696	608	2.126	.034
VFIN	0.0000	546	641	597	.368	.713
ELPL	0.0000	522	613	623	3.476	.001*
PEG	0.0000	494	545	592	4.527	.000*
CFVF	0.0000	563	629	610	.862	.389
SEMB	0.0000	248	951	465	6.219	.000*
NAMU	0.0000	486	552	600	5.120	.000*
MGT	0.0000	503	632	597	2.156	.031*
CTLD	0.0000	488	615	568	1.393	.164
STAF	0.0000	374	639	493	1.361	.174

Panel 3: Low Capitalization Stocks

Stock	K=Mean	Cases<K	Cases>K	No. of Runs	Z-Value	P-value
HPFL	0.0000	510	642	646	4.574	.000*
MARA	0.0000	452	744	629	4.039	.000*
RWSL	0.0000	319	857	537	5.245	.000*
BOPL	0.0000	478	653	615	3.782	.000*
MFL	-0.0020	509	511	568	3.571	.000*
LDEV	0.0000	528	645	634	3.088	.002*
SINI	-0.0005	490	497	549	3.473	.001*

HOPL	0.0000	509	608	589	2.045	.041*
CTBL	0.0000	375	771	592	5.801	.000*
BLUE	0.0000	397	804	572	2.574	.010*
TESS	0.0000	320	882	532	4.535	.000*
ABAN	0.0000	514	562	593	3.366	.001*
MULL	0.0000	276	914	509	6.842	.000*
TPL	0.0000	431	628	590	4.957	.000*
BALA	0.0000	558	592	610	2.038	.042*
MASK	0.0000	465	599	574	3.082	.002*
ACME	0.0000	556	634	624	1.780	.075*
LITE	0.0000	460	712	624	3.928	.000*
ALUF	0.0000	543	588	609	2.586	.010*
YORK	0.0000	560	577	614	2.649	.008*
CHOU	0.0000	522	581	620	4.174	.000*

Note: * (**) indicates statistically significant at 5% (10%) significant level. Z value is greater than or equal to +/- 1.96 null hypothesis of successive price changes are independent cannot be accepted.

Autocorrelation results for high capitalization stocks

Table 3 presents the results of autocorrelation test under three categories of portfolios up to five lags. Weak from efficiency indicates the responsiveness of immediate past information. Therefore we tested autocorrelation up to five lags. Under high capitalization stocks, CARS, AHPL, AHUN and LOFC shows significant negative autocorrelation at lag 1 to 5. All the stocks appears significant negative autocorrelations at different lags except COMB, DIAL, SPEN,HNB,DIST, DFCC, CFIN,HHL, BRWN, OSEA, CCS, LIOC,UBC, SAMP, SHL,NDB. It means that those stocks hold weak form efficiency at different lags and returns cannot be predicted. Moreover, SAMP, SHL and NDB provide evidence for dependency of stock returns and predictability of stock returns at short run. SAMP indicates significant positive autocorrelation at lag 1 to 5. SHL shows significant positive autocorrelation at lag 1 and 3, NDB at lag 2.

According to autocorrelation test results approximately 71% of stocks which were under high capitalized category hold weak form efficient at different lags. According to runs test statistic also showed that COMB, DIAL, SPEN, SAMP, SHL, NDB violates random walk model.

Autocorrelation results for moderate capitalization stock

The results of serial correlation of moderate capitalized stocks are reported in the second part of the Table 5.2. It indicates that SFS, SIRA, BBH, CSD, VFIN, CFVF were statistically insignificant at lag 1 to 5. Rest of all securities was statistically significant and negative at different lags.

Autocorrelation results for low correlation stock

Bottom part of the Table 5.2 depicts autocorrelation of low capitalized stocks. According to test statistics all the stocks were showed negative and statistically

significant autocorrelation coefficients at different lags from 1 to 5. Finally, we can conclude that 85% of moderate capitalized stocks and 100% of low capitalized stocks follow random walk at different lags. Put in to other terms, majority of moderate and low capitalized stocks hold weak form efficient and investors cannot make profit because predictability of stocks returns are impossible in Colombo Stock Exchange.

