

Does January Effect Exist in Bangladesh?

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Abstract

This paper examines existence of January effect in Dhaka Stock Exchange (DSE) in Bangladesh. Regression model combined with dummy variables and monthly DSE All Share Price Index (DSI) from January 1987 to November 2012 has been used to test January effect in the stock return in DSE. It was empirically found that, although January anomaly doesn't exist in DSE, there is significant positive return in June which raises question against efficient market hypothesis (EMH). Thus, there is an opportunity for investors to take advantage of this June anomaly.

Keywords: January effect, turn-of-the-year effect, window-dressing, tax-loss selling, efficient market hypothesis

1. Introduction

The introduction of the Efficient Market Hypothesis (EMH) by Fama (1970) led to numerous empirical studies to examine the randomness of stock price movements. EMH basically posits that past stock prices should have no predictive power of future prices, i.e., stock prices should be random. However, plethora of researches has been conducted to show that market inefficiencies do exist. For example, EMH has been tested worldwide by a number of calendar anomalies, e.g., days of the week effect, month of the year effect, January effect, holiday effect, etc. Anomalies allow investors to foretell stock price movements, and thus help to generate abnormal return by taking advantage of those stock market inefficiencies.

The objective of this paper is to study the existence of "turn-of-the-year" or "January effect" in stock returns in Dhaka Stock Exchange (DSE) in Bangladesh. The January effects a seasonal irregularity of the financial market where stock prices tend to fall towards the end of December and then recuperate quickly in the first month of the New Year, i.e., January.

Monthly value of DSE All Share Price Index (DSI) for 26 years, i.e., 1987 to 2012, has been employed for detecting January effect in DSE. Regression models coupled with dummy variables is used to test the existence of January effect. Even though results of this study confirmed "June effect" in the stock return in DSE, January effect was not detected.

Section 2 of this study lists previous studies related to January anomaly in the U. S. and around the globe. Section 3 describes data collection and explains methodology. Section 4 discusses results of the research. Lastly, section 5 provides concluding remarks on the study with a note on media accountability.

2. Literature Review

Although the January effect was brought to the attention of modern finance by Rozeff and Kinney (1976), Wachtel (1942) was the first to examine seasonality in the Dow Jones Industrial Average (DJIA) Index from 1927 to 1942. He documented frequent bullish tendencies from December to January in eleven of the fifteen years he studied. His study is based on the following three assumptions (Shin, 2003): (1) The high-yielding stocks are usually the stocks whose prices have decreased, and they are the best stocks to sell in December to get tax benefit, (2) individuals and corporations sell stocks for tax-saving at the middle of December to establish tax losses, and such pressures drives security prices below what they should be according to potential earnings, (3) the rise at the year's end is nothing more than a normal reaction from depressed levels.

Rozeff and Kinney (1976) calculated that the average return on an equal-weighted NYSE index from 1904

through 1974 was 3.48 percent during January and only about 0.42 percent during the remaining 11 months of the year. Hence, January returns appeared to be more than eight times higher than returns during a typical month. Branch (1977), Dyl (1977), Keim (1983), Reinganum (1983), Haugen and Jorion (1996), Mehdian and Perry (2002) also confirmed existence of the January effect in the U. S. stock markets. Gultekin and Gultekin (1983) reported international evidence of “January effect” and therefore makes this a global issue.

Schwert (2003) concluded that the January effect weakened in the period from 1980-2001, but that it still existed. Moosa (2007), using monthly average returns of the U.S. stocks for period of 1970 to 2005, showed that a significant January effect existed except for the period 1990-2005 where negative July effect dominated. Mehdian and Perry (2002) reported that while January mean returns are positive in U.S. stock markets, they are not statistically significant after the 1987 U.S. stock market crash. Lindley, Liano and Slater (2004) demonstrated that many years during the period 1962-2000 did not have a significant January effect and that some years had a negative January effect.

Since an equally-weighted NYSE index represents a simple average of the stock prices for all listed firms, the Rozeff and Kinney (1976) methodology gives smaller companies greater relative influence than would be true for a value weighted index where large firms dominate. Keim (1983) found that January effect is more significant for small firms and, half of the January returns came during the first five days of the month, particularly on the first trading day. Subsequent research by Reinganum (1983) and Roll (1983), among others, confirms the fact that this January effect is a small cap phenomenon. Using Markov-switching model, Rathinasamy (2004) analyzed the monthly stock returns for the period 1926-1992 but did not found any significant January effect. However, for small firms in terms of capitalization, very strong January effect existed.

