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January Effect: The Malaysian Experience

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ABSTRAK

Kajian-kajian lepas di Amerika, Kanada dan Australia mendapati ujudnya kesan bermusim iaitu "kesan Januari" dan "kesan hujung tahun" yang disebabkan oleh cukai keuntungan modal di negara-negara tersebut. Kertas ini cuba mengkaji sama ada terdapatnya kesan Januari di Malaysia walaupun tiadanya cukai laba modal dikenakan kepada para pelabur. Secara keseluruhanya, pemerhatian awal menunjukkan terdapatnya purata pulangan yang lebih tinggi pada bulan Januari berbanding dengan bulan-bulan yang lain bagi 5 daripada 6 sektor di dalam Bursa Saham Kuala Lumpur. Walaubagaimanapun, ujian statistik-F mendapati bahawa perbezaan-perbezaan tersebut secara keseluruhannya adalah tidak ketara, yang bermakna tidak ujudnya kesan bermusim di Malaysia. Ujian statistik-t yang membuat perbandingan perbezaan yang lebih terperinci di antara purata pulangan bulan Januari dengan bulan-bulan yang lain mendapati juga bahawa pulangan di bulan Januari berbanding dengan bulan-bulan yang lain secara individu, kecuali untuk beberapa bulan yang tertentu, adalah tidak jauh berbeza.

ABSTRACT

Past studies in the United States, Canada and Australia indicated the existence of seasonality effect, i.e. "January effect" and "end-of-the-year effect", due to taxes imposed on the capital gains in these countries. This paper attempted to find out whether or not this conclusion is also true in the case of Malaysia where there is no tax imposed on the capital gains. Overall, initial observation showed that the average returns are higher in January compared to other months for 5 out of 6 sectors of the Kuala Lumpur Stock Exchange. However, the F-statistic test indicated that the overall differences among these months were not statistically significant, which means there is no seasonality effect in Malaysia. The t-statistic test which made a detailed comparison between the average returns in January with that of other individual month found that, except for a few cases, the average returns in January were not that much different from other months.

INTRODUCTION

Numerous studies in the West indicated some anamolies in the validity of the efficiency of the stock markets. Among them are the size effect, Monday or weekend effect, year-end effect, and the January effect. It is found that the average returns in January are higher than any other month and this phenomenon is called the January effect. This situation was attributed to the action by the investors in response to taxes on the capital gains. That is, the investors sell the securities with losses at the end of the year to take advantage of the tax rebate and delay the tax payments on the capital gains by holding the securities with capital gains. This action will results in the decrease of securities' prices at the end of the year, and on the other hand the increase in the prices of securities in the month of January.

Keim (1983) studied the securities traded on the New York Stock Exchange (NYSE) for the period of 1963 to 1979 and concluded that nearly 50 percent of these stocks exhibited high returns in the month of January. He also found that over 50 percent of those returns occurred during the first week of January.

Rozeff and Kinney (1976) who studied the average monthly returns on the NYSE between 1904 and 1974 found that the average return in January was higher than any other month, except from 1929 to 1940. They also found that the average returns for the months of July, November, and December were quite high and the lowest average returns were in the months of February and June.

Dyl (1977) studied 100 firms selected randomly from 1948 to 1970 to determine whether the January effect could be attributed to the taxes on capital gains. He found high volumes of trading for the securities with losses and low volumes of trading for securities with capital gains. He concluded that taxes on capital gains were the reason for the January effect.

Givoly and Ovadia (1983) also found that high returns in January were due to the tax factor. Their study which was done for the period of 1945 to 1979 found that the tax factor made the security prices lower in December and higher in January.

Gultekin and Gultekin (1983) found that the average rates of returns were unusually high in January for nearly every country represented, as shown in Appendix I. In addition, a study by Tinic and West (1984) found that January is the only month of the year where there exists a positive trade-off between the beta of a stock and its realized rates of return.

A study in Canada by Berges, McConnell and Schlarbaum (1984) for the 391 firms traded on the Toronto Stock Exchange from 1950 to 1980 found the existence of the year-end effect and the January effect as in the

United States. They also found that the effects were greater for small sized firms, thus conforming the findings of the studies by Reinganum (1981) and Roll (1982).

A study by Brown, Keim, Keildon and Marsh (1983) from 1958 to 1979, of all industrial firms traded on the Australian Stock Exchange found high average returns for December-January and July-August. These findings were similar with the findings of Praetz (1973) where the average returns were high in January-February and July-August but low average returns in March-April and November-December.