However, autocorrelation result shows contrary results from runs statistics for SFS, SIRA, CSD, VFIN, CFVF stocks. Under the runs test those five stocks confirm independency of its successive price changes but under autocorrelation test it shows violation of random walk model. Same as it, all low capitalized stocks were inefficient under runs test but autocorrelation statistics implies efficiency of all low capitalized stocks at different lags.

Table 5.2: Autocorrelation test statistics

Panel 1: High Capitalization Stocks					
Stock	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5
JKH	.123*	.023*	-.018*	-.025*	-.006*
CARS	-.206*	-.015*	-.012*	-.061*	-.035*
BUKI	-.05**	.003	-.037	-.021	-.012
CTC	-.072*	.043*	-.003*	-.061*	.008*
SLTL	-.150*	-.018*	-.039*	-.031*	.013*
COMB	.032	-.006	.010	-.007	.002
DIAL	-.026	-.013	.002	.015	.039
SPEN	-.007	.010	.004	-.053	-.017
NEST	-.156*	-.032*	.073*	-.012*	.043*
HNB	-.038	.017	.028	-.003	.010
CARG	-.144*	-.066*	.001*	-.029*	.017*
DIST	-.026	.017	.026	.060	.035
LOLC	.071*	.001**	.113*	-.012*	.022*
AHPL	-.090*	-.037*	-.032*	-.030*	-.001*
SAMP	.081*	.041*	.043*	.022*	.029*
DFCC	.030	.021	-.007	.016	-.007
HAYL	-.202*	-.097*	.023*	.052*	-.052*
VONE	.124*	-.035*	.039*	-.014*	-.026*
AHUN	-.216*	-.030*	-.040*	-.009*	-.044*
LOFC	-.097*	-.008*	-.029*	-.027*	-.007*
NDB	.032	.053**	.003	.006	.006
CFIN	-.005	.009	-.005	-.004	.002
GUAR	-.109*	.009*	-.036*	-.040*	-.001*
LLUB	.052**	.059*	.000**	.008	-.037
KHL	-.041	-.078*	-.012*	-.043*	.044*
EXPO	-.062*	-.037**	-.035**	.010	.032
RICH	-.002	-.014	-.051	.069**	-.024**
HHL	-.038	-.039	.044	-.017	-.019
BRWN	.002	-.052	-.003	.017	.027
SINS	-.092*	-.052*	.038*	-.064*	-.031*
DOCK	-.191*	.025*	-.082*	.037*	.014*