January effect has also been detected in Canada (Berges, McConnell, & Schlarbaum, 1984), Japan (Kato & Schallheim, 1985), Malaysian (Nassir & Mohammad, 1987), U.K. (Mills & Coutts, 1995), Greece (Mills, Siriopoulos, Markellos & Harizanis, 2000), Chile, Greece, Korea, Taiwan and Turkey (Fountas & Segredakis, 2002), India (Pandey, 2002), Sweden (Hellstrom, 2002), Nepal (Bahadur & Joshi, 2005), Poland, Romania, Hungary and Slovakia (Asteriou & Kovetsos, 2006), Argentina (Rossi, 2007). However, conflicting results are also available. For instance, January effect in Jordon (Maghayereh, 2003), Greece (Flores, 2008), Brazil, Chile and Mexico (Rossi, 2007) wasn't detected.

Using daily DSE composite index data from December 1988 to November 2001, Chowdhury (2005) found turn of the year effects for both traditional (English) and the financial year in Bangladesh. He found that the first day of January produces on average 0.45491% return per day(or, 125% annual return) and the last day of the financial year, i.e., June, generates significantly positive return, which is as high as staggering 1.20135% daily (or 330% annually).

Suggested explanations of the January effect comprise tax-loss selling, window dressing, increased liquidity in December, and new information effect. Tax-loss selling hypothesis (Branch, 1977) asserts that in December, i.e., end of tax year, investors tend to sell out the stocks held to realize capital losses. This helps them in reducing tax paid by them on their gains. As a result of this downward trend in market, stock prices go down. As the new tax year starts in January, investors again start to buy stocks and this upward drift pushes the stock prices up. Window dressing hypothesis (Haugen & Lakonishok, 1988) posits that, to manipulate their performance, fund managers, avoid showing losers at their credit at year end, and thus start selling loser stocks from their fund and let only the winners stay in their portfolio. However, on January, fund managers reverse their action and start selling winners and put small stocks back in the portfolio. These window dressing actions by the fund managers create artificial downward pressure (and low returns) in December and upward pressure in the market (and high returns) in January.

Liquidity hypothesis (Ogden, 1990) states that January anomaly takes place as increased cash-flows, because of extra holiday payments, holiday gifts, and annual bonuses, poured in the stock market directly by individual investors or through mutual funds and pension funds. Investment decisions also likely to be made in January so there is a buying pressure during this month. New information hypothesis is based on the idea that stock prices tend to change as new information land in the marketplace. Positive new information pushes the stock price upward, and vice versa. Plethora of information lands in the market in first few days of January results in January effect (Rozeff & Kinney, 1976).

3. Data and Research Methodology

3.1 Data

This Section offers a brief description of the empirical setting and the data set. Monthly observations, for the period January, 1987 through November, 2012, of DSE All Share Price Index (DSI) are used to investigate the turn of the year effect in Dhaka Stock Exchange (DSE) in Bangladesh. DSI is a value-weighted index which includes all the stocks listed on the DSE. All the index data has been collected from the Dhaka Stock Exchange library.

3.2 Methodology

Monthly return of DSI Index is calculated as the natural log of [today's Index Value / previous day's Index Value]:

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

Where:

R_t = Monthly return of DSI Index.

P_t = Closing value of DSI Index at time t .

P_{t-1} = Closing value of DSI Index at time $t-1$.

The reasons to choose logarithm returns over general return are justified by both theoretically and empirically. Theoretically, logarithmic returns are analytically more tractable when linking together sub-period returns to form returns over longer intervals. Empirically, logarithmic returns are more likely to be normally distributed which is prior condition of standard statistical techniques (Strong, 1992).

