臺大管理論叢 4(1)，民82，5月：417-436

CHINESE NEW YEAR EFFECT IN ASIAN STOCK MARKETS

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Abstract

This paper explores the impact of Chinese New Year on stock prices, known as the Chinese New Year Effect, in Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan. Our findings show that there is solid evidence for the existence of such effect. Using the Wilcoxon testing procedure, annualized 5-day cumulative returns before Chinese New Year are significantly higher than actual annual returns. On the other hand, there is no evidence that cumulative returns after Chinese New Year are significantly higher or lower than actual annual returns.

Key words: stock market, Asia, Chinese New Year

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The authors are grateful to Chinfu Chang, M.T. Yu, T.S. Lee, and R. Harbaugh for their valuable comments. This research project is partially financed by the ROC National Science Council (NSC79-0301-H008-08p) and the Institute of Securities Market Development.

I. INTRODUCTION

Chinese New Year is the first day of each lunar year and the most important holiday in most Asian countries. In countries such as Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan, most commercial activities come to a halt and family members get together. Year-end bonuses (generally, 1-6 months additional salary depending on company earnings) are usually awarded to employees and overdue loans are normally settled before lunar New Year Eve.

An earlier study has documented Chinese New Year has a bullish impact, named as Chinese New Year Effect, on the stock market in Taiwan (see Lee, Yen and Chang [1992]). This paper widens the scope and explores the Chinese New Year Effect on the returns of major Asian stock markets where people celebrate Chinese New Year. We select six major Asian stock markets, i.e., Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan, and use daily stock indexes from 1976 to 1990 to test the Chinese New Year Effect on stock market returns. We find that Asian stock markets tend to rise before Chinese New Year.

II. DATA

Daily data for the following stock market indexes are collected from 1976 to 1990:

Hong Kong: Hang Seng Stock Price Index.

Japan: Nikkei Stock Price Index.

Malaysia: Kuala Lumpur Stock Exchange Composite Index.

Singapore: Straits Times Stock Price Index.

South Korea: Korea Composite Stock Price Index.
Taiwan: Taiwan Stock Exchange Weighted Stock Price Index.

In order to calculate the returns before and after the Chinese New Year, we identify the corresponding dates in the Gregorian calendar according to the Calendar Table for Ten Thousand Years compiled by Hong [1992]. While the corresponding date in the Gregorian calendar changes every year, the reader should note that Chinese New Year generally follow a three-year cycle of late January, early February and late February by the Gregorian calendar.

III. CUMULATIVE RETURNS INDEX

We calculate a Cumulative Returns Index for each market. First, we calculate the daily return and cumulative returns for each market in the following simple manner:

$$r_{j.t} = \frac{P_{j.t} - P_{j.t-1}}{P_{j.t-1}} \tag{1}$$

$$CR_j(T) = \prod_{t=1}^{T} (1+r_{j.t}) \tag{2}$$

where
$r_{j,t}$ is stock market return from date t-1 to date t in year j;
$P_{j,t}$ is stock market closing price index on date t in year j.
$CR_j(T)$ is cumulative return for T days in the neighborhood Chinese New Year in year j.

While the calculation procedure is straightforward and simple, attention should be given to the dates selected to calculate the cumulative returns before and after the Chinese New Year. As men-

tioned in the last section, about two thirds of Chinese New Year fall in late January or early February so if we use a long observation period, e.g. 30 days before Chinese New Year, the test results will mingle the Chinese New Year Effect with the turn-of-year tax impact, known as the January Effect. Therefore, we use 5 days as the pre-determined period for the detection of Chinese New Year Effect in this paper. Specifically, a 5-day observation period will keep more than two thirds of cumulative return calculation periods lying outside of January, hence, avoid the confusion of Chinese New Year Effect with January Effect. As far as cumulative returns after Chinese New Year are concerned, we use 10 days as the observation period because the January Effect is not our concern and most stock markets are closed for 2-5 days. We use CR(-5) as the 5-day cumulative returns before Chinese New Year and use CR(+10) as the 10- day cumulative returns after Chinese New Year. We report the CR(-5) and CR(+10) for each year in Table 2 and Table 3 respectively.

