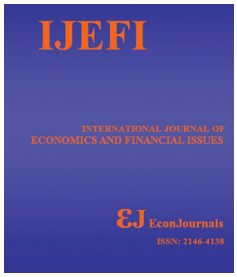


International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2016, 6(2), 573-577.

An Examination of the Month-of-the-year Effect at Damascus Securities Exchange

Sulaiman Mouselli[1], Hazem Al-Samman[2]*

[1]Faculty of Business Administration at Arab International University, Faculty of Economics, Damascus University, Syria, [2]Department of Accounting and Finance, College of Commerce and Business, Dhofar University, Dhofar, Sultanate of Oman. *Email: halsamman@du.edu.om

ABSTRACT

This paper explores the existence of the month-of-the-year effect in a newly established exchange of Damascus securities exchange. It employs ordinary least squares estimates and dummy variables for the whole working period of the exchange from 2010 to 2015. This paper confirms the existence of positive and significant returns during May compared to remaining months. Average returns in May are six percent higher than average returns during the rest of the year. A possible explanation for May effect is dividend month premium suggested by Hartzmark and Solomon (2013).

Keywords: Stock Market Efficiency, Calendar Seasonality, Month-of-the-year Effect, Damascus Securities Exchange
JEL Classifications: G11, G14, G19

1. INTRODUCTION

An extensive and long stranding literature examines the existence of calendar anomaly in stock returns. Early evidence on the presence of January effect in the US stock returns can be traced back to the pioneering work of Wachtel (1942), followed by Officer (1975) and Rozeff and Kinney (1976). Since then January anomaly has gained much attention from both academics and practitioners alike. While examining the existence of January seasonality in other markets, systematically higher returns in months other than January seem to outperform those of January. This anomaly was later called month-of-the year effect.

The aim of this study is to examine the existence of month-of-the-year effect at Damascus securities exchange (DSE). This study makes a number of contributions. First, it provides a test for the efficient market hypothesis at DSE based on whether stock returns follow non-random patterns. Second, it presents an out-of-sample test of the existence of month-of-the-year effect in stock returns in a newly established securities exchange of Damascus. With the exception of (Mouselli and Al-Samman, 2013), a limited number of studies examine the behavior of stock returns at DSE, or compare its characteristics to other regional or international exchanges. Hence, this study is important because it uncovers stock return patterns and helps to understand the reasons behind those observed patterns.

The main finding of this paper is the existence of May effect in stock returns at DSE. This result can be viewed as an evident of inefficiency at DSE and confirms the earlier findings of (Mouselli and Al-Samman, 2013) of the existence of non-random patterns in daily stock returns at DSE. A possible explanation of the existence of May effect may be attributed to investors' attitudes at the dividend paying month.

The paper is organized as follow. In the next section, a review the theoretical background of calendar effects and in particular possible explanations of month-of-the-year effect where provided. Then, sample and methods are explained and descriptive statistics are presented as well as the results from estimating different models. Finally, conclusions and discussion of the results are provided.

2. LITERATURE REVIEW

In a weak-form efficient market, prices of securities should reflect all trade-related information including historical prices.

The sexistence of calendar anomalies in stock returns challenge the return predictability of efficient market hypothesis. A number of calendar seasonalities were observed in the United States and later investigated in many other developed and developing markets. Those seasonalities include January effect (Keim, 1983; Agrawal and Tandon, 1994), End-of-the-year effect (Clark and Ziemba 1987), December effect (Singal, 2003), Turn-of-the-month effect (Ariel, 1987), End of the week effect (Singal, 2003), week of the year effect (Levy and Yagil, 2012), (Anderson et al., 2007), Holiday effect (Lakonishok and Smidt, 1988), Halloween effect (Bouman and Jacobsen, 2002) and the holy day effect (Al-Ississ, 2015).

The majority of studies on month-of-the-year effect have documented higher returns in Januarys (for the US: Haugen and Jorion, 1996; Haug and Hirschey, 2006; Keim, 1983; Reinganum, 1983; Rozeff and Kinney, 1976). Similar findings have been documented around Europe excluding the UK (Barone, 1990; Canestrelli and Ziemba, 2000; Donnelly, 1991; Gahan, 1993; Lucey, 1994; Van den Berg and Wessels, 1985).