The purpose of this paper is to find out whether the seasonal effect exists in all six sectors of the Kuala Lumpur Stock Exchange (KLSE) even-though there are no taxes on capital gains in Malaysia. This paper will also indentify whether or not there exist a certain month which provides the highest return as found in the United States, Australia and Canada.

METHODOLOGY

The data are the monthly closing indices of the six KLSE indices, namely, the KLSE industrial index, the KLSE finance index, the KLSE hotels index, the KLSE properties index, the KLSE tins index, and the KLSE plantations index. This study covers a period of 19 years, starting from January 1970 to December 1988. These indices are widely quoted in Malaysia and believed to be representative of their respective sector.

The monthly rate of returns for month t in year n was calculated as

$$R_{t,n} = [(I_{t,n} - I_{t-1,n})I_{t-1,n}]100\%$$

where, $I_{t,n}$ and $I_{t-1,n}$ refer to monthly closing index for month t and month t–1, respectively. The average monthly returns for month t were calculated using the formula

$$\bar{R}_t = \sum_{i=1}^{n} R_{t,i}/n$$

where, $R_{t,i}$ refers to the returns in month t for year i, and n is the number of years.

The calculations for the monthly returns and the average monthly returns were made for all six sectors of the KLSE.

The following 2 null hypotheses were tested:

1. H_o. $\mu_1 = \mu_2 = \ldots = \mu_{12}$, that is, all average monthly rates of returns are equal.
2. H_o:$\mu_1 = \mu_i$, that is, the average rate of return for January equals the average rate of return for month i.

If the general notion of the weak form of the efficient market hypothesis is valid for Malaysian market as suggested by Barnes (1986), Laurence (1986), Neoh Soon Kean (1985) and Nassir Lanjong (1983), then the first null hypothesis should be accepted. That is, in an efficient market the overall return for all months should not be significantly different from each other. The second hypothesis was aimed at finding out a certain month which might produce returns significantly different from January January might produce the highest return, but whether or not the returns are significantly different from any other month is another question.

In testing the first null hypothesis, the oneway analysis of variance or the F-test (for example, see Berenson, Levine and Goldstein (1983), and Johnson and Siskin (1980)) was used. The observed value of the test statistic F-Observed, can be calculated as

$$\text{F-Observed} = \frac{\text{Between Groups Mean Square}}{\text{Within Groups Mean Square}}$$

The null hypothesis is rejected if F-Observed is greater than the F-table value at the 5 percent significance level. Degrees of freedom for F-table value are C–1 and N–C, where C is the number of groups (12 in our case), and N is the total number of observations (228 in our case).

In testing the second hypothesis, the t-test for independent samples (for example, see Johnson and Siskin (1980), and Mood, Graybill and Boes (1974)) was used. In general, the t-Observed can be calculated as

$$(\bar{x}_1 - \bar{x}_i)/\text{Standard Error}$$

where, $\bar{x}_1$ and $\bar{x}_i$ are the average monthly returns for month 1 and month i, respectively

There are two ways in which the standard error can be computed, depending on whether or not the variances of the two populations are equal. Fortunately, we can test the null hypothesis, variance for group 1 equals variance for group i, using the F-test. The F-statistic can be calculated as

$$\text{F-Observed} = s_1^2/s_i^2$$

where, s_1^2 and s_i^2 are the variances of two independent samples of sizes n_1 and n_i, respectively.

The value of the F-Observed is compared with the F-table value with $n_1 - 1$ and $n_i - 1$ degress of freedom at the 5 percent significance level. If the variances of the two populatios are significantly equal, the standard error can be calculated as

$$\{[(n_1 - 1)s_1^2 + (n_i - 1)s_i^2)/(n_1 + n_i - 2)][1/n_1 + 1/n_i]\}^{\frac{1}{2}}$$

where, n_1 is the number of monthly returns for month 1,
n_i is the number of monthly returns for month i,
s_1^2 is the variance of monthly returns for month 1,
and s_i^2 is the variance of monthly returns for month i.
The null hypothesis is accepted if the t-observed is within plus or minus the t-table value, with $n_1 + n_i - 2$ degrees of freedom at the 5 percent significance level.

If the variances of the two populations are significantly unequal, the standard error can be calculated as

$$[s_1^2/n_1 + s_i^2/n_i]^{\frac{1}{2}}$$

where all the varibales are as described in the above paragraph. The t-table value is based on the 5 percent significance level, with the number of degrees of freedom given by the smaller of n_1 or n_i.