To test the existence of monthly seasonality, the following basic regression model is used:

$$R_t = C + \beta_2 D_{Feb} + \beta_3 D_{Mar} + \beta_4 D_{Apr} + \beta_5 D_{May} + \beta_6 D_{Jun} + \beta_7 D_{Jul} + \beta_8 D_{Aug} + \beta_9 D_{Sep} + \beta_{10} D_{Oct} + \beta_{11} D_{Nov} + \beta_{12} D_{Dec} + \mu_t \quad (2)$$

Where, R_t is the monthly return and the intercept term, C , indicates the average return for January. D_i is a dummy variable that takes the value of 1 in month i and zero otherwise. For instance, $D_{Feb} = 1$ if the return is on February and 0 otherwise; $D_{Mar} = 1$ if the return is on March and 0 otherwise; $D_{Dec} = 1$ if the return is on December and 0 otherwise and so on. The OLS coefficients β_2 to β_{12} indicate the difference in return between January and the i th month of the year. The stochastic disturbance term is denoted by μ_t .

4. Analysis of Data and Results

Movement of the DSE All Share Price Index (DSI) for the whole sample period, i.e., from February, 1987 to November, 2012 is shown in figure 1.

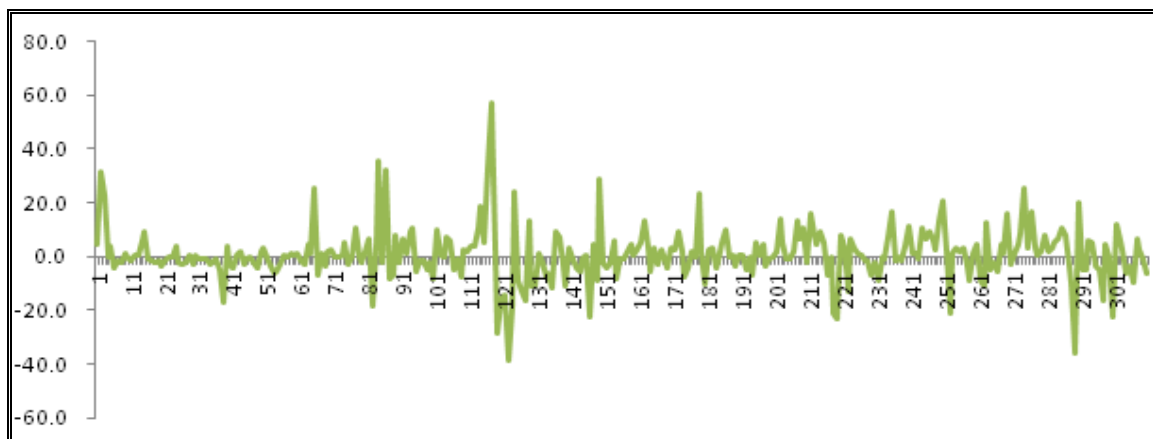


Figure 1. DSI monthly return during 1987-2012(%)

Return data has been tested for unit roots employing the augmented Dickey-Fuller (ADF) test. The results of the

ADF test, presented in table 1, leads to rejection of the hypothesis of a unit root, so that the monthly DSE returns series can be taken to be stationary.

Table 1. Test for unit roots

	ADF with constant	ADF without constant
1 lag	-11.6882 (5.229e-024)***	-11.7343 (7.683e-025)***
5 lag	-7.38915 (1.826e-012)***	-7.46633 (1.71e-011)***
10 lag	-4.93985 (9.961e-007)***	-5.02877 (1.782e-005)***

Note: figures in the parentheses show p-values. *** indicates significant at 1% level.

Table 2 presents summary statistics for the whole sample period. The maximum return during in the whole sample period is ≈ 56.93 percent which took place in October 1996, right before the epic market crash on the same year. Even though there were two massive market crashes in Bangladesh in 1996 and 2010, the average monthly return for the entire period from 1987 to 2012 is 0.7996 percent market, on average, experiences negative return from December to April. While February suffers lowest return, June observes the highest return in stock market in Bangladesh. Returns exhibit negative skewness (i.e., data are skewed to the left) for four months and positive skewness (i.e., data are skewed to the right) for eight months. Five months have kurtosis greater than three which represents leptokurtic distribution, i.e., flatter tails than the normal distribution.