The evidence from other markets suggest different monthly seasonal patterns. For instance, April is shown to have higher returns in the UK (Reinganum and Shapiro, 1987), while May has higher returns in Johannesburg stock exchange (Coutts and Sheik, 2000). June effect is found in Jamaica (Ramcharran, 1997) and Bangladesh (Ahsan and Sarkar, 2013). July returns outperform other months in Kuwait (Al-Saad and Moosa, 2005) and Ramadan effect (Holy month of Muslims) is documented for the Saudi market (Seyyed et al., 2005).

Another stream of literature investigates possible explanations of those calendar anomalies and month of the year anomaly in particular. For example, Tax-loss selling hypothesis was suggested by (Dyl, 1977) claiming that individuals tend to sell stocks that suffer declines in December and reinvest the proceeds in January. Also, Sikes (2008) contends that tax-sensitive institutional investors systematically sell losing stock in December on the purpose of realizing paper losses and reduce the tax liabilities of their investors. However, (Haugen and Lakonishok, 1988) suggest that institutional investors tend to dress up their portfolios prior to mandatory portfolio disclosure dates by selling underperforming stocks around the end of the year to make their portfolios look better. Furthermore, Anderson et al. (2007) run auction experiments in January and December on investors and attribute January effect to investors' psychological factors. Ng and Wang (2004) suggest a risk shifting hypothesis at which institutions increase the riskiness of their portfolios by buying small risky stocks in January in order to increase expected returns while avoiding investor screening.

Not only that out-of-sample tests provide mix results on the reasons behind such anomaly, but also some studies suggest that those explanations augment and complement one another. On the one hand, some studies suggest that individual investors are not enough to cause January effect (Brown et al., 1983; Reinganum, 1983). Moreover, Keim (1983) proves there is a relation between January effect and size effect. On the other hand, Lynch et al. (2014) try to disentangle tax-loss selling hypothesis from window-dressing and risk-shifting hypotheses. Nevertheless, their results provide support for window-dressing hypothesis but inconsistent with tax-loss or risk-shifting hypothesis. More recently, Easterday and Sen (2015) find that January effect is mainly driven by potential tax-loss sellers and neither a result of noise traders nor related to systematic risk factor explanation.

However, very little efforts were paid to uncover the existence of calendar anomalies at DSE partially due to the recent start of the exchange in 2010. Mouselli and Al-Samman (2013) examine the stationarity of daily DSE index returns using augmented Dickey-fuller test and conclude that the market is weak-form inefficient. This paper aims to fill this gap on return predictability at DSE and provides an out-of-sample test of month-of-the-year effect in a newly established stock exchange.

3. METHODS AND RESULTS

DSE is a newly established exchange starts stock trading on the beginning of 2010. Hence, this study uses the full set of 2010-2015 data on DSE value-weighted Index that includes all stocks listed in the exchange and collected from DSE official website.

The study uses monthly returns on DSE index measured as the natural logarithm of the index value at the last trading day at the end of month t divided by the index value at the last trading day of month $t-1$,

$$R_t = \ln\left(\frac{I_t}{I_{t-1}}\right) \quad (1)$$

Where;

R_t is the logarithm return of month t,

I_t is the closing value of DSE index in month t,

I_{t-1} is the closing value of DSE index in month $t-1$.

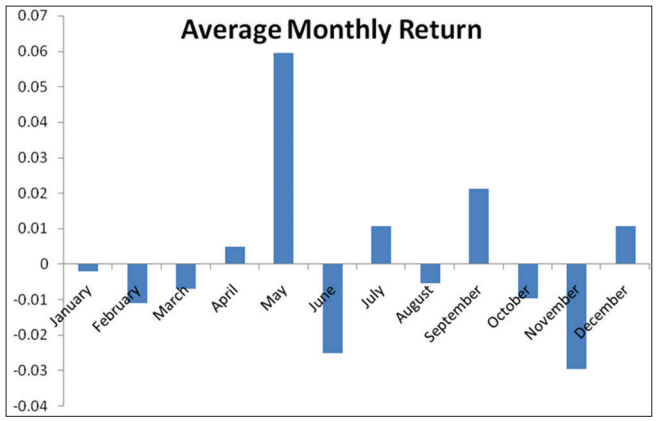
Table 1 provides descriptive statistics of monthly returns of DSE for the period February 2010 to July 2015. It can be noticed that month May has the highest average returns of 5.95% followed by September of 2.12%. The lowest average returns are documented for November and June with −2.97% and −2.53% respectively. The minimum average returns recorded for the sample is in June with −17.92% while the highest average returns during the sample period documented in May with 27.23%.

