CALENDAR ANOMALIES IN SOUTH ASIAN STOCK MARKETS

Syed Zagham Abbas

Lecturer in Business Administration, University of the Punjab, Jhelum Campus, PAKISTAN.

zagham.jc.ba@pu.edu.pk

ABSTRACT

This research is conducted to test the calendar anomalies in the five south Asian stock markets namely Colombo Stock Exchange, Dhaka Stock Exchange, Karachi Stock Exchange, Maldives Stock Exchange and Bombay Stock Exchange. Basic OLS model was tested to check the day of the week, week of the month and month of the year effect. Basic model reveals these calendar anomalies in these equity markets but BDS test was applied under the assumption that returns independently and identically distributed this condition reject in all return series and also data contains Heteroscedasticity which shows that results of basic model is not much appropriate, so GARCH-M methodology was used to check the day of the week, week of the month and month of the year effect. The results of daily, weekly and monthly returns confirm the presence of calendar anomalies in the South Asian stock markets.

Keywords: *Stock Exchange, Asian stock markets, calendar anomalies*

INTRODUCTION

Now a days the studies are conducted on traditional market efficiency testing but also focus on the existence of prototype in stock returns commonly known as calendar anomalies or calendar effect after getting evidence of pattern in stock returns. Calendar anomalies concept is a contradiction of the efficient market hypothesis through a return or price distortion on the capital market. EMH states that capital markets are efficient with respect to all available information and no one can earn abnormal return on risk adjusted basis. Calendar anomalies are also known as cyclical anomalies or calendar effect and here cycle is based on the calendar. January and weekend effect are considered as basic calendar anomalies. The January effect other name is turn of the year effect and it states that as compare to other month of the year the returns January are higher and the reason behind is the low stock capitalization in early days of the January. Such as Keim researched that returns of the January are larger as compared to other eleventh months of the year. Field (1931) commence the notion of weekend effect in stock market returns, which shows the idea of superior Friday return and lower Monday return. The weekend effect which is known as day-of-the-week effect, Monday effect or Monday seasonal is referred as inclination of the stock to display fairly higher return on Friday as contrasted to stock returns those on Monday. Such as research work of French (1985) stated that average returns on Monday are significantly negative while the returns for the other four days of the week are positive.

LITERATURE REVIEW

Theobald and Price (1984) conducts the study on United Kingdom stock market indices for the time period ranging from 1975 to 1981, in both stock market indices FT 30 and the FTSE All-Share Index negative Monday returns were found. Gibbons and Hess (1981) also found

ISSN: 2307-3721, e ISSN: 2307-3713

negative Monday returns who conduct research on 30 stocks of the DJIA (Dow Jones Industrial Average).

Rahman (2009) apply GARCH (1, 1) model in the Bangladesh market also find negative Monday returns. Wingender and Groff (1989) find Monday returns are lower as compare to other days during the week from period 1962 to1985. French (1980) find that prices are down on Monday and up on other days. Monday effect is rebutted by Compton et al. (2013) using OLS technique in Russia and the US stock markets. Choy and O'Hanlon (1989) also reveal day of the week effect in UK market from the period 1984 to 1985 in share returns. Nageswari and Selvam (2011) who find the same in Indian market during 2000–2010; they find lower Tuesday return and higher Friday return.

The study by Athanassakos and Robinson (1994) on Canadian market also find negative Tuesday effect. Balaban (1995) find variable day of the week magnitude in Istanbul Stock Market. Hellstrom (2002) finds lowest Monday returns and highest Thursday returns from the period ranging 1987 to 1996 in Swedish stock market. Berk et al. (2003) analyze the Istanbul Stock Exchange from the period ranging 1988 to 1999, and they find the lower Monday returns. Same result is find by Berument et al. (2004) who use GARCH methodology on Istanbul stock market but Balaban (1995) study on Istanbul Stock Exchange during 1988–1994 refute the results. Positive Thursday and Friday returns in the Indian market during 1991–2000 find by Bhattacharya et al. (2003). The results are consistent with Sarma (2004) from the period ranging 1996 to 2002; Investors can gain abnormal profit in Indian stock markets. Raj and Kumari (2006) explore day of the week effect in using dummy variables using multiple regression techniques on the Indian market from the period ranging from 1979 to 1998 and find significant positive Monday and significant negative Tuesday returns. The same is found by Brooks and Persand in 2006 on Malaysia and Thailand market form the period ranging 1989 to 1996. Patev et al. (2003) conduct a research on Hungarian, Romanian, Chez, Latvian, Slovak, Russian, Polish, and Slovenian from the period ranging 1997 to 2002, and observe negative significant Monday returns in the Romanian and Czech markets but a positive significant Wednesday return in the Slovenian market, Slovak and Polish results are insignificant.

A research conduct by Aly et al. (2004) found Monday effect in the Egyptian stock market from the period ranging 1998 to 2001.Yalcin and Yucel (2006) conduct a research on China, Bulgaria, Czech, Colombia, Estonia Republic, India, Hungary, Israel, Indonesia, Malaysia, Lithuania, Poland, Mexico, South Africa, Russia, Slovenia, South Korea, Thailand, Turkey and Taiwan from the period ranging 1994 to2005.They used GARCH methodology; they found Friday Effect and high volatility on Monday lower volatility on Tuesday and Friday. Chen et al. (2001) used GARCH model in his research and his research negates day-of-the-week effect from the period ranging 1992 to 1997 in different Chines stock market.

Arora and Das (2007) use Augmented Dummy Regressive model to study the day or the week effect in the Indian National Stock Exchange from the period ranging 1994 to 2007; they found that Friday and Monday effect. Kumar and Deo (2007) also conduct research on Indian Stock Market during 1997-2005; they use Modified Levene test which showed Friday and Wednesday effect. Agathee (2008) finds significant Friday effect. Poshakwale (1996) uses mean and standard deviation and found significant higher Friday effect. Das and Jariya (2009) conduct a research on Sri Lankan stock exchange. They use autoregressive model to test the day of the week effect from the period ranging 1985 to 2004 and find the day-of-the-week effect in the Colombo Stock Exchange, Other days return are lower as compare to Friday. Rahman (2009) use GARCH (1, 1) and find a positive Thursday and a negative Sunday and Monday effect in the Dhaka Stock Exchange from the period ranging 2005 to

ISSN: 2307-3721, e ISSN: 2307-3713

2008. Bepari and Mollik (2009) find the April and July effects Dhaka Stock Exchange from the period ranging 1993 to 2006. Mittal and Jain (2009) use ANOVA technique and day-of-the-week effect is not found in the Indian market from the period ranging 2007 to 2008. This same is found by Nageswari and Babu (2011) who used Linear regression and Ordinary Least Square method, they find lower Monday and higher Friday returns in the Indian market from the period ranging 2002 to 2010. Badhani and Tripathy (2009) use autocorrelation test in his research and find no turn of the week effect in Indian stock market from the period ranging 1995 to 2007. Durga (2012) also observe no day-of-the-week effect in the National Stock Exchange of India from the period ranging 2005 to 2009.