DOCK	-.191*	.025*	-.082*	.037*	.014*
RCL	-.065*	-.043*	.000**	.031**	.014
SHL	.053**	-.036	.049**	-.005	.012
NTB	.006	-.051	-.008	.031	-.021
LGL	.101*	-.019*	-.004*	-.033*	-.008*
OSEA	.025	-.029	-.017	-.017	-.010
SEYB	-.191*	-.004*	.006*	.002*	-.039*
LHCL	.027*	-.086*	.034*	.044*	-.034*
CINV	-.165*	.026*	-.038*	.023*	.028*
LIOC	-.004	.013	.057	-.022	.039
UML	-.062*	.040*	.010**	.034**	.000
CCS	-.021	.026	.050	.002	.012
TYKO	-.080*	-.066*	.020*	.004*	.049*
PABC	.000	-.092*	.017*	.024*	-.024*
UBC	.045	.033	-.004	-.003	-.02
DIPD	-.192*	-.082*	.039*	-.016*	.053*
VEPL	-.091*	-.007*	.001*	.046*	-.019*
Negative significant coefficients	22	20	15	16	16
Positive significant coefficients	07	10	17	12	11
Panel 2: Moderate Capitalization companies					
MBSL	.003	-.058	-.072*	.006*	-.065*
CHOT	-.237*	-.067*	.034*	.006*	.015*
LMF	-.186*	-.040*	-.033*	.028*	-.019*
FLCH	-.222*	-.066*	.042*	-.007*	-.033*
COLO	-.044	-.088*	-.004*	.021*	-.015*
SERV	-.157*	-.028*	.043*	-.014*	.060*
VLL	-.101*	-.082*	-.017*	.018*	.015*
EAST	.102*	.021*	.077*	.040*	.058*
LCEM	.015	-.047	-.037	-.075*	-.063*
CLPL	-.206*	-.078*	.025*	-.022*	-.022*
BFL	.026	-.070*	.020**	.039**	.012
HPWR	-.189*	-.019*	.035*	.025*	-.011*
CWM	-.281*	-.054*	-.070*	.104*	-.052*
CDB	-.057**	-.053*	.007**	.018	-.016
HASU	-.156*	-.078*	-.030*	.042*	-.029*
RAL	-.159*	-.014*	.020*	.009*	-.012*
KGAL	-.055**	-.047**	.003*	.059**	-.025*
RHTL	-.077*	-.018*	-.066*	.026*	-.028*
TAFL	.064*	-.006**	.021	.020	.013
ATL	-.297*	-.075*	.034*	-.030*	.030*
RHL	-.133*	-.056*	-.051*	.014*	.042*
KAHA	-.344*	-.040*	.009*	.008*	-.003*
SFS	-.037	.006	-.001	-.010	-.019
SIRA	-.083	-.041	-.046	-.113	.064
BBH	.001	.040	.040	-.020	.024
PAP	-.190*	.019*	.019*	-.055*	.008*
EDEN	-.186*	-.019*	-.023*	.001*	-.025*
CSEC	-.079*	-.034*	-.018*	-.033*	.004**
BOGA	-.128*	-.076*	-.046*	-.008*	.015*
CSD	-.032	-.048	-.026	-.012	.045
VFIN	-.044	-.032	-.014	.005	.022

ELPL	-.126*	-.117*	-.008*	.039*	-.042*
PEG	-.221*	-.051*	.028*	-.008*	-.063*
CFVF	.022	.010	.000	.051	.021
SEMB	-.344*	-.013*	.001*	-.052*	.090*
NAMU	-.238*	-.053*	.009*	-.068*	.080*
MGT	-.115*	-.041*	-.056*	.043*	.041*
CTLD	-.128*	-.127*	-.031*	-.051*	.020*
Negative significant coefficients	25	29	15	12	17
Positive significant coefficients	02	01	15	17	13
Panel 3: Low capitalization stocks					
STAF	-.204*	-.040*	-.032*	-.019*	-.022*
HPFL	-.125*	-.042*	.022*	-.053*	-.035*
MARA	-.105*	-.048*	.038*	-.015*	.012*
RWSL	-.279*	-.016*	-.012*	-.028*	.025*
BOPL	-.172*	-.079*	-.016*	-.060*	.020*
MFL	-.115*	-.036*	.027*	.059*	-.117*
LDEV	-.051**	-.033	.005	.046	.029
SINI	-.064*	-.105*	-.019*	-.013*	.032*
HOPL	-.090*	-.069*	.031*	.019*	.006*
CTBL	-.151*	-.019*	.038*	.025*	-.018*
BLUE	-.053**	-.039**	-.009	.005	-.035
TESS	-.192*	-.070*	-.008*	.017*	-.053*
ABAN	-.207*	-.076*	.079*	-.073*	-.055*
MULL	-.278*	-.061*	.000*	-.014*	-.013*
TPL	-.278*	-.061*	.000*	-.014*	-.013*
BALA	-.183*	-.070*	.061*	-.021*	-.009*
MASK	-.214*	-.030*	-.028*	-.012*	.044*
ACME	-.044	-.031	.037	-.008	-.032
LITE	-.108*	.019*	-.021*	.016*	-.074*
ALUF	.053**	-.044**	-.005	.001	-.037
YORK	-.045	-.109*	.031*	-.043*	-.052*
CHOU	-.197*	-.060*	.091*	-.054*	-.013*
	21	19	7	14	12
	1	1	11	03	06

Note: A *(**) denotes the statistically significant at 5% level

Results of variance test ratio

In this section the results of Lo and Mackinlay (1988) individual variance ratio test is summarized which used to investigate weak form efficiency of individual stocks listed in Colombo Stock Exchange. As similar to other tests we tested null hypothesis of stock is efficient in weak form against the alternative hypothesis of stock is not efficient in weak form. In panel 1 of Table 4 shows individual variance ratio statistics for high capitalized stocks, the panel 2 presents the results for moderate capitalized and panel 3 reports the summary of the low capitalized stocks.