Figure 1 illustrates the average monthly returns for different months in the year. May returns are at least two times higher than a typical month in the DSE. September has the second highest average returns followed by July. On the other hand, November has the lowest average monthly returns followed by June and February. It can be seen that the first quarter of the year is a bad period of the exchange with negative returns in all three months with a minor recovery in April. A monthly reversal in average

Table 1: Descriptive statistics for monthly returns for the period 2010-2015

Month	Mean	Median	Minimum	Maximum	Skewness	Kurtosis
January	−0.0021	−0.0072	−0.0114	0.0162	0.9664	2.4135
February	−0.0112	−0.0131	−0.0546	0.0388	0.3629	3.0231
March	−0.0071	0.0126	−0.1150	0.0290	−1.5983	3.8453
April	0.0048	0.0118	−0.1778	0.1228	−0.7011	2.5805
May	0.0595	0.0114	−0.0185	0.2723	1.4746	3.5639
June	−0.0253	−0.0136	−0.1792	0.0424	−1.2816	3.3736
July	0.0107	0.0103	−0.0251	0.0525	0.1070	1.6641
August	−0.0056	−0.0085	−0.0557	0.0611	0.6338	2.5831
September	0.0212	0.0073	−0.0102	0.0620	0.3527	1.3262
October	−0.0097	−0.0052	−0.0592	0.0360	−0.1837	2.4206
November	−0.0297	−0.0295	−0.0640	0.0054	0.0376	1.8038
December	0.0106	0.0137	−0.0287	0.0439	−0.2875	1.9569

Figure 1: Average returns of Damascus securities exchange index on monthly basis for the period 2010-2015



returns is witnessed from May to October. A slight recovery in average returns occurs in December.

Figure 2 shows the movements in monthly returns during the sample period. It can be seen that the greatest declines in DSE returns took place in April and June of 2011. This can be explained by the political instability starting in March 2011. However, the highest monthly returns recorded in May 2013 could be attributed to better than expected performance of firms at DSE and expectations of sooner end for the political instability.

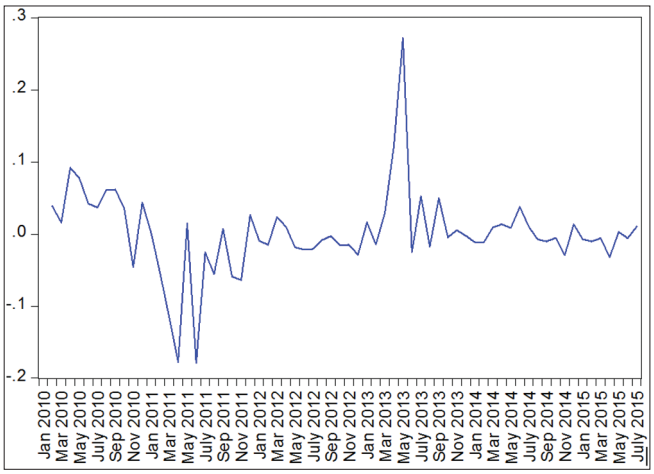
To examine the existence of month-of-the-year effect in stock returns, I estimate the following regression model using ordinary least squares method,

$$R_t=\beta_1 D_{1t}+\beta_2 D_{2t}+\beta_3 D_{3t}+\beta_4 D_{4t}+\beta_5 D_{5t}+\beta_6 D_{6t}+\beta_7 D_{7t}+\beta_8 D_{8t}+\beta_9 D_{9t}+\beta_{10} D_{10t}+\beta_{11} D_{11t}+\beta_{12} D_{12t}+e_t \quad (2)$$

Where D_i represents dummy variable that takes the value of one if the month is i and zero otherwise, β_i represents the coefficient of the dummy variable D_i and the average of monthly returns of the corresponding month i, e_t is the error term at month t.

Table 2 shows the results from estimating Equation 2 for the period February 2010 to July 2015. It can be noticed that the only positive and significant monthly returns are documented in May with average returns of 0.0595 with a P value of 0.0185. Average

Figure 2: The movements of monthly returns for the period 2010-2015



monthly returns in April, July, September and December are positive and insignificant. Negative and insignificant returns are observed in all remaining month including January with average returns of −0.0021. This result suggests the existence of May effect and precludes any January effect in DSE.