Siddiqui and Narula (2013) use GARCH (1, 1) model in his research on US stock markets and reveal the insignificant results for turn of the week effect, they also find negative Tuesday effect. A study conduct by Haroon and Shah (2013) using OLS model on Karachi Stock Exchange reveal different results for different time periods. Day of the week is not evident from 2004 to 2007 and negative Monday returns and positive Friday returns during 2008 to 2011 possibly due to political instability and elections.

Ignatius (1992) conducts a research on Indian and US stock market, he uses F- test and find week of the month effect in these stock markets. January effect reveal by Berges et al. (1984) by examining Canadian stock market from the period ranging 1950 to 1980 using t statistics.

In US market from the period ranging 1802–2004 same is found in 2006 by Haug and Hirschey. December effect reveal by Ignatius (1992) by using F- test in Indian and US stock markets from the period ranging 1979 to 1990. Tonchev and Kim (2004) explore different calendar anomalies in some of the Eastern European countries. They use OLS and GARCH techniques and find weak evidence of January effect. Research conduct by Mehta and Chander (2009) from the period raging 1999-2007 using regression model, F-test and Kruskal-Wallis H test on BSE and find no turn of the year effect. In 2008 Chakrabarti and Sen conduct a research on sector level in Indian stock market, they use TGARCH, GARCH and GACH-M techniques and found significant November effect.

Ciccone and Etebari (2008) find January and September effect in US stock markets. Heininen and Puttonen (2010) use OLS technique and find October and February effects in Central and Eastern European stock markets. Parikh (2008) conducts a research on Indian stock market and he selects the period of 1999-2008, He uses OLS technique and GARCH and EGARCH model and revealed December effect the Indian stock exchange. Study of Lean et al. (2007) use stochastic dominance rule in different Asian stock markets found positive Monday and Friday effects, but no January effect in all of these Asian stock markets from the period ranging 1988 to 2002.

Zafar et al. (2010) study Karachi Stock Exchange from the period ranging 1991 to 2007; they use regression equation in their research and find May effect. Bahrain Stock Exchange is examined by Al-Jafari (2011). He checks equality for mean, for this purpose he uses f-test, chi-square test, Kruskal-Wallis test. He also checks equality for variance and uses Levene test, Brown-Forsythe test and Bartlett test from the period 2003 to 2011. He finds no significant difference with regard to the monthly effect. A research is conduct by Patel (2011) on Indian market during from raging 1999 to 2007, he uses simple arithmetic average and ANOVA analysis and found November and December average returns are higher during this period and He also identified a March, April and May effect lower as compare to remaining months. Ke et al. (2014) use three degree stochastic dominance rule on Taiwan Stock Exchange from the period ranging 1980 to 2009 and observe evidence of February effect after adjustment of transaction cost. Ahmad and Hussain (2001) explore Kuala Lumpur Stock Exchange during 1986-1996 and use Ordinary Least Square linear regression technique with

ISSN: 2307-3721, e ISSN: 2307-3713

dummy variables and find January effect in the stock market their research is mirror image of US stock markets but none of the study employed the most powerful, relevant and alternative tests in order to justify the results of calendar anomalies. To meet these deficiencies this study implying a battery of alternative tests which are more powerful and relevant in order to justify the results for cyclical anomalies which previous researchers missed in their research work and this methodology provides a substantial research gap for this study in context of South Asian stock markets. The following hypothesis can be generated "Day-of-the-week, Week-of-the-month effects and Month-of-the-year effects exist in DSE, KSE, MSE and BSE".

RESEARCH METHODOLOGY

Day-of-The-Week Effect Methodology

Following regression model will be used for the day of the week effect

$$R_t = \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

where R_t is the current day return, while, D1, D2, D3 and D4 are dummy variables. Colombo, Karachi and Bombay stock exchange opening day of the week is Monday, on the other hand Dhaka and Maldives stock exchange opens on Sunday so Wednesday's dummy variable is excluded for first three stock markets and Tuesday dummy variable for remaining two stock market to avoid dummy variable trap, while μ_t is an error term; β i coefficients are the average returns for Monday through Friday for first three stock and Sunday through Thursday for remaining. Under the null hypothesis of no day-of-the- week effect β 1 = β 2 = β 3 = β 4 = 0. And the residuals should be independently and identically distributed (IID) random variables. To check the IID assumption, we will use Broch–Dechert–Lebaron–Scheinkman (BDS) test proposed by Broch et al. (1996). If the null hypothesis of IID is rejected, then the residual should contain some hidden, possibly non- linear, structure (Al-Loughani and Chappell 2001) which can be due to the time varying volatility of stock returns data. For GARCH-M(1,1) following methodology will be used.

$$R_t = \Upsilon_1 D_{1t} + \Upsilon_2 D_{2t} + \Upsilon_3 D_{3t} + \Upsilon_4 D_{4t} + \lambda\sqrt{h_t} + \varepsilon_t$$

$$\sigma_t = \omega + \alpha_1 \varepsilon^2_{t-1} + \theta_1 \sigma t_{-1} + \sum_{i=1}^{4} \sigma_t D_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(2)}$$

R_t is the return at time t, D_{it} are dummy variables while significant values of γ 's imply significant shifts in mean return across days (thus confirming the existence of the day-of-the-week effects), and λ is the market price of risk. The conditional variance equation is function of a constant term , news about volatility from the previous period, measured as the lag of the squared residual from the mean equation ε^2_{t-1} (the ARCH term), the last period forecast variance h_{t-1}, and δ_i coefficients that measure the seasonality in volatility of the market.

Week-of-The-Month Effect Methodology

The calendar anomalies will be tested by using the day of the effect, week of the month effect and month of the year effect.