As suggested in the results for high capitalized stocks, all the stocks except COMB, NDB, CFIN, CCS and PABC

provide supportive evidence to reject null hypothesis of high capitalization stocks weak-form efficient and accept alternative hypothesis that high capitalization stocks are not weak-form efficient due to Z value does not fall in between +/- 1.96 and p-value also less than 0.05. Therefore, rejection of null hypothesis concluded that all stocks in high capitalized category except COMB, NDB, CFIN, CCS and PABC not following Fama's (1965) assumption of weak form efficient. In moderate capitalized stocks, SFS confirms weak form efficiency and rest of all securities followed non-randomness and not efficient. At last, all low capitalized stocks against the theory of weak form efficient and all these stocks are not weak-form efficient.

Variance ratio test provides evidence to against weak form hypothesis. It means that there are undervalued and overvalued stocks in the Colombo Stock Exchange and investors can make profit from playing with undervalued and overvalued stocks. In other words finally, variance ratio statistic confirms that market capitalization of stocks not matter for efficiency of stocks.

Table 5.3: Results of variance ratio test

Panel 1: High Capitalization Stocks											
Stock	Period 2			Period 4			Period 8			Period 16		
	VR(J)	Z(j)	P-value	VR(J)	Z(j)	P-value	VR(J)	Z(j)	P-value	VR(J)	Z(j)	P-value
JKH	0.55	-2.08	0.03*	0.29	-2.2	0.02*	0.13	2.27	0.02*	0.07	2.21	0.02*
CARS	0.42	7.22	0.00*	0.22	-6.05	0.00*	0.10	-5.26	0.00*	0.05	-4.4	0.00*
BUKI	0.47	-6.0	0.00*	0.24	-4.9	0.00*	0.11	-4.2	0.00*	0.06	-3.6	0.00*
CTC	0.44	-7.42	0.00*	0.24	-6.10	0.00*	0.11	5.40	0.00*	0.06	4.49	0.00*
SLTL	0.44	-12.1	0.00*	0.22	9.88	0.00*	0.10	7.90	0.00*	0.05	6.05	0.00*
COMB	0.52	-1.20	0.23	0.26	-1.23	0.22	0.12	-1.24	0.21	0.06	-1.23	0.21
DIAL	0.49	-10.8	0.00*	0.24	-8.68	0.00*	0.11	-7.03	0.00*	0.06	-5.64	0.00*
SPEN	0.49	-2.90	0.00*	0.26	-2.78	0.00*	0.12	-2.73	0.00*	0.06	-2.48	0.01*
NEST	0.44	-7.87	0.00*	0.21	-6.63	0.00*	0.10	-5.50	0.00*	0.05	4.50	0.00*
HNB	0.47	-2.37	0.01*	0.24	-2.26	0.02*	0.12	-2.23	0.02*	0.05	-2.20	0.02*
CARG	0.46	-9.21	0.00*	0.22	-8.15	0.00*	0.11	-6.98	0.00*	0.05	-5.67	0.00*
DIST	0.47	-10.3	0.00*	0.23	-8.85	0.00*	0.11	-7.04	0.00*	0.05	-5.58	0.00*
LOLC	0.53	-10.7	0.00*	0.27	-9.80	0.00*	0.12	-8.19	0.00*	0.06	-6.28	0.00*
AHPL	0.47	-2.34	0.01*	0.23	-2.26	0.02*	0.11	-2.24	0.02*	0.06	-2.18	0.03*
SAMP	0.52	-9.72	0.00*	0.26	-8.61	0.00*	0.12	-7.17	0.00*	0.06	-5.57	0.00*
DFCC	0.50	-10.9	0.00*	0.25	-9.62	0.00*	0.12	-7.96	0.00*	0.06	-6.37	0.00*
HAYL	0.45	-8.42	0.00*	0.19	-7.54	0.00*	0.10	-6.16	0.00*	0.05	-5.07	0.00*
VONE	0.59	-6.93	0.00*	0.28	-7.28	0.00*	0.13	-6.15	0.00*	0.07	-4.88	0.00*
AHUN	0.42	-11.4	0.00*	0.20	-9.18	0.00*	0.09	-7.36	0.00*	0.05	-5.70	0.00*
LOFC	0.45	-10.3	0.00*	0.23	-8.69	0.00*	0.11	-7.29	0.00*	0.05	5.84	0.00*
NDB	0.48	-1.50	0.13	0.25	-1.45	0.14	0.12	-1.46	0.14	0.06	-1.45	0.14
CFIN	0.49	-1.09	0.27	0.25	-1.08	0.27	0.12	-1.09	0.27	0.06	-1.08	0.27
GUAR	0.44	-4.75	0.00*	0.23	-4.16	0.00*	0.10	-3.91	0.00*	0.05	-3.52	0.00*
LLUB	0.49	-6.55	0.00*	0.26	-5.94	0.00*	0.13	-5.40	0.00*	0.06	-4.71	0.00*
KHL	0.52	-10.8	0.00*	0.25	-9.99	0.00*	0.11	-8.22	0.00*	0.05	-6.34	0.00*
EXPO	0.48	-10.3	0.00*	0.23	-8.9	0.00*	0.12	-7.09	0.00*	0.05	5.58	0.00*
RICH	0.50	-9.62	0.00*	0.23	-8.81	0.00*	0.12	-7.21	0.00*	0.06	-5.84	0.00*
HHL	0.50	-10.2	0.00*	0.24	-9.0	0.00*	0.11	-7.32	0.00*	0.05	-5.67	0.00*
BRWN	0.52	-9.95	0.00*	0.24	-9.21	0.00*	0.12	-7.36	0.00*	0.06	-5.72	0.00*
SINS	0.48	-2.88	0.00*	0.24	-2.78	0.00*	0.11	-2.74	0.00*	0.05	-2.66	0.00*