In order to test whether the observed differences in average returns between May and other months are statistically significant, I adjust the previous regression model by excluding the dummy variable that is related to May (i.e., D_5) and adding the constant term. That is I estimate the following regression model (3),

$$R_t=C+\beta_1 D_{1t}+\beta_2 D_{2t}+\beta_3 D_{3t}+\beta_4 D_{4t}+\beta_5 D_{5t}+\beta_6 D_{6t}+\beta_7 D_{7t}+\beta_8 D_{8t}+\beta_9 D_{9t}+\beta_{10} D_{10t}+\beta_{11} D_{11t}+\beta_{12} D_{12t}+e_t \quad (3)$$

The constant term will represent now the average returns on May while the coefficients (β_i) will represent now the difference in average returns between month i and May. For example, β_1 will represent now the difference in average returns between month January and May and t-stats for β_1 examines the significance of the difference in average returns between month January and May, and so on.

Table 3 confirms that the average returns on May, represented by the intercept term, are positive (5.95%) and statistically significant at 5%. However, all the estimated coefficients, including January, are negative indicating that all months witnessed lower average

Table 2: Regression analysis for model (2) for the period 2010-2015

Variable	β_i	t-stats	P value
D_{Jan}	−0.0021	−0.0778	0.9383
D_{Feb}	−0.0112	−0.4572	0.6494
D_{Mar}	−0.0071	−0.2916	0.7717
D_{April}	0.0048	0.1961	0.8453
D_{May}	0.0595**	2.4279	0.0185
D_{June}	−0.0253	−1.0301	0.3076
D_{July}	0.0107	0.4368	0.6640
D_{Aug}	−0.0056	−0.2088	0.8354
D_{Sep}	0.0212	0.7911	0.4324
D_{Oct}	−0.0097	−0.3618	0.7189
D_{Nov}	−0.0297	−1.1089	0.2724
D_{Dec}	0.0106	0.3937	0.6954

Values and significance of months of the year coefficients estimated from model (1). **Denotes significance at 5% level of significance. The P values that correspond to F-statistics from White and Arch heterscedasticity test are 0.2352 and 0.1418 respectively. These results indicate that there is no evidence for the presence of heteroscedasticity in monthly returns

Table 3: Regression analysis for model (3) for the period 2010-2015

Variable	β_i	t-stats	P value
C	0.0595**	2.4279	0.0185
D_{Jan}	−0.0616	−1.6943	0.0960
D_{Feb}	−0.0707**	−2.0401	0.0462
D_{Mar}	−0.0667	−1.9230	0.0598
D_{April}	−0.0547	−1.5782	0.1204
D_{June}	−0.0848**	−2.4452	0.0178
D_{July}	−0.0488	−1.4079	0.1649
D_{Aug}	−0.0651	−1.7911	0.0789
D_{Sep}	−0.0383	−1.0527	0.2972
D_{Oct}	−0.0692	−1.9041	0.0622
D_{Nov}	−0.0893**	−2.4559	0.0173
D_{Dec}	−0.0490	−1.3462	0.1839

Values and significance of the intercept and difference in average returns between other months and May estimated from model (3). **Denotes significance at 5% level of significance

monthly returns compared to May. November returns are the lowest amongst all months and are less than May returns by 8.93%. Only three months; February, June and November, suffer significantly lower returns compared to May with P < 5%. The difference in average returns between the remaining months and May are negative but statistically insignificant.

In order to test the statistical significance of the individual months in more details, I will use the following standard random walk regression with a dummy variable;

$$R_t=\alpha+\beta_m D_{mt}+\varepsilon_t \quad (4)$$

Where R_t represents the continuously compounded monthly returns and D_{mt} is a dummy variable representing month m, while ε_t is the error term from the regression. β_m shows the magnitude of the difference between the average return of the month of interest m and the average return during the rest of the year. Table 4 illustrates the coefficient estimates and t-statistics for each calendar month from the estimation of model (4).

Table 4: Regression analysis for model (4) for the period 2010-2015

Variable	β_i	t-stats	P value
January	−0.0041	−0.1469	0.8837
February	−0.0142	−0.5549	0.5809
March	−0.0097	−0.3798	0.7054
April	0.0034	0.1336	0.8941
May	0.0636**	2.6102	0.0113
June	−0.0296	−1.1685	0.2469
July	0.0099	0.3873	0.6998
August	−0.0079	−0.2837	0.7775
September	0.0212	0.7630	0.4483
October	−0.0123	−0.4439	0.6586
November	−0.0341	−1.2371	0.2206
December	0.0096	0.3453	0.7310

**Denotes significance at 5% level of significance

Over the sample period, average returns on April, May, July, September and December are higher than the rest of the year but insignificant apart from May. The average returns on May outperforms the average of the year by 6.63% which is significant at 5% level of significance. The average returns of any of the remaining months are below the average of the year and are statistically insignificant.