Following regression model will be used for the week of the month effect

$$R_t = \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3)}$$

where R_t is the current day return, while, D1, D2, D3 and are dummy variables for first week, second week and Fourth week respectively (i.e., 1 if t is first week, 0 otherwise, and so on). Third week dummy variable was excluded to avoid the dummy variable trap, while μ_t is

an error term; β i coefficients are the average returns for first week to fourth week. Under the null hypothesis of no week-of-the-month effect β 1 = β 2 = β 3 = 0. For GARCH-M (1, 1) following methodology will be used.

$$R_t = \Upsilon_1 D_{1t} + \Upsilon_2 D_{2t} + \Upsilon_3 D_{3t} + \lambda\sqrt{h_t} + \varepsilon_t$$

$$\sigma_t = \omega + \alpha_1 \varepsilon^2_{t-1} + \theta_1 \sigma_{t-1} + \sum_{i=1}^{3} \sigma_t D_{it} \quad \text{.......(4)}$$

Month-of-The-Year Effect Methodology

Following regression model will be used for the month of the year effect

$$R_t = \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \beta_5 D_5 + \beta_6 D_6 + \beta_7 D_7 + \beta_8 D_8 + \beta_9 D_9 + \beta_{10} D_{10} + \beta_{11} D_{11} + e \quad \text{.......(5)}$$

where R_t is the rate of return on Month t, while, D1, D2, D3, D5, D6, D7, D8, D9, D10, and D11 are dummy variables for January to December respectively (i.e., 1 if t is January, 0 otherwise, and so on), To avoid the dummy variable trap June dummy variable was excluded from the equation, while μ_t is an error term; β_i coefficients are the average returns for January to December. For GARCH-M(1,1) following methodology will be used.

$$R_t = \Upsilon_1 D_{1t} + \Upsilon_2 D_{2t} + \Upsilon_3 D_{3t} + \Upsilon_4 D_{4t} + \Upsilon_5 D_{5t} + \Upsilon_6 D_{6t} + \Upsilon_7 D_{7t} + \Upsilon_8 D_{8t} + \Upsilon_9 D_{9t} + \Upsilon_{10} D_{10t} + \Upsilon_{11} D_{11t}\, \lambda\sqrt{h_t} + \varepsilon_t$$

$$\sigma_t = \omega + \alpha_1 \varepsilon^2_{t-1} + \theta_1 \sigma_{t-1} + \sum_{i=1}^{11} \sigma_t D_{it} \quad \text{.......(6)}$$

To study the weak form efficiency and calendar anomalies stock index data was collected and this data of KSE, MSE and CSE was collected from the most reliable source yahoo finance and DSE and MASE stocks data was collected from their respective websites. The adjusted closing daily, weekly and monthly index prices of Colombo, Dhaka, Karachi, Maldives and Bombay stock exchange the period ranging from 1st January, 2005 to 31 December, 2014 are collected.

RESULTS

Day-of- the-Week Effect

Basic OLS Model for Day of the Week Effect

Table 1: OLS Results

	CSE		DSE		KSE		MSE		BSE	
	C	P	C	P	C	P	C	P	C	P
β1	-0.0016	0.0176	-0.0050	0.0000	-0.0030	0.0005	0.0004	0.8400	-0.0004	0.6782
β2	-0.0021	0.0010	-0.0037	0.0001	0.0004	0.6180	0.0025	0.2076	-0.0008	0.4073
β3	0.0011	0.0965	-0.0015	0.1120	-0.0008	0.3365	0.0017	0.3907	-0.0010	0.3155
β4	0.0014	0.0311	0.0002	0.8639	0.0001	0.9035	0.0031	0.1244	-0.0004	0.7246

Table 1 shows the result of basic OLS model at 5 percent significance level. In Colombo stock exchange Monday, Tuesday and Friday effect is evident due to significance of results at 5 %. In Dhaka stock exchange Sunday and Monday effect is evident due to significance of results at 5 %. In Karachi stock exchange Monday effect is evident due significance of results at 5 %. In Maldives stock exchange no day of the week effect exist. In Bombay stock exchange no day of the week effect exist.

ISSN: 2307-3721, e ISSN: 2307-3713
www.erint.savap.org.pk

BDS Test For Day-Of-The-Week Effect

BDS test is a two-tailed test, we should reject the null hypothesis if the BDS test statistic is greater than or less than the critical values (e.g. if α=0.05, the critical value = ±1.96).

H_0: The data are independently and identically distributed (I.I.D.)

H_1: The data are not I.I.D.; this implies that the time series is non-linearly dependent if first differences of the natural logarithm have been taken

Table 2. BDS test for daily returns

INDEX	*ε*	*M=2*	*M=3*	*M=4*	*M=5*	*M=6*
CSE	0.0122	18.8239	21.6926	23.7017	25.5259	27.4843
		0.0383	0.0703	0.0917	0.1032	0.1074
		0.0000	0.0000	0.0000	0.0000	0.0000
DSE	0.0187	17.3783	21.2792	23.5471	25.4788	27.7495
		0.0323	0.0629	0.0828	0.0934	0.0981
		0.0000	0.0000	0.0000	0.0000	0.0000
KSE	0.0173	19.6584	23.1680	25.5359	27.7329	30.2981
		0.0421	0.0788	0.1034	0.1171	0.1234
		0.0000	0.0000	0.0000	0.0000	0.0000
MSE	0.0125	4.7731	5.3754	6.0432	6.5402	7.1234
		0.0165	0.0298	0.0403	0.0460	0.0489
		0.0000	0.0000	0.0000	0.0000	0.0000
BSE	0.0198	13.4013	17.1810	20.2326	23.0778	25.8971
		0.0257	0.0523	0.0732	0.0869	0.0939
		0.0000	0.0000	0.0000	0.0000	0.0000

Table 2 reports the results of the BDS test on the residuals of the basic model. The calculated z-statistics of CSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of DSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of KSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of MSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of BSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level.

The table 3 shows the result of GARCH-M model for five stock markets. The table shows the significance of the results at 5 %. The first part of the two columns of CSE shows mean equation. the CSE daily returns shows the significant negative Monday effect, significant negative Tuesday effect, significant positive Thursday effect and insignificant positive Friday effect. Wednesday dummy variable was excluded to avoid dummy trap and Colombo stock exchange opening day of the week is Monday and closing day is Friday. Second part shows variance equation, which shows insignificant Monday, Tuesday, Wednesday and Friday effect.