According to the findings, it seems that if investors buy stocks 5 days before Chinese New Year and hold them until the last trading day before Chinese New Year, they can gain a much higher return than the average annual return in each market. On the other hand, cumulative returns after Chinese New Year in the six markets do not follow a clear pattern. Generally speaking, average CR(+10) returns are lower than CR(-5) returns. In addition, Hong Kong and Japan post negative returns for after Chinese New Year trading.

In order to visualize the cumulative return pattern before and after Chinese New Year, we calculate a Cumulative Return Index for each market.

$$CRI = \frac{1}{N} \sum_{j=1}^{N} \prod_{t=1}^{T} (1 + r_{j,t}) \qquad (3)$$

CRI is the cumulative return index for T days. We use T=30 and calculate the cumulative return for one dollar invested in the stock market 15 days before Chinese New Year and held for 15 days after Chinese New Year. A sample containing 15 years (1976-1990) is used in our empirical test. Figure 1-6 shows the CRI for each stock market during the sample period. It is interesting to see that price patterns before Chinese New Year show a consistent upward trend for all six markets. In addition, there is no clear upward price movement until one week before Chinese New Year. However, price patterns after Chinese New Year are mixed. For example, Hong Kong, Japan and South Korea show lower or negative returns but Malaysia, Singapore, and Taiwan show a continued upward trend after Chinese New Year. It is also interesting to note that Malaysia and Singapore show negative correlation between price movements before and after Chinese New Year. (See Table 4)

IV. WILCOXON TEST

Since we observe only 5-day or 10-day cumulative trading returns, the standard CAR test is not proper. In addition, we find that abnormal high cumulative returns, which are good for investors, are a mixed blessing because they are associated with relatively high standard deviations. As suggested by Dadkhah and Zahedi [1986] and Shyy [1989], a non-parametric Wilcoxon test is therefore applied to evaluate the cumulative returns. The procedure for the Wilcoxon test is as follows: (see Hogg and Craig [1978] for details)

1. Calculate Ct, the differences between annualized[5] cumulative return and actual annual return for each year[6].
2. Compare the ranks, R_j, of the absolute values of all of these cumulative returns:

3. Calculate the Wilcoxon statistic in the following manner:

$$W = \Sigma Z_t R_t, \text{ Where } Z_t = -1, \text{ if } C_t < 0 \; ; \; Z_t = 1, \text{ if } C_t > 0 \qquad (4)$$

4. Normalize the Wilcoxon statistic by dividing W by $N(N+1)(2N+1)/6$, where N is the number of years (15) in our sample.
5. Conduct the Wilcoxon test of the hypothesis H_0: $E(C_t) = 0$ vs. H_1: $E(C_t) > 0$ where $E(C_t)$ is the expected value of the difference between the annualized cumulative return and actual annual return.

In other words, we try to test whether expected 5-day cumulative returns before Chinese New year are larger than average return in the year.

Table 5 shows the normalized Wilcoxon statistics and probabilities for 5-day cumulative returns before Chinese New Year, CR(-5), are higher than average annual returns for Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan. In all six markets, we reject the hypothesis H_0 that the expected 5-day cummulative returns are equal to the average return in the year at the 5% significance level. Generally speaking, Hong Kong and South Korea show the strongest evidence with significance at the 1% level. Table 6 reports the normalized Wilcoxon statistics and probabilities for 10-day cumulative return after Chinese New Year, CR(+10). In general, the evidence is inconclusive for whether CR(+10) is higher or lower than annual returns. Statistically, no Wilcoxon number is significant at the 5% level. Specifically, CR(+10) in Hong Kong, Japan, South Korea are likely to be lower than annual return but CR(+10) in Singapore and Taiwan are likely to be higher. It is also interesting to note that while Malaysia has a higher expected return on CR(+10), its Wilcoxon statistic shows a negative sign, though very small, due to low probability and ranking orders explained previously.