Table 2. Summary statistics for 1987-2012

	Mean	Minimum	Maximum	Kurtosis	Skewness	p-value	N
January	-0.0196	-0.2283	0.3576	4.2594	1.2512	00	25
February	-0.0213	-0.3616	0.1183	11.2397	-2.8137	00	26
March	-0.0031	-0.3893	0.3233	1.8952	-0.0844	0.3797	26
April	-0.0035	-0.2333	0.2238	1.7653	-0.2885	0.3799	26
May	0.0163	-0.0931	0.2396	2.3908	1.0748	0.0214	26
June	0.0509	-0.0904	0.2879	1.4775	1.0064	0.0845	26
July	-0.0081	-0.133	0.1869	0.3974	0.6904	0.3981	26
August	0.0109	-0.1666	0.1696	1.7085	0.016	0.4732	26
September	0.0251	-0.0588	0.3279	10.188	2.7519	00	26
October	0.0322	-0.1621	0.5692	12.9692	2.9903	00	26
November	0.0191	-0.1814	0.2545	0.4085	0.6453	0.4465	26
December	-0.0046	-0.2871	0.1239	11.4431	-2.6359	00	25

The regression model is run for three different sample periods: 1987-1996, 1987-2006 and 1987-2012. Table 3 exhibits regression results for the partial sample period January, 1987 to December, 1996. The first devastating stock market crash in Bangladesh was recorded in 1996. Though results are not significant, January effect is visible during 1987 to 1996; the difference between the mean return in January and December is negative and while it is positive for January. Only for three months, i.e., march, June and October, the return difference between January and the i th month of the year is positive.

Table 3. Regression analysis for period 1987-1996 (dependent variable: logarithmic return)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Intercept (C)	0.0306747	0.0334339	0.9175	0.36096
D_{Feb}	-0.0344926	0.0460854	-0.7484	0.45583
D_{Mar}	0.0212339	0.0460854	0.4608	0.64591
D_{Apr}	-0.00329977	0.0460854	-0.0716	0.94305
D_{May}	-0.0493551	0.0460854	-1.0709	0.28660
D_{Jun}	0.0225191	0.0460854	0.4886	0.62610
D_{Jul}	-0.0320936	0.0460854	-0.6964	0.48769
D_{Agu}	-0.0242601	0.0460854	-0.5264	0.59969
D_{Sep}	-0.0002321	0.0460854	-0.0050	0.99599
D_{Oct}	0.0470867	0.0460854	1.0217	0.30921
D_{Nov}	-0.0410162	0.0460854	-0.8900	0.37546
D_{Dec}	-0.0669186	0.0460854	-1.4521	0.14941
R-squared	0.103421		Adjusted R-squared	0.011250

Note: *** indicates significant at 1% level; ** indicates significant at 5% level; * indicates significant at 10% level.

Table 4 shows regression results for the partial sample period January, 1987 to December, 2006. In this sample period, the mean return for January is negative while the June effect has become prominent and visible.

Table 4. Regression analysis for period 1987-2006 (dependent variable: logarithmic return)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Intercept (C)	-0.00911204	0.0222632	-0.4093	0.68272
D_{Feb}	-0.00755711	0.0310889	-0.2431	0.80816
D_{Mar}	-0.007332	0.0310889	-0.2358	0.81377
D_{Apr}	0.00236818	0.0310889	0.0762	0.93935
D_{May}	0.0242246	0.0310889	0.7792	0.43667
D_{Jun}	0.0638846	0.0310889	2.0549	0.04103(**)
D_{Jul}	0.000372806	0.0310889	0.0120	0.99044
D_{Agu}	0.0150277	0.0310889	0.4834	0.62929
D_{Sep}	0.034011	0.0310889	1.0940	0.27512
D_{Oct}	0.0478835	0.0310889	1.5402	0.12490
D_{Nov}	0.0134554	0.0310889	0.4328	0.66557
D_{Dec}	-0.00306415	0.0310889	-0.0986	0.92157
R-squared	0.051804		Adjusted R-squared	0.005856

Note: *** indicates significant at 1% level; ** indicates significant at 5% level; * indicates significant at 10% level.

Table 5 presents regression results for the whole sample period, i.e., 1987 to 2012. The coefficients for all the dummy variables, except June & October, are statistically insignificant.