The fiscal year-end for nearly all firms at DSE is December, which matches the calendar year-end and dividends if any are paid once a year usually in May. However, the results of this paper preclude the existence of January effect at DSE given that January returns are negative and insignificantly different from zero. The absence of institutional investTors in DSE that can lead the tax-loss hypothesis or window dressing behavior could explain the non-existence of January effect.

The large and significant returns in May compared to other months confirm the existence of month-of-the-year effect at DSE which is May effect. However, this is surprising given that May is the month when most firms at DSE pay their dividends which usually corresponds with declines in stock markets.

4. DISCUSSIONS AND CONCLUSION

The results of this paper suggest the existence of a calendar anomaly of month-of-the-year effect in DSE, that is May effect. May returns are at least two times higher than the best month in terms of returns in the year. This is consistent with Coutts and Sheik (2000) having higher returns in May at Johannesburg stock exchange. November is the worst month in terms of average return. May effect is neither attributed to small size effect because DSE index is a value-weighted index, nor it can be attributed to institutional investors trading stocks on the aim of window dressing or tax-loss hypothesis.

The existence of May effect can be explained by dividend month premium suggested by (Hartzmark and Solomon, 2013) who document positive abnormal returns for firms in months when they are expected to pay dividends and attributes it to price pressure from dividend seeking investors.

The findings of this paper are important for investors and researchers alike. Investors can exploit this calendar anomaly through developing a strategy that purchases stocks at the end of November and sell at the end of May. The large spread in returns between May and November and the low transaction costs in DSE, that range between 0.4% and 0.7%, suggests that utilizing such strategy is profitable.

Researchers, on the other hand, need to consider May effect in portfolio construction, the evaluation of fund performance, as well as in asset pricing tests. The existence of May effect may be considered as a contradiction to the efficient markets hypothesis. This result is consistent with Mouselli and Al-Samman (2013) who find the DSE is weak-form inefficient. However, Brooks (2008) warns that a calendar anomaly should not be seen as a contradiction to the efficient markets hypothesis unless the time varying nature of returns is explored at DSE which could be a venue for future research.

This paper does neither explore the existence of May effect on individual stocks level nor examine the interaction between month-of-the-year effect and other stock market anomalies such as size effect. Those limitations are important questions that deserve further research.

REFERENCES

Agrawal, A., Tandon, K. (1994), Anomalies or illusions? Evidence from stock markets in eighteen countries. Journal of International Money and Finance, 13(1), 83-106.

Ahsan, A.F.M., Sarkar, A.H. (2013), Does January effect exist in Bangladesh? International Journal of Business and Management, 8(7), 82-90.

Al-Ississ, M. (2015), The holy day effect. Journal of Behavioral and Experimental Finance, 5, 60-80.

Al-Saad, K., Moosa, I.A. (2005), Seasonality in stock returns Evidence from an emerging market. Applied Financial Economics, 15, 63-71.

Anderson, L.R., Gerlach, J.R., DiTraglia, F.J. (2007), Yes, Wall Street, There is A January effect! Evidence from laboratory auctions. Journal of Behavioral Finance, 8(1), 1-8.

Ariel, R.A. (1987), A monthly effect in stock returns. Journal of Financial Economics, 18(1), 161-174.

Barone, E. (1990), The Italian stock market: Efficiency and calendar anomalies. Journal of Banking and Finance, 14, 483-510.

Van den Berg, W., Wessels, R. (1985), Stock market seasonality and taxes: An examination of the tax loss selling hypothesis. Journal of Business Finance & Accounting, 12, 515-530.

Bouman, S., Jacobsen, B. (2002), The halloween indicator, "Sell in May and Go Away": Another puzzle. American Economic Review, 92(5), 1618-1635.

Brooks, C. (2008), Introductory Econometrics for Finance. 2nd ed. Cambridge: Cambridge University Press.

Brown, P., Keim, D.B., Kleidon, A.W., Marsh, T.A. (1983), Stock return seasonalities and the tax-loss selling hypothesis. Journal of Financial Economics, 12(1), 105-127.