ISSN: 2307-3721, e ISSN: 2307-3713

GARCH-M Results Day Of The Week Effect

Table 3. GARCH-M Results for Daily Returns

Mean Equation	**CSE**		**DSE**		**KSE**		**MSE**		**BSE**	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
λ	0.001038	0.0006	0.001434	0.0200	0.002249	0.0000	-0.00102	0.7760	0.00124	0.0358
Υ_1	-0.00146	0.0001	-0.00299	0.0000	-0.00241	0.0000	-0.00087	0.6909	-8.48E-05	0.9070
Υ_2	-0.00162	0.0000	-0.00215	0.0040	-0.00039	0.5084	0.002846	0.2152	-0.00083	0.2701
Υ_3	0.001049	0.0102	0.000342	0.6631	-0.00033	0.5978	0.000972	0.6384	-0.00091	0.2128
Υ_4	0.000434	0.2483	0.002929	0.0001	0.000235	0.7277	0.000803	0.6813	-0.00024	0.7366
Variance Equation										
ω	3.00E-06	0.2115	-2.81E-06	0.4746	0.000118	0.0000	0.000273	0.0000	3.52E-06	0.5750
$\alpha 1$	0.232119	0.0000	0.298814	0.0000	0.243717	0.0000	0.026149	0.0000	0.096003	0.0000
$\theta 1$	0.752345	0.0000	0.561063	0.0000	0.639363	0.0000	0.951906	0.0000	0.892608	0.0000
$\delta 1$	5.48E-06	0.0789	0.000121	0.0000	-5.39E-05	0.0000	-0.00065	0.0000	-1.96E-06	0.8338
$\delta 2$	5.85E-07	0.8914	7.29E-05	0.0000	-0.00013	0.0000	-0.00042	0.0000	-2.10E-05	0.0483
$\delta 3$	2.30E-06	0.5905	-1.47E-06	0.8462	-0.00016	0.0000	0.000565	0.0000	4.44E-06	0.6565
$\delta 4$	-4.42E-06	0.1537	8.06E-06	0.2625	-0.00011	0.0000	-7.38E-04	0.0000	1.53E-05	0.1180
Arch Test										
F-statistic	0.24843	0.6182	0.074981	0.7842	2.873575	0.0902	0.00888	0.9249	0.401384	0.5264
Obs*R-squared	0.248612	0.6181	0.075037	0.7841	2.872557	0.0901	0.008887	0.9249	0.401644	0.5262

The first part of the two columns of DSE shows mean equation. the DSE daily returns shows the significant negative Sunday effect, significant negative Monday effect, insignificant positive Wednesday effect and significant positive Thursday effect. Tuesday dummy variable was excluded to avoid dummy trap and Dhaka stock exchange opening day of the week is Sunday and closing day is Thursday. Second part shows variance equation, which shows significant positive Sunday effect, significant positive Monday effect, insignificant Wednesday and Thursday effect. .

The first part of the two columns of KSE shows mean equation. The KSE daily returns show the significant negative Monday effect, insignificant Tuesday effect, insignificant Thursday effect and insignificant positive Friday effect. Wednesday dummy variable was excluded to avoid dummy trap and Karachi stock exchange opening day of the week is Monday and closing day is Friday. Second part shows variance equation, which shows insignificant positive Monday effect, significant negative Tuesday effect, significant negative Thursday and significant negative Friday effect.

The first part of the two columns of MSE shows mean equation. The MSE daily returns show the insignificant Sunday, Monday, Wednesday and Thursday effects. Tuesday dummy variable was excluded to avoid dummy trap and Maldives stock exchange opening day of the week is Monday and closing day is Friday. Second part shows variance equation, which shows significant negative Sunday effect, significant negative Monday effect, significant positive Wednesday effect and significant positive Thursday effect. The first part of the two columns of BSE shows mean equation. The BSE daily returns show the insignificant Monday, Tuesday, Thursday and Friday effects. Wednesday dummy variable was excluded to avoid dummy trap and Colombo stock exchange opening day of the week is Monday and closing day is Friday. Second part shows variance equation, which shows insignificant Monday, Wednesday, Friday effect and significant Tuesday effect.

WEEK OF THE MONTH EFFECT

Basic OLS Model for Week of the Month

Table 4: Basic OLS Model

	CSE		DSE		KSE		MSE		BSE	
	C	P	C	P	C	P	C	P	C	P
$\beta 1$	0.0011	0.758	0.0612	0.9512	0.0003	0.0007	-0.0166	0.0689	0.0013	0.7708
$\beta 2$	0.0024	0.4932	-0.519	0.604	-0.0026	0.2208	-0.0112	0.2175	0.004	0.3638
$\beta 3$	0.0047	0.1765	-0.2782	0.781	-0.0015	0.4415	-0.019	0.0365	0.0104	0.0189

Table 4 shows the result of basic OLS model at 5 percent significance level. In Colombo stock exchange no week of the month effect is evident. In Dhaka stock exchange no week of the month is evident. In Karachi stock exchange first week effect is evident due significance of results at 5 %. In Maldives stock exchange no week of the month effect exist. In Bombay stock exchange turn of the month effect exist in last week due to significance of results at 5%.

BDS Test for Week-of-the-Month

BDS test is a two-tailed test, we should reject the null hypothesis if the BDS test statistic is greater than or less than the critical values (e.g. if α=0.05, the critical value = ±1.96).

ISSN: 2307-3721, e ISSN: 2307-3713

H_0: The data is independently and identically distributed (I.I.D.)

H_1: The data is not I.I.D.; this implies that the time series is non-linearly dependent if first differences of the natural logarithm have been taken

Table 5. BDS Test for weekly returns

Index	***ε***	***M=2***	***M=3***	***M=4***	***M=5***	***M=6***
CSE	0.0353	5.5107	7.1165	7.1336	7.3403	7.3531
		0.0230	0.0471	0.0562	0.0602	0.0581
		0.0000	0.0000	0.0000	0.0000	0.0000
DSE	0.0504	3.5068	6.0505	6.8939	7.3717	7.6691
		0.0127	0.0348	0.0471	0.0524	0.0525
		0.0005	0.0000	0.0000	0.0000	0.0000
KSE	0.0431	6.8481	7.9631	8.3630	8.4549	8.7173
		0.0332	0.0613	0.0768	0.0810	0.0807
		0.0000	0.0000	0.0000	0.0000	0.0000
MSE	0.0674	5.0597	5.9331	5.9036	5.8612	6.2210
		0.0302	0.0566	0.0676	0.0705	0.0727
		0.0000	0.0000	0.0000	0.0000	0.0000
MSE	0.0460	5.2532	7.9076	9.6068	10.9807	11.9738
		0.0191	0.0458	0.0663	0.0791	0.0832
		0.0000	0.0000	0.0000	0.0000	0.0000

Table 5 reports the results of the BDS test on the residuals of the basic model of weekly . The calculated z-statistics of CSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of DSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of KSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of MSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level. The calculated z-statistics of BSE are quite high than critical value and also significant in m=1=2=3=4=5=6 at 5 percent significant level.