DOCK	0.40	-6.51	0.00*	0.20	-5.24	0.00*	0.09	-4.47	0.00*	0.05	-3.81	0.00*
RCL	0.49	-2.00	0.04*	0.22	-2.02	0.04*	0.08	-2.03	0.04*	0.04	-1.96	0.04*
SHL	0.54	-8.63	0.00*	0.26	-8.49	0.00*	0.13	-7.28	0.00*	0.07	-5.79	0.00*
NTB	0.52	-9.61	0.00*	0.24	-8.91	0.00*	0.12	-7.25	0.00*	0.06	-5.62	0.00*
LGL	0.56	-7.54	0.00*	0.28	-7.36	0.00*	0.13	-6.13	0.00*	0.06	-4.78	0.00*
OSEA	0.52	-8.72	0.00*	0.26	-7.87	0.00*	0.13	-6.66	0.00*	0.07	-5.39	0.00*
SEYB	0.42	-11.0	0.00*	0.21	-8.87	0.00*	0.11	7.07	0.00*	0.05	-5.72	0.00*
LHCL	0.55	-5.35	0.00*	0.24	-4.79	0.00*	0.12	-3.74	0.00*	0.06	-3.15	0.00*
CINV	0.41	-7.76	0.00*	0.21	-6.53	0.00*	0.11	-5.61	0.00*	0.05	-4.78	0.00*
LIOC	0.49	-9.28	0.00*	0.25	-8.01	0.00*	0.12	-6.67	0.00*	0.06	-5.45	0.00*
UML	0.45	-5.17	0.00*	0.22	-4.72	0.00*	0.11	-4.39	0.00*	0.05	-3.99	0.00*
CCS	0.47	-1.63	0.10	0.24	-1.58	0.11	0.12	-1.56	0.11	0.05	-1.55	0.12
TYKO	0.49	-10.5	0.00*	0.23	-9.56	0.00*	0.11	-7.71	0.00*	0.05	-6.02	0.00*
PABC	0.54	-1.62	0.10	0.24	-1.78	0.07	0.12	-1.76	0.07	0.06	-1.72	0.08
UBC	0.50	-7.35	0.00*	0.26	-6.67	0.00*	0.14	-5.80	0.00*	0.06	-4.96	0.00*
DIPD	0.45	-8.38	0.00*	0.21	-7.29	0.00*	0.10	-6.26	0.00*	0.05	-5.17	0.00*
VEPL	0.46	-8.16	0.00*	0.21	-7.08	0.00*	0.11	-5.87	0.00*	0.05	-4.86	0.00*
Panel 2: Moderate capitalization shares												
MBSL	0.53	-9.33	0.00*	0.25	-8.68	0.00*	0.12	-7.14	0.00*	0.06	-5.59	0.00*
CHOT	0.43	-10.6	0.00*	0.20	-8.84	0.00*	0.09	-7.15	0.00*	0.05	-5.56	0.00*
LMF	0.43	-9.81	0.00*	0.20	-8.29	0.00*	0.10	-6.79	0.00*	0.05	-5.43	0.00*
FLCH	0.43	-12.8	0.00*	0.20	-10.4	0.00*	0.10	-8.12	0.00*	0.04	-6.19	0.00*
COLO	0.51	-7.16	0.00*	0.23	-7.08	0.00*	0.11	-6.15	0.00*	0.06	-5.13	0.00*
SERV	0.44	-8.95	0.00*	0.21	-7.68	0.00*	0.10	-6.41	0.00*	0.05	-5.09	0.00*
VLL	0.49	-6.74	0.00*	0.22	-6.52	0.00*	0.11	-5.81	0.00*	0.05	-5.02	0.00*
EAST	0.54	-7.40	0.00*	0.26	-7.18	0.00*	0.13	-6.29	0.00*	0.07	-5.18	0.00*
LCEM	0.53	-9.35	0.00*	0.27	-6.41	0.00*	0.12	-4.84	0.00*	0.07	-3.92	0.00*
CLPL	0.44	-11.7	0.00*	0.21	-9.88	0.00*	0.10	-7.83	0.00*	0.05	-6.00	0.00*
BFL	0.54	-9.60	0.00*	0.24	-8.89	0.00*	0.11	-7.08	0.00*	0.06	-5.56	0.00*