Table 5. Regression analysis for period 1987-2012 (dependent variable: logarithmic return)

	Coefficient	Std. Error	t-ratio	p-value
Intercept (C)	-0.0195613	0.0193729	-1.0097	0.31345
D_{Feb}	-0.00170076	0.0271327	-0.0627	0.95006
D_{Mar}	0.016498	0.0271327	0.6080	0.54362
D_{Apr}	0.0161052	0.0271327	0.5936	0.55325
D_{May}	0.0358891	0.0271327	1.3227	0.18694
D_{Jun}	0.0705038	0.0271327	2.5985	0.00983(***)
D_{Jul}	0.0114164	0.0271327	0.4208	0.67423
D_{Agu}	0.0304651	0.0271327	1.1228	0.26242
D_{Sep}	0.0446364	0.0271327	1.6451	0.10100
D_{Oct}	0.0517254	0.0271327	1.9064	0.05756(*)
D_{Nov}	0.0386147	0.0271327	1.4232	0.15573
D_{Dec}	0.0149939	0.0273974	0.5473	0.58460
R-squared	0.045889		Adjusted R-squared	0.010670

Note: *** indicates significant at 1% level; ** indicates significant at 5% level; * indicates significant at 10% level.

Figure 2 exhibits average monthly return during 1987 through 2012. Average return for January, February, March, April, July and December is negative. Average return for the month June is 5.09 percent or 61.08 percent annually. Also, the R-squared is comparatively low. July, first month of the fiscal year in Bangladesh, also takes negative return which raises serious question about validity of tax-loss selling hypothesis.

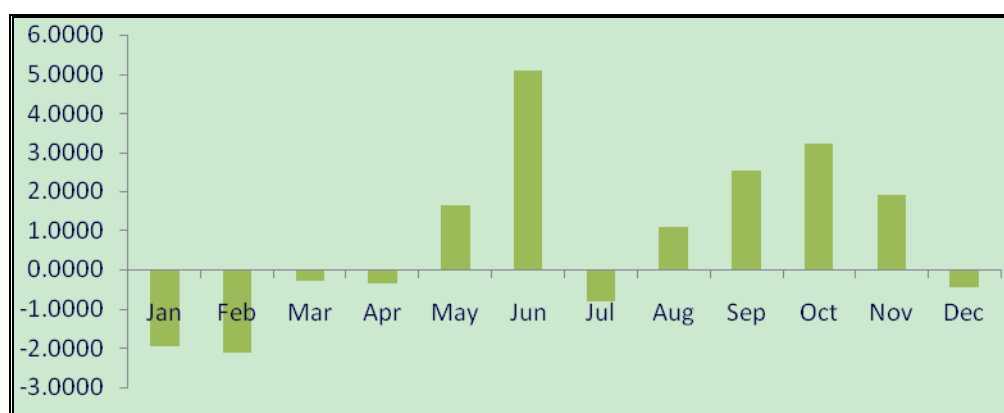


Figure 2. Mean monthly market return during 1987-2012

Apart from a positive June effect, the results, on overall, does not seem to support existence of January anomaly in Dhaka Stock Exchange (DSE) in Bangladesh. These results are not consistent with Chowdhury (2005). Moosa (2007) attributed the vanishing January effect to: (i) changes in accounting standards that do not make as great a distinction as in the past between realized and unrealized capital gains and losses; (ii) changes in the tax

treatment of realized and unrealized gains/losses; and (iii) lower marginal tax rates, which dampens the incentive to engage in tax motivated trading.

Existence of significant June return is in direct violation of efficient market hypothesis since investors can take benefit from significant positive return in June.

5. Conclusion

During 1987 through 2012, January anomaly is not found in Dhaka Stock Exchange (DSE) in Bangladesh. The result is opposite of what Chowdhury (2005) discovered. In fact, during the sample period, mean stock return in December to April was negative. July is the first month of the financial year in Bangladesh, and Absence of significant positive return in July rejects usefulness of tax-loss selling hypothesis.

However, a significant positive June anomaly has been detected in DSE which raises serious question against efficient market hypothesis. Existence of June anomaly in DSE enables the investors to forecast the future stock prices by observing the current trend in stock market and can devise investment strategies which may help them to outperform the market.

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