GARCH-M Results For Week-Of-The-Month Effect

The table 6 shows the result of GARCH-M model for five stock markets. The table shows the significance of the results at 5 %. The first part of the two columns of CSE shows mean equation. The CSE weekly returns show insignificant first, third and fourth week effect. Second week dummy variable was excluded to avoid dummy trap and Second part shows variance equation, which shows significant first, second and fourth week effect. The table shows the significance of the results at 5 %. The first part of the two columns of DSE shows mean equation. The DSE weekly returns show insignificant first, third and fourth week effect. Second week dummy variable was excluded to avoid dummy trap and Second part shows variance equation, which shows significant first, second and fourth week effect. The table shows the significance of the results at 5 %. The first part of the two columns of KSE shows mean equation. The KSE weekly returns show insignificant first, third and fourth week effect. Second week dummy variable was excluded to avoid dummy trap and Second part shows variance equation, which shows significant first, second and fourth week effect.

ISSN: 2307-3721, e ISSN: 2307-3713

Table 6. GARCH-M Results for Weekly Returns

Mean Equation	**CSE**		**DSE**		**KSE**		**MSE**		**BSE**	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
$\boldsymbol{\lambda}$	0.0030	0.3350	-0.0019	0.7617	0.0041	0.2882	0.0000	0.9965	0.0038	0.2054
Υ_1	0.0012	0.6852	0.0030	0.5439	0.0078	0.0534	-0.0045	0.6442	0.0003	0.9339
Υ_2	-0.0021	0.5145	0.0035	0.5018	-0.0032	0.4520	0.0070	0.4261	-0.0001	0.9848
Υ_3	0.0016	0.6550	0.0033	0.5333	0.0001	0.9763	-0.0079	0.4067	0.0045	0.1782
Variance Equation										
$\boldsymbol{\omega}$	-0.0004	0.2115	0.1721	0.0000	-0.0005	0.0002	0.0005	0.0139	-0.0001	0.2683
$\boldsymbol{\alpha}$**1**	0.1772	0.0001	0.6641	0.0000	0.0836	0.0000	0.1098	0.0000	0.2373	0.0000
$\boldsymbol{\theta}$**1**	0.7583	0.0000	0.0009	0.0059	0.9132	0.0000	0.7836	0.0000	0.7216	0.0000
$\boldsymbol{\delta}_1$	0.0009	0.0000	0.0005	0.0389	0.0010	0.0001	-0.0007	0.0252	0.0004	0.1294
$\boldsymbol{\delta}_2$	0.0005	0.0000	0.0011	0.0000	0.0006	0.0001	0.0039	0.0000	0.0002	0.3327
$\boldsymbol{\delta}_3$	0.0002	0.0000	0.0000	0.2625	0.0003	0.0307	-0.0031	0.0000	0.0003	0.1145
Arch Test										
F-statistic	0.0282	0.8667	0.2183	0.6406	1.7586	0.1854	1.1413	0.2859	2.2728	0.1323
Obs*R-squared	0.0283	0.8664	0.2191	0.6397	1.7595	0.1847	1.1434	0.2849	2.2715	0.1318

The above table shows the significance of the results at 5 %. The first part of the two columns of MSE shows mean equation. The MSE weekly returns show insignificant first, third and fourth week effect. Second week dummy variable was excluded to avoid dummy trap and Second part shows variance equation, which shows significant first, second and fourth week effect. The table shows the significance of the results at 5 %. The first part of the two columns of BSE shows mean equation. The BSE weekly returns show insignificant first, third and fourth week effect. Second week dummy variable was excluded to avoid dummy trap and Second part shows variance equation, which shows significant first, second and fourth week effect.

MONTH OF THE YEAR EFFECT

Basic Model for Month of the Year Effect

Table 7. Basic OLS Model

	CSE		DSE		KSE		MSE		BSE	
	C	P	C	P	C	P	C	P	C	P
β1	0.05766	0.05	-0.013	0.7327	0.01863	0.5843	-0.1016	0.0224	-0.0225	0.4837
β2	0.00413	0.8874	-0.0638	0.0971	0.02233	0.512	-0.0966	0.0297	-0.0148	0.6465
β3	-0.0149	0.6097	-0.0655	0.0886	0.016	0.6384	-0.078	0.0781	0.01686	0.6001
β4	0.03949	0.1774	-0.0374	0.3288	0.00224	0.9476	-0.0913	0.0397	0.02808	0.3832
β5	0.00423	0.8847	-0.0739	0.0551	-0.049	0.1519	-0.0568	0.1982	0.01038	0.7469
β6	0.02477	0.3963	-0.0127	0.7387	-0.0021	0.9513	-0.0889	0.0452	0.02011	0.5319
β7	0.02154	0.4605	-0.06	0.1185	-0.0513	0.1337	-0.1121	0.0119	-0.0029	0.9276
β8	0.05693	0.0529	0.00611	0.8728	0.01755	0.6062	-0.1162	0.0093	0.04101	0.2038
β9	-0.0243	0.4054	-0.0116	0.7612	0.00949	0.7805	-0.1166	0.009	-0.0121	0.7057
β10	-0.0294	0.3152	-0.0401	0.2946	-0.0021	0.9505	-0.1248	0.0053	0.00114	0.9718
β11	-0.0033	0.9104	-0.0188	0.6236	-0.0475	0.1648	-0.1111	0.0127	0.01453	0.6513

Table 7 shows the result of basic OLS model at 5 percent significance level. In Colombo stock exchange January effect is evident. In Dhaka stock exchange no month of the year effect is evident. In Karachi stock exchange no month of the year effect exist. In Maldives stock exchange January, February, April, July, August, September, October, November and December result exist. In Bombay stock exchange no month of the year effect exist.

BDS TEST FOR MONTH-OF-THE-YEAR EFFECT

BDS test is a two-tailed test, we should reject the null hypothesis if the BDS test statistic is greater than or less than the critical values (e.g. if α=0.05, the critical value = ±1.96).