Finally, the correlation coefficients are also computed to find out whether or not the movements (i.e. monthly returns) in these sectors are interrelated. The correlation coefficient between sector 1 and 2 can be computed as

$$r_{1,2} = \frac{\text{Cov } (1\ ,\ 2)}{[(\text{Var } 1)\ \ (\text{Var } 2)]^{\frac{1}{2}}}$$

where Cov (1 , 2) is the covariance between monthly returns of sector 1 and sector 2, and Var 1 and Var 2 refer to variances for sector 1 and sector 2, respectively.

FINDINGS

Table 1 shows the average monthly returns for all sectors of the KLSE. As can be seen, the highest average monthly returns, with the exception of the hotels sector, are in January. For the hotels sector, the highest average monthly return is in February, followed by August. The average monthly returns are positive across all sectors of the KLSE in February, May, and June. In December the average monthly returns are comparable to February, May, and June, except for the tins sector. The average monthly returns are mostly negative in July and November. Looking more closely at the averge monthly returns for the industrial sector, one can see that the returns are positive in all months from December to July. In the plantations sector the positive returns are in the months of December through June whereas in the tins sector, the positive returns are in January through June. The average monthly returns are mixed in other sectors.

Table 2 shows the results of the F-test according to sector. As indicated by the F-statistic values and the P-values, none of the sectors exhibits

TABLE 1. Average monthly returns (percent) by sector
January 1970 to December 1988

	Industrials	Finance	Hotels	Properties	Tins	Plantations
January	7.161	8.337	1.774	7.198	3.051	5.140
	(9.169)	(17.953)	(3.185)	(13.585)	(4.822)	(6.672)
February	1.529	2.894	3.506	4.169	1.826	1.361
	(8.017)	(8.544)	(9.744)	(14.644)	(6.460)	(4.783)
March	0.628	−1.333	−0.163	−0.506	0.148	0.909
	(8.878)	(7.850)	(9.800)	(12.499)	(7.113)	(8.575)
April	0.998	0.737	−0.875	2.110	1.583	1.552
	(9.149)	(9.614)	(6.230)	(7.240)	(5.254)	(8.990)
May	3.876	4.228	1.876	2.790	1.369	3.749
	(7.364)	(10.043)	(3.618)	(8.897)	(4.981)	(7.073)
June	1.509	2.681	1.259	3.379	2.081	2.076
	(8.098)	(8.484)	(3.603)	(10.451)	(9.143)	(6.753)
July	0.544	−0.956	−0.110	−0.456	−0.574	−1.162
	(9.239)	(9.003)	(3.381)	(8.956)	(6.145)	(6.858)
August	−1.352	−0.996	3.130	−1.411	0.761	−2.070
	(8.981)	(10.502)	(13.378)	(13.559)	(8.623)	(7.675)
September	−0.287	0.430	1.257	−0.263	−1.704	−0.231
	(4.928)	(7.617)	(5.885)	(9.241)	(4.048)	(5.148)
October	−0.309	0.331	0.754	0.653	0.989	0.654
	(9.707)	(9.947)	(5.645)	(10.564)	(13.388)	(10.378)
November	−2.741	0.579	−0.061	−1.967	−2.977	−0.345
	(9.124)	(15.684)	(3.465)	(9.564)	(6.426)	(5.648)
December	3.058	4.687	1.379	2.315	−0.093	4.344
	(8.192)	(17.319)	(11.183)	(12.118)	(5.340)	(6.660)

Note: Standard Deviations are shown in the parentheses.

TABLE 2. Results of oneway analysis of variance
of the monthly returns by sector

	MS (Between)	MS (Within)	F-Statistic	P-Value
Industrials	129.8021	71.8111	1.8076	0.0541
Finance	156.8835	134.6989	1.1647	0.3132
Hotels	33.6920	54.9989	0.6126	0.8172
Properties	134.7411	124.6055	1.0813	0.3775
Tins	54.5164	52.4292	1.0398	0.4124
Plantations	92.7451	52.8166	1.7560	0.0633

Note: Degrees of freedom for between groups and within groups are 11 and 216, respectively.

significant overall difference in terms of their average monthly returns at the 5 percent level. This finding supports the weak form of the efficient market hypothesis (see Fama (1970)) which contends that all months, more or less, provide equal returns. Actually, the Scheffe technique of multiple comparison (see Berenson and Goldstein (1983)) was also applied to further investigate the results of the F-test. The Scheffe technique did confirm the finding of the F-test at the 5 percent level of significance.