HPWR	0.42	-9.84	0.00*	0.20	-7.93	0.00*	0.10	-6.34	0.00*	0.05	-5.05	0.00*
CWM	0.41	-9.91	0.00*	0.17	-8.28	0.00*	0.09	-6.61	0.00*	0.05	-5.28	0.00*
CDB	0.49	-7.98	0.00*	0.23	-7.25	0.00*	0.11	-5.92	0.00*	0.05	-4.83	0.00*
HASU	0.46	-10.9	0.00*	0.20	-9.67	0.00*	0.11	-7.59	0.00*	0.05	-5.74	0.00*
RAL	0.43	-9.08	0.00*	0.21	-7.74	0.00*	0.11	-6.49	0.00*	0.05	-5.37	0.00*
KGAL	0.49	-4.58	0.00*	0.22	-4.56	0.00*	0.12	-3.88	0.00*	0.06	-3.07	0.00*
RHTL	0.47	-11.5	0.00*	0.22	-9.96	0.00*	0.11	-7.99	0.00*	0.05	-6.31	0.00*
TAFL	0.53	-8.74	0.00*	0.26	-8.05	0.00*	0.12	-6.79	0.00*	0.06	-5.41	0.00*
ATL	0.41	-11.7	0.00*	0.19	-9.73	0.00*	0.10	-7.98	0.00*	0.04	-6.37	0.00*
RHL	0.46	-9.86	0.00*	0.21	-8.68	0.00*	0.10	-7.16	0.00*	0.05	-5.70	0.00*
KAHA	0.38	-11.8	0.00*	0.18	-9.3	0.00*	0.08	-7.28	0.00*	0.04	-5.54	0.00*
SFS	0.47	-1.30	0.19	0.24	-1.26	0.20	0.12	-1.26	0.20	0.06	-1.25	0.20
SIRA	0.47	-3.33	0.00*	0.25	-2.95	0.00*	0.13	-2.67	0.00*	0.06	-2.28	0.02*
BBH	0.48	-1.72	0.08***	0.25	-1.64	0.10	0.12	-1.65	0.09**	0.06	-1.63	0.10
PAP	0.41	-4.45	0.00*	0.22	-3.85	0.00*	0.10	-3.65	0.00*	0.05	-3.32	0.00*
EDEN	0.42	-10.9	0.00*	0.21	-8.97	0.00*	0.10	-7.30	0.00*	0.05	-5.77	0.00*
CSEC	0.48	-7.96	0.00*	0.24	-7.27	0.00*	0.12	-6.27	0.00*	0.05	-5.15	0.00*
BOGA	0.47	-11.2	0.00*	0.22	-9.76	0.00*	0.11	-7.87	0.00*	0.05	-6.21	0.00*
CSD	0.50	-9.99	0.00*	0.24	-9.01	0.00*	0.11	-7.33	0.00*	0.05	-5.60	0.00*
VFIN	0.49	-3.31	0.00*	0.23	-3.24	0.00*	0.11	-3.10	0.00*	0.06	-2.91	0.00*
ELPL	0.49	-8.61	0.00*	0.21	-7.83	0.00*	0.10	-6.37	0.00*	0.05	-4.88	0.00*
PEG	0.43	-11.9	0.00*	0.20	-9.85	0.00*	0.10	-7.95	0.00*	0.05	-6.09	0.00*
CFVF	0.50	-9.08	0.00*	0.24	-8.32	0.00*	0.12	-6.99	0.00*	0.06	-5.62	0.00*
SEMB	0.37	-8.98	0.00*	0.19	-6.87	0.00*	0.09	-5.43	0.00*	0.04	-4.04	0.00*
NAMU	0.42	-10.5	0.00*	0.21	-8.31	0.00*	0.09	-6.52	0.00*	0.05	-5.05	0.00*
MGT	0.46	-9.13	0.00*	0.21	-8.16	0.00*	0.11	-6.68	0.00*	0.06	-5.26	0.00*
CTLD	0.49	-12.0	0.00*	0.23	-10.4	0.00*	0.10	-8.3	0.00*	0.06	-6.21	0.00*
STAF	0.43	-9.44	0.00*	0.21	-7.94	0.00*	0.10	-6.67	0.00*	0.05	-5.24	0.00*