H_0: The data are independently and identically distributed (I.I.D.)

H_1: The data are not I.I.D.; this implies that the time series is non-linearly dependent if first differences of the natural logarithm have been taken

ISSN: 2307-3721, e ISSN: 2307-3713

Table 8. BDS Test for Monthly Returns

Index	*ε*	M=2	M=3	M=4	M=5	M=6
CSE	0.0967	3.3454	3.0044	3.1994	3.7346	3.8862
		0.0246	0.0352	0.0448	0.0548	0.0552
		0.0008	0.0027	0.0014	0.0002	0.0001
DSE	0.1132	1.4298	1.5494	1.4185	1.4574	1.6579
		0.0109	0.0189	0.0208	0.0224	0.0248
		0.1528	0.1213	0.1560	0.1450	0.0973
KSE	0.0893	0.8079	1.5452	1.6933	1.7629	1.4832
		0.0072	0.0220	0.0289	0.0316	0.0258
		0.4192	0.1223	0.0904	0.0779	0.1380
MASE	0.1377	1.8052	2.4572	2.1995	2.3248	2.1587
		0.0169	0.0367	0.0393	0.0436	0.0393
		0.0710	0.0140	0.0278	0.0201	0.0309
MSE	0.0942	1.6930	1.7787	2.0747	2.5757	2.9092
		0.0127	0.0214	0.0298	0.0387	0.0423
		0.0905	0.0753	0.0380	0.0100	0.0036

Table 8 shows the BDS test for monthly returns which shows mix result for five stocks markets. In CSE, DSE and MASE null hypothesis of IID is rejected as the results are significant at 5 percent critical level but in KSE and MSE results are insignificant despite the z statistics is greater than critical value null hypothesis of IID is not rejected at 5 percent significant level.

GARCH-M MODEL MONTH-OF-THE-YEAR EFFECT

Table 9 shows the result of GARCH-M model Month of the year for five stock markets. The table shows the significance of the results at 5 %. The first part of the two columns of CSE shows mean equation. The CSE monthly returns shows the insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, insignificant November and insignificant December Effect. June dummy variable was excluded to avoid dummy trap. Second part shows variance equation, which shows insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, insignificant November and insignificant December Effect.

The first part of the two columns of DSE shows mean equation. The DSE monthly returns shows the significant positive January and September effect and insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant October, insignificant November and insignificant December Effect. June dummy variable was excluded to avoid dummy trap. Second part shows variance equation, which shows significant negative January and April effect, it also shows insignificant February, insignificant March, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, insignificant November and insignificant December effect. The first part of the two columns of KSE shows mean equation.

ISSN: 2307-3721, e ISSN: 2307-3713

Table 9. GARCH–M monthly Results for Monthly Returns

Mean Equation	CSE		DSE		KSE		MASE		MSE	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
λ	-0.0227	0.4968	-0.56278	0.3751	4.514938	0.5055	0.036058	0.4333	0.019775	0.3397
Υ_1	0.047978	0.0964	4.885888	0.0000	0.00511	0.9207	-0.0688	0.0931	-3.40E-02	0.1726
Υ_2	0.007545	0.8159	0.463469	0.5446	0.008008	0.8369	-0.04062	0.4118	-0.03863	0.1509
Υ_3	-0.00175	0.9592	0.431322	0.6947	0.012402	0.8087	-0.06146	0.2633	0.00167	0.9476
Υ_4	0.045948	0.2310	0.4987	0.8074	-0.00665	0.8984	-0.04475	0.2949	-0.00566	0.8535
Υ_5	0.004993	0.8487	0.487053	0.8654	-0.05673	0.1371	-0.0384	0.3649	-0.00694	0.7709
Υ_6	0.035417	0.2663	1.081297	0.3645	-0.0102	0.7841	-0.07967	0.1418	-0.00521	0.8669
Υ_7	0.024703	0.5599	0.161896	0.8942	-0.06088	0.1245	-0.058	0.1528	-0.01901	0.4958
Υ_8	0.057258	0.0227	2.023725	0.0035	0.020181	0.7366	-0.08868	0.0746	0.036891	0.123
Υ_9	-0.02064	0.4830	0.149616	0.8969	-0.00238	0.9687	-0.09535	0.0403	0.000415	0.9869
Υ_{10}	-0.00532	0.8526	-0.03529	0.9718	-0.01231	0.7958	-0.0887	0.2394	0.000561	0.9844
Υ_{11}	0.017804	0.5649	0.541286	0.8730	-0.06179	0.1044	-0.08791	0.0627	-0.01661	0.5947
Variance Equation										
ω	0.001189	0.7648	0.003925	0.2552	-0.00688	0.0848	0.010501	0.2264	-0.00104	0.73
$\alpha 1$	0.107915	0.2667	0.021716	0.1104	0.063069	0.2656	0.131787	0.0424	0.123816	0.1106
$\theta 1$	0.614707	0.0175	0.895196	0.0000	0.715007	0.0007	0.609858	0.0057	0.809227	0.0000
$\delta 1$	-0.003637	0.4332	-0.01046	0.0195	-0.00362	0.4664	-0.00499	0.5798	0.004062	0.3234

δ2	-0.000472	0.9109	0.015268	0.1154	0.00874	0.1086	-0.01072	0.2766	-0.00066	0.8735
δ3	-0.000373	0.9283	-0.00968	0.3366	0.00546	0.2488	-0.01233	0.1793	0.001686	0.6896
δ4	-0.001584	0.7039	-0.01311	0.0248	0.007404	0.0675	-4.18E-03	0.6878	0.000134	0.9724
δ5	0.002615	0.5803	-0.0059	0.1151	0.015856	0.0583	-7.56E-03	0.4534	0.003713	0.5106
δ6	-0.002945	0.6196	-0.0028	0.6902	0.00978	0.0450	-1.77E-02	0.2262	-0.00057	0.8949
δ7	-0.000539	0.8911	-0.00389	0.4272	0.010612	0.2056	-3.82E-03	0.7515	0.001943	0.5430
δ8	0.005398	0.3364	-0.00769	0.0590	0.00366	0.5689	-5.12E-03	0.6477	0.005386	0.3461
δ9	-0.001954	0.6692	-0.00163	0.6670	0.006902	0.0861	-1.24E-02	0.1999	0.002186	0.7296
δ10	0.001156	0.8600	-0.00124	0.7987	0.007858	0.0553	-1.39E-02	0.1158	-0.00244	0.6189
δ11	0.003748	0.5376	5.74E-05	0.9914	0.023547	0.0003	-5.64E-03	0.5316	0.000613	0.8573
Arch Test										
F-statistic	0.72024	0.3978	1.191662	0.2773	0.024455	0.876	0.020255	0.8871	0.344992	0.5581
Obs*R-squared	0.728137	0.3935	1.199881	0.2733	0.024871	0.8747	0.020597	0.8859	0.349858	0.5542