The results of the t-test are shown in Table 3. With the exception of the months of February, May, June and December, all other months seem to have average returns significantly different from January at the 5 percent level for the industrial sector. However, only August, September, and November do differ significantly from January in terms of the average monthly return at the 1 percent level. For the finance sector, only the average return in March differs significantly from January at the 5 percent level, and none differs significantly at the 1 percent level. In the hotels sector, no month is significantly different from January in terms of the average monthly return at the 5 percent level. In the properties sector, with the exception of September and November, the average returns of all months are not significantly different from January, and none differs at the 1 percent significance level. In the tins sectors, the difference occurs for September and November at both the 5 and 1 percents significance level. In the plantations sector, the differences are for the months of July, August, September, and November at the 5 percent significance level, and for the months of July, August, and September at the 1 percent significance level. When all other months are combined, only hotels sector exhibits no significant different at the 5 percent level. Only the industrial sector shows significant different at the 1 percent level.

Contradictory results between the F-test and the t-test should be explained here. Norusis (1983: 111) pointed out that a significant F-statistic indicates only that the population menas are probably unequal without pinpointing where the differences are. A variety of special techniques, termed multiple comparison procedures, such as Scheffe test, can be used to determine which population means are different from each other. These multiple comparison procedures protect against calling too many differences significant. These procedures set up more stringent criteria for declaring differences significant than does the usual t-test. That is, the difference between two sample means must be larger to be identified as a true difference. Norusis also mentioned that Snedecor and Cochran (1967) stated that there is a problem when t-test is used to test all possible pairs of means. The problem is that when many comparisons are made, some will appear to be significant even when all population means are equal. With five groups, for example, there are ten possible comparisons

TABLE 3. Results of t-Statistic by sector for averange return in January in comparison to the other month

	Industrials	Finance	Hotels	Properties	Tins	Plantations
February	2.02	1.19a	−0.74a	0.66	0.66	2.01
	(.051)	(.244)	(.469)	(.513)	(.513)	(.053)
March	2.23	2.15a	0.82a	1.82	1.47	1.70
	(.032)	(.041)	(.422)	(.077)	(.150)	(.098)
April	2.07	1.63a	1.65a	1.44a	0.90	1.40
	(.045)	(.115)	(.111)	(.161)	(.376)	(.171)
May	1.22	0.87a	−0.09	1.18	1.06	0.62
	(.231)	(.391)	(.926)	(.244)	(.298)	(.537)
June	2.01	1.24a	0.47	0.97	0.41a	1.41
	(.052)	(.226)	(.644)	(.338)	(.686)	(.168)
July	2.22	2.02a	1.77	2.05	2.02	2.87
	(.033)	(.054)	(.086)	(.048)	(.051)	(.007)
August	3.05	1.96a	−0.43a	1.96	1.01a	3.09
	(.004)	(.060)	(.672)	(.058)	(.321)	(.004)
September	3.12a	1.77a	0.34a	1.98	3.29	2.78
	(.004)	(.090)	(.738)	(.055)	(.002)	(.009)
October	2.35	1.70a	0.69a	1.66	0.63a	1.58
	(.024)	(.100)	(.499)	(.106)	(.534)	(.122)
November	3.34	1.70	2.41	3.27	2.73	
	(.002)	(.165)	(.098)	(.021)	(.002)	(.010)
December	1.45	0.64	0.15a	1.17	1.90	0.37
	(.155)	(.527)	(.884)	(.250)	(.065)	(.715)
Combined	3.20	1.70a	0.76a	2.34	2.25	2.37
	(.002)	(.105)	(.450)	(.020)	(.033)	(.019)

Notes: 1) Two-tailed P-values are shown in the parentheses. 2) a Using the formula for unequal variances.

between pairs of means. When all population means are equal, the probability that at least one of the ten observed significance levels will be less than 0.05 is about 0.29

CONCLUSIONS AND IMPLICATIONS

Overall, initial observation shows that there exists a month , i.e. January, which consistently produced the highest return in 5 out of the 6 sectors of the KLSE. The hotels sector produced the highest return in February and the second highest return in August. In general, positive returns can be expected in the months of December through February. This initial observation seems to conform to the January and end-of-the-year effects. The results of the t-test somewhat reinforce the existence of these effects in the Malaysian market, most notably in the industrial sector. In the hotels

sector, the return in January is not significantly different from any other month, which is something to be expected due to mostly inactive trading in this sector compared to other sectors. It should be noted here that the trading in the hotels sector is mostly on the Singaporean stocks. In other sectors, only a few months seem to differ from January in terms of the average monthly return.