Panel 3: Low capitalization shares											
HPFL	0.46	-10.8	0.00*	0.23	-8.96	0.00*	0.10	-7.47	0.00*	0.05	-5.94	0.00*
MARA	0.47	-9.01	0.00*	0.22	-8.09	0.00*	0.10	-6.95	0.00*	0.06	-5.74	0.00*
RWSL	0.39	-12.7	0.00*	0.20	-10.1	0.00*	0.09	-8.17	0.00*	0.05	-6.20	0.00*
BOPL	0.46	-9.36	0.00*	0.22	-8.07	0.00*	0.10	-6.84	0.00*	0.04	-5.40	0.00*
MFL	0.46	-10.5	0.00*	0.21	-9.04	0.00*	0.10	-7.25	0.00*	0.05	-5.74	0.00*
LDEV	0.49	-3.15	0.00*	0.22	-3.17	0.00*	0.11	-3.06	0.00*	0.06	-2.92	0.00*
SINI	0.51	-7.56	0.00*	0.24	-7.23	0.00*	0.12	-6.24	0.00*	0.05	-5.18	0.00*
HOPL	0.49	-9.26	0.00*	0.22	-8.23	0.00*	0.11	-6.72	0.00*	0.05	-5.35	0.00*
CTBL	0.44	-11.3	0.00*	0.21	-9.31	0.00*	0.10	-7.44	0.00*	0.05	-5.85	0.00*
BLUE	0.49	-10.9	0.00*	0.23	-9.53	0.00*	0.12	-7.56	0.00*	0.06	-5.74	0.00*
TESS	0.44	-13.9	0.00*	0.20	-11.3	0.00*	0.10	-8.77	0.00*	0.05	-6.60	0.00*
ABAN	0.44	-7.87	0.00*	0.22	-6.49	0.00*	0.09	-5.30	0.00*	0.05	-4.0	0.00*
MULL	0.42	-13.7	0.00*	0.20	-10.8	0.00*	0.09	-8.4	0.00*	0.04	-6.48	0.00*
TPL	0.38	-7.48	0.00*	0.20	-5.92	0.00*	0.08	-5.01	0.00*	0.05	-3.86	0.00*
BALA	0.45	-11.1	0.00*	0.21	-9.20	0.00*	0.10	-7.25	0.00*	0.05	-5.7	0.00*
MASK	0.42	-9.93	0.00*	0.20	-7.97	0.00*	0.09	-6.37	0.00*	0.04	-4.93	0.00*
ACME	0.49	-7.63	0.00*	0.24	-7.07	0.00*	0.13	-5.92	0.00*	0.06	-4.86	0.00*
LITE	0.44	-10.8	0.00*	0.22	-8.86	0.00*	0.11	0.00*	-7.21	0.05	-5.70	0.00*
ALUF	0.55	-6.79	0.00*	0.26	-6.8	0.00*	0.13	-5.99	0.00*	0.06	-4.99	0.00*
YORK	0.53	-8.43	0.00*	0.25	-7.69	0.00*	0.11	-6.39	0.00*	0.06	-5.16	0.00*
CHOU	0.44	-10.3	0.00*	0.22	-8.41	0.00*	0.10	-6.78	0.00*	0.05	-5.37	0.00*