The KSE monthly returns shows insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July insignificant August, insignificant September, insignificant October, insignificant November and insignificant December Result. June dummy variable was excluded to avoid dummy trap. Second part shows variance equation, which shows significant positive July and December effect, it also shows insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant August, insignificant September, insignificant October, and insignificant November effect. The first part of the two columns of MSE shows mean equation. the MSE monthly returns shows the significant positive October effect and insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant November and insignificant December Effect. June dummy variable was excluded to avoid dummy trap. Second part shows variance equation, which shows insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, insignificant November and insignificant December effect. The first part of the two columns of BSE shows mean equation. the MSE monthly returns shows the insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, November and December Effect. June dummy variable was excluded to avoid dummy trap. Second part shows variance equation, which shows insignificant January, insignificant February, insignificant March, insignificant April, insignificant May, insignificant July, insignificant August, insignificant September, insignificant October, insignificant November and insignificant December effect.

CONCLUSIONS

Basic OLS model was employed to check the calnder anomalies which show day of the week, week of the month and month of the year effect exist in all South Asian Stock Markets. To BDS test was also applied to check the non linearity of the residuals of the basic model for daily,weekly and monthly. The calculated z-statistics was quite high for Colombo Stock Exchange, Dahka Stock Exchange, Karachi Stock Exchange, Maldives Stock Exchange and Bombay Stock Exchange indicating that the alternative hypothesis of returns are independently and identically are not distributed is accepted at the 5 per cent level. Due to Hetrosedasticity in the data basic OLS model is not appropriate so GARCH-M model was employed in the the day- of-the-week effect in both volatility and the returns.The CSE daily returns shows the significant Monday, Tuesday and Thursday effect. The DSE daily returns show the significant Sunday, Thursday effect. In case of variance equation which shows significant positive Sunday and Monday effect. In case of mean equation, the KSE daily returns show the significant Monday effect. Second part shows variance equation, which shows significant Tuesday, Thursday and Friday effect. The MSE variance equation, which shows significant Sunday, Monday Wednesday and Thursday effect. BSE result are insignificant in mean and variance equation.

The GARCH-M model was employed to check the week of the month effect, which shows insignificant results in mean equation in all five stocks and significant results in volataility. GARCH-M methodology was also employed to Month-of-the-year effect. DSE monthly returns shows the significant January, September effect and Variance equation, which shows significant January and April effect. The KSE Variance equation shows significant July and December effect. The MSE monthly returns shows the significant October effect

ISSN: 2307-3721, e ISSN: 2307-3713

REFERENCES

[1] Agathee, U.S. (2008). Day of the week effects: evidence from the stock exchange of Mauritius (SEM). *International Research Journal of Finance and Economics*, *17,* 7–14.

[2] Ahmad, Z., & Hussain, S. (2001). KLSE long run overreaction and the Chinese new-year effect. *Journal of Business Finance & Accounting*, *28* (1–2), 63–105.

[3] Al-Jafari, M.K. (2011). The monthly effect of stock market returns and the global financial crisis: Evidence and implications from Bahrain Bourse. *International Research Journal of Finance and Economics*, *78, 83–95.*

[4] Aly, H., Mehdian, S., & Perry, M.J. (2004). An analysis of day-of-the-week effects in the Egyptian stock market. *International Journal of Business*, *9, 301–308.*

[5] Arora, V., & Das, S. (2007). *Day of the week effects in NSE stock returns: An empirical study*. Retrieved from http://ssrn.com/abstract=1113332.

[6] Athanassakos, G., & Robinson, M.J. (1994). The day-of-the-week anomaly: the Toronto stock exchange experience. *Journal of Business Finance and Accounting*, *21*, 833–856.

[7] Badhani, K.N., Kavidayal, B.D., & Kavidayal, P.C. (2006). Does Friday repeat itself on Monday? An analysis of the day-of-the-week effect on autocorrelations of stock market index returns. *The ICFAI Journal of Applied Finance*, *12* (6), 53–66.

[8] Balaban, E. (1995). Day of the week effects: New evidence from an emerging stock market. *Applied Economics Letters*, *2,139–143.*

[9] Bepari, K., & Mollik, T.A. (2009). Seasonalities in the monthly stock returns: evidence from Bangladesh Dhaka stock exchange (DSE). *International Research Journal of Finance and Economics*, *24*,167–176.

[10] Berges, A., McConnell, J.J., & Schlarbaum, G.G. (1984). The turn of the year in Canada. *Journal of Finance*, *39*(1), 185–192.

[11] Berk, O., Uzsoy, C., & Güven, S. (2003). Stock returns and the day-of-the-week effect in Istanbul Stock Exchange. *Applied Economics*, *35*(8), 959–971.

[12] Berument, H., & Kiymaz, H. (2001). The day of the week effect on stock market volatility. *Journal of Economics and Finance*, *25*(2), 181–193.

[13] Berument, H., Inamlik, A., & Kiymaz, H. (2004). The day of the week effect on stock market volatility: Istanbul stock exchange. *Iktisat, Isletme ve Finans, 223, 91–102.*

[14] Bhattacharya, K., Sarkar, N., & Mukhopadhyay, D. (2003). Stability of the day of the week effect in return and in volatility at the Indian capital market: A GARCH approach with proper mean specification. *Applied Financial Economics, 13,* 553–563.

[15] Broch, W.A., Dechert, B., & Scheinkman, J.A. (1996). A Test for the Independence Based on the Correlation Dimension. *Econometric Reviews, 15* (3), 197–235.

[16] Brooks, C., & Persand, G. (2001). Seasonality in Southeast Asian stock markets: some new evidence on day-of-the-week effects. *Applied Economics Letters, 8, 155–158.*

ISSN: 2307-3721, e ISSN: 2307-3713

[17] Chakrabarti, G., & Sen, C. (2008). November effect: An example of calendar anomaly in Indian stock market. Retrieved from http;//ssrn.com.abstract=1121606.