If one were to accept the existence of the January and end-of-the year effects in Malaysia, then one has to offer some possible explanations for this phenomenon. In the West, one can say that it might be due to taxes on the capital gains, but in Malaysia there is no tax whatsover on capital gains. Another explanation is, professional investors (portfolio managers) move out (i.e. sell) from the more risky stocks portfolio to less risky stocks portfolio at the end of the year to give a more conservative picture of the portfolios which they manage. This action drives the stock prices down. In January, they move back into the market, thus drives the prices up. This might be true in Malaysia.

In Malaysia, most of the participants in the stock market are the Chinese who celebrate Chinese New Year in early February or late January They celebrate Chinese New Year in a grand scale, with the giving of "angpow" (gifts, normally cash money) to friends and relatives. One way of getting money is through speculation in the stock market. Therefore, the speculators start moving into the market as early as December, thus driving the prices up. On the other hand, the prices start to lose momentum in February when most of these speculators move out from the market. In Malaysia, this phenomenon is called the Chinese New Year effects.

Another explanation for this Chinese New Year effects is offered by some stock brokers in Malaysia to be due to "big players" who artificially "push up" the prices in early January because they have the large capital to do so and no small players can "outsmart" or "outclass" them since this action is taken in syndicate. Normally these so-called big players take a leave in January and February for the preparation of the Chinese New Year celebration. They push up the prices high in early January so that when they return to the market in late February the prices will still be as high as when they leave the market.

As discussed earlier in the previous section, the F-test for multiple comparison is more strict than the t-test in its decision to reject the null hypothesis of no difference in means. For one thing, the efficient market hypothesis is a general concept, and therefore, a general test such as the F-test is somewhat more appropriate to test the validity of the hypothesis. Furthermore, the author's calculations of the skewness of these returns show that the distribution of the monthly returns are skewed to the right, which is consistent with the F-Distribution. This means that the market is

still efficient in the weak form even with the seemingly high return in January. In other words, the efficient market hypothesis (the weak form) is still valid.

Appendix 1

Mean monthly returns (percent) by country, January 1959 to December 1979

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Australia	2.6	−.6	.5	.8	1.0	.4	.7	−.4	−2.4	2.1	−.8	4.0
Austria	.7	.9	.2	−.4	.1	.2	1.2	.9	.0	−.2	.7	1.2
Belgium	3.2	1.1	.4	1.5	−1.4	−.8	1.4	−1.2	−1.9	−.7	.4	−.1
Canada	2.9	.1	.8	.4	−1.0	−.3	.7	.6	−.1	−.8	1.4	2.6
Denmark	3.0	−.4	−1.2	.6	.4	.4	.5	−.1	−1.3	.3	−.9	2.0
France	3.7	−.2	2.0	.9	−.7	−1.9	1.5	1.0	−1.2	−.7	.4	.2
Germany	3.1	−.1	1.0	.6	.0	−.9	1.6	2.2	−1.7	−.9	1.4	.1
Italy	2.2	.9	.7	.7	−1.3	−.4	−.6	2.3	−.7	−1.3	.3	−.2
Japan	3.5	1.1	1.9	.3	1.0	2.1	−.3	−.8	−.1	−1.0	1.6	1.8
Net'lands	3.8	.5	1.3	1.4	−1.0	1.4	.5	−.3	−1.9	.2	−.1	1.3
Norway	4.3	−1.2	−.6	2.4	.3	2.0	3.0	.4	−1.6	−.5	.4	−.3
S'pore	10.6	.4	2.1	−2.3	4.0	.3	−.4	−1.0	2.4	−2.0	5.2	
Spain	2.2	1.3	.3	1.6	−1.9	.1	.8	1.3	−1.6	.2	−.4	.0
Sweden	4.0	.4	1.0	.9	−.8	−.2	2.4	−1.1	−1.3	−.7	−.2	.8
Swi'lands	4.6	−.7	.4	.9	−1.3	−.0	.6	1.7	−1.5	−.2	1.0	1.3
U. K	3.4	.7	1.2	3.1	−1.2	−1.7	−1.1	1.9	−.2	.8	−.6	2.0
U. S	1.0	−.4	1.3	1.0	−1.4	.6	.1	.3	−.8	.8	1.0	1.4

Source: Adapted from Gultekin, M. N. and Gultekin, B. N. 1983 (December). Stock market seasonality: International evidence. *Journal of Financial Economics.*

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