Table 4 presents the summary the results of three models which were adopted to examine the intended objective of this paper. . It clearly demonstrates that only autocorrelation test provided evidence to confirm existence of weak form efficiency of individual stocks in Colombo Stock Exchange (CSE). On the other hand, Runs test and variance ratio test statistics concluded that inefficiency of price adjustment of stocks at weak form. When it comes to three portfolios formed for the purpose, it is observed varying results. A close look to results of runs test reveals that among the high capitalization stocks majority of shares [59%] demonstrates weak-form efficiency while for the moderate capitalization stocks majority of shares [64%] are not weak-form efficient. Very interestingly, the results of the test documented that all most all stocks classified as low capitalization presents evidence against the weak-from efficiency. However, the autocorrelation test revealed totally opposite findings to that of runs test. Again, the variance test ratio bears similar results to the runs tests. However, a cursory look into the results suggests that when the market capitalization becomes small the stocks become not weak-from efficient in most of the time.

Table 5.4: Summary of statistical tests

Test	Sample	Randomness	Non randomness
Runs test	high	59%	41%
	Moderate	36%	64%
	low	0%	100%
Autocorrelation test	high	71%	29%
	Moderate	85%	15%
	low	100%	0%
Variance Ratio test	high	8%	92%
	Moderate	3%	97%
	low	0%	100%

6.   Conclusion

This study attempted to investigate weak-form efficiency of 110 stocks of CSE over the period of 2011 to 2015. To assess the effect of market capitalization on weak form efficiency, Runs test, Autocorrelation test and variance Ratio test were applied to high capitalized, moderate capitalized and low capitalized stocks separately. The results of three tests suggest mixed results of weak-form efficiency. Runs test and Variance ratio test confirm the existence of weak-form inefficiency of stocks. However, autocorrelation provided supportive evidence to conclude that stocks follow random walk and market capitalization does not matter for the weak- form efficiency. On the other hand analysis results of Runs test and Variance ratio test suggested capitalization matters for the weak form efficiency of stocks. It clearly indicates that when the market capitalization drops in stocks the stocks tend to be weak-from inefficient. It very clearly demonstrates in the results of runs test and variance ratio test which show 100% of low capitalized stocks do not follow weak form efficiency. The findings of this paper practically correct as information about low cap stocks is less available than high cap stocks and lack of information makes those stocks to mispriced. Finally, this analysis provides supporting evidence to conclude that market capitalization matters for weak form efficiency of stocks in CSE.

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