Canestrelli, E., Ziemba, W. (2000), Seasonal anomalies in the Italian stock market 1973-1993. In: Security Market Imperfections in World Wide Equity Markets. Cambridge, U.K: Cambridge University Press.

Clark, R., Ziemba, W.T. (1987), Playing the turn-of-the-year effect with index futures. The Operations Research, 35, 799-814.

Coutts, J.A., Sheik, M. (2000), The January effect and monthly seasonality in the all gold index on the Johannesberg stock exchange 1987-1997. Applied Economics Letters, 7, 489-492.

Donnelly, R. (1991), Seasonality in the Irish stock market. Irish Business and Administrative Research, 12, 39-51.

Dyl, E.A. (1977), Capital gains taxation and year-end stock market behavior. Journal of Finance, 32, 165-175.

Easterday, K.E., Sen, P.K. (2015), Is the January effect rational? Insights from the accounting valuation model. The Quarterly Review of Economics and Finance, 49, 1117-1193.

Gahan, S. (1993), The January Effect Is There Evidence of Its Existence on the Irish Stock Exchange? Business. Dublin: Dublin City University.

Hartzmark, S.M., Solomon, D.H. (2013), The dividend month premium. Journal of Financial Economics, 109(3), 640-660. Available from: http//www.dx.doi.org/10.1016/j.jfineco.2013.02.015.

Haug, M., Hirschey, M. (2006), The January effect. Financial Analysts Journal, 62(5), 78-88.

Haugen, R., Lakonishok, J. (1988), The Incredible January Effect: The Stock Market's Unsolved Mystery. Homewood, III: Dow-Jones-Irwin.

Haugen, R., Jorion, P. (1996), The January effect Still here after all these years. Financial Analysts Journal, 52(1), 27-31.

Keim, D.B. (1983), Size-related anomalies and stock return seasonality. Journal of Financial Economics, 12(1), 13-32.

Lakonishok, J., Smidt, S. (1988), Are seasonal anomalies real? A ninety year perspective. Review of Financial Studies, 1, 403-425.

Levy, T., Yagil, J. (2012), The week-of-the-year effect: Evidence from around the globe. Journal of Banking & Finance, 36(7), 1963-1974.

Lucey, B. (1994), Some empirics of the Iseq index. Economic and Social Revew, 25, 157-179.

Lynch, A., Puckett, A., Yan, X. (Sterling). (2014), Institutions and the turn-of-the-year effect: Evidence from actual institutional trades. Journal of Banking & Finance, 49, 56-68.

Mouselli, S., Al-Samman, H. (2013), Testing the pricing efficiency of damascus securities exchange. Damascus University Journal of Economical and Law Sciences, 29(2), 151-159.

Ng, L., Wang, Q. (2004), Institutional trading and the turn-of-the-year effect. Journal of Financial Economics, 74, 343-366.

Officer, R.R. (1975), Seasonality in Australian capital markets. Journal of Financial Economics, 2(1), 29-51.

Ramcharran, H. (1997), Seasonality in the Jamaican stock market: An examination of stock returns and the volume traded. Journal of Emerging Markets, 2, 23-35.

Reinganum, M., Shapiro, A. (1987), Taxes and stock return seasonality Evidence from the London stock exchange. Journal of Business, 60, 281-295.

Reinganum, M.R. (1983), The anomalous stock market behavior of small firms in January. Journal of Financial Economics, 12(1), 89-104. Available from: http//www.sciencedirect.com/science/article/pii/0304405X83900296. [Last accessed on 2015 Sep 02].

Rozeff, M.S., Kinney, W.R. (1976), Capital market seasonality: The case of stock returns. Journal of Financial Economics, 3(4), 379-402.

Seyyed, F.J., Abraham, A., Al-Hajji, M. (2005), Seasonality in stock returns and volatility: The Ramadan effect. Research in International Business and Finance, 19, 374-383.

Sikes, S.A. (2008), The January effect and institutional investors: Tax-loss-selling or window-dressing? SSRN Electronic Journal. Available from: http//www.papers.ssrn.com/abstract=1343253. [Last accessed on 2015 Aug 18].

Singal, V. (2003), Beyond the Random Walk: Guide to Stock Market Anomalies and Low-Risk Investing. New York: Oxford University Press.

Wachtel, S.B. (1942), Certain observations on seasonal movements in stock prices. The Journal of Business of the University of Chicago, 15(2), 184-193.