[18] Chen, G., Kwok, C.C., & Rui, O.M. (2001). The day-of-the-week regularity in the stock markets of China. *Journal of Multinational Financial Management, 11* (2), 139–163.

[19] Chia, R.C. J., Liew, V.K.S., & Wafa, S.A.W.S. (2006). Calendar anomalies in the Malaysian stock market. *Munich Personal RePEc Archive, 516.*

[20] Choy, A.Y.F., & O'Hanlon, J. (1989). Day of the week effects in the UK equity market: A cross sectional analysis. *Journal of Business Finance & Accounting, 16,* 89–104.

[21] Ciccone, S., & Etebari, A. (2008). A month-by-month examination of long-term stock returns. *Investment Management and Financial Innovations, 5* (3), 8–18.

[22] Compton, W., Kunkel, R.A., & Kuhlemeyer, G. (2013). Calendar anomalies in Russian stocks and bonds. *Managerial Finance, 39,* 1138–1154.

[23] Das, B., & Jariya, A.M.I. (2009). Day of the week effect and the stock returns in the Colombo stock exchange: an analysis of empirical evidence. *Indian Journal of Finance, 3*(8), 31–38.

[24] Durga, S. (2012). Day of the week effect: empirical analysis of National Stock Exchange. *BVIMR Management Edge, 5* (2), 98.

[25] Fields, M. J. (1931). Stock prices: A problem in verification. *Journal of Business, 4, 415-418.*

[26] French, K.R. (1980). Stock returns and the weekend effect. *Journal of Financial Economics, 8* (1), 55–69.

[27] Gibbons, M.R., & Hess, P. (1981). Day of the week effects and asset returns. *Journal of Business, 54* (4), 579–596.

[28] Haroon, M.A., & Shah, N. (2013). Investigating day-of-the-week effect in stock returns: Evidence from Karachi stock exchange. *Pakistan Journal of Commerce & Social Sciences, 7* (2), 381.

[29] Haug, M., & Hirschey, M. (2006). The January effect. *Financial Analysts Journal, 62*(5), 78–88.

[30] Heininen, P., & Puttonen, V. (2010). Stock market efficiency in the transition economies through the lens of calendar anomalies. Retrieved from http://www.hse.ru/data/090/182/1235/ Heininen_Puttonen_paper.pdf.

[31] Hellstrom, T. (2002). *Trends and calendar effects in stock returns*. Retrieved from www8.cs.umu.se/~thomash/reports/ataa.pdf.

[32] Ignatius, R. (1992). The Bombay stock exchange: Seasonalities and investment opportunities. *Indian Economic Review, 27* (2), 223–227.

[33] Ke, M-C., Chou, J-H., Hsieh, C-S., Chi, T-L., Chen, C-T., & Liao, T.L. (2014). Testing the monthly anomaly with stochastic dominance. *Managerial Finance, 40, 137–156.*

[34] Keim, D., & Stambaugh, R. (1984). A further investigation of the weekend effect in stock returns. *Journal of Finance, 39* (3), 819–835.

ISSN: 2307-3721, e ISSN: 2307-3713

[35] Kumar, H., & Deo, M. (2007). Efficiency of Indian Stock Market: a case of day of the week effect. *Smart Journal of Business Management Studies, 3* (2), 28–35.

[36] Lean, H.H., Smyth, R., & Wong, W.K. (2007). Revisiting calendar anomalies in Asian stock markets using a stochastic dominance approach. *Journal of Multinational Financial Management, 17* (2), 125–141.

[37] Mehta, K., & Chander, R. (2009). Seasonality in Indian stock market: A re-examination of January effect. *Asia-Pacific Journal of Management Research and Innovation, 5, 28–42.*

[38] Mittal, S.K., & Jain, S. (2009). Stock market behavior: Evidences from Indian market. *Vision: The Journal of Business Perspective, 13, 19–29.*

[39] Nageswari, P., & Babu, M. (2011a). Analysis of week end effect in Indian stock market. *Smart Journal of Business Management Studies, 7* (1), 78–87.

[40] Nageswari, P., & Selvam, M. (2011b). Re-examination of the day of the week effect on the Indian stock market: A study with reference to S&P CNX 500 index. *Management Trends, 8* (1), 29–42.

[41] Parikh, A. (2008). The December phenomenon: Month of year effect in the Indian stock market. Retrieved from www.nseindia.com/content/press/NS_jan2009_1.pdf.

[42] Patel, J.B. (2011). Calendar effects in the Indian Stock Market. *International Business & Economics Research Journal (IBER), 7*(3), 61–70.

[43] Patev, P., Lyroudi, K., & Kanaryan, N.K. (2003). *The day of the week effect in the central European transition stock markets*. Bulgaria: Tsenov Academy of Economics Finance and Credit.

[44] Poshakwale, S. (1996). Evidence on weak form efficiency and day of the week effect in the Indian stock market. *Finance India, 10* (3), 605–616.

[45] Rahman, M.L. (2009). Stock market anomaly: day of the week effect in Dhaka stock exchange. *International Journal of Business and Management, 4, 193.*

[46] Sarma, S.N. (2004). Stock market seasonality in an emerging market. *Vikalpa, 29*(3), 35–41.

[47] Siddiqui, T.A., & Narula, I. (2013). Market efficiency and anomalies: Evidences from S&P CNX NIFTY. *Vision: The Journal of Business Perspective, 17, 233–245.*

[48] Theobald, M., & Price, V. (1984). Seasonality estimation in thin markets. *The Journal of Finance, 39* (2), 377–392.

[49] Tonchev, D., & Kim, T. H. (2004). Calendar effects in Eastern European financial markets: Evidence from the Czech Republic, Slovakia and Slovenia. *Applied Financial Economics, 14, 1035–1043.*

[50] Wingender, J., & Groff, J.E. (1989). On stochastic dominance analysis of day-of-the-week return patterns. *Journal of Financial Research, 12* (1), 5.

[51] Yalcin, Y., & Yucel, E.M. (2006). The day-of-the-week effect on stock-market volatility and return: Evidence from emerging markets. *Czech Journal of Economics and Finance (Finance a uver), 56* (5–6), 258–277.

[52] Zafar, N., Urooj, S.F., & Farooq, S.U. (2010). Karachi stock exchange: Testing month of the year effect. *European Journal of Economics, Finance and Administrative Sciences, 24*, 20–28.

ISSN: 2307-3721, e ISSN: 2307-3713