(See Table 6)

V. CHINESE NEW YEAR EFFECT AND OTHER ANOMALOUS PRICE PATTERNS

In this section, we compare Chinese New Year Effect with other well known anomalous phenomena in stock market price patterns, i.e. , January Effect, Weekend Effect, and Year End Macroeconomic Effect.

(1) Chinese New Year Effect vs. January Effect:

A well known stock price pattern is the January Effect, also known as the Year-End Effect, which has been documented by Rozeff and Kinney [1976], Branch [1977], Roll [1982], and Jones, Lee and Apenbrink [1992]. Stock prices, especially for small firms and for firms whose price had already declined during the year, tend to fall in December of each year and rise during the following January. As explained before, Chinese New Year is different from January Effect in that the lunar calendar does not coincide with the Western calendar so this paper restricted cumulative return periods to late January and to February. In addition, all six Asian countries in our paper use the first of January in the Western calendar as the cut off date for tax purposes. As a result, Chinese New Year Effect cannot be explained by the tax-loss selling hypothesis.

(2) Chinese New Year Effect vs. Week-End Effect:

As pointed out by French [1980], Lakonishok and Levi [1981] and Jeffe and Westerfield [1985], stock prices tend to rise on Friday and drop on Monday. Since Chinese New Year is the longest and most important holiday in Asian Countries, like Christmas in the West, it is worthwhile to compare our empirical findings with those

found in Week-End Effect studies. On the one hand, we find a lot of similarity between Chinese New Year Effect and Week-End Effect. For example, both effects predict high return before the market-close. In addition, as companies wait until after the close of the market on Fridays to announce bad news, firms normally wait until the Chinese New Year holiday, 16 days after the New Year is over. On the other hand, we also find major differences between Chinese New Year Effect and Week-End Effect. For example, there is no conclusive evidence that prices drop after Chinese New Year. While Hong Kong and Japan post negative returns, Singapore/Malaysia and Taiwan market prices continue their bullish trend after Chinese New Year. Although Japan and South Korea do celebrate Chinese New Year, neither country closes its market during Chinese New Year. In addition, Although stock markets do not close in either Japan or South Korea, Chinese New Year has still exerted a perceptible impact on stock market.

VI. Chinese New Year Effect vs. Macroeconomic Effect

As mentioned briefly in the Introduction, Chinese New Year is a major event in the business community. Most importantly, awarding of year-end bonuses and settlement of loans traditionally happen before Chinese New Year. In addition, like Christmas, family gifts (new clothes and red envelopes containing gift money for children) also contribute to a consumption boom during Chinese New Year. In terms of macroeconomic indicators, money demand increases dramatically and interest rates normally jump before and during Chinese New Year holiday season. On the supply side, the central bank pumps new money into the banking system to accomodate the year

end seasonal demand (lunar calendar system). (see Lee [1992]) Interestingly, the rising interest rate environment does not stop the rise of stock prices in Chinese New Year. Generally speaking, the macroeconomic environment seems as well unable to explain the pattern of rising stock market prices before Chinese New Year.

VII. COMMENTS AND SUMMARY

This paper explores the Chinese New Year Effect on stock price patterns in Hong Kong, Japan, Malaysia, Singapore, South Korea, and Taiwan. Our findings show that there is significant evidence supporting the Chinese New Year Effect. Using the Wilcoxon testing procedure, annualized 5-day cumulative returns before Chinese New Year are significantly higher than actual annual returns. On the other hand, there is no significant evidence that cumulative returns after Chinese New Year are higher or lower than annual returns.

REFERENCES

Asian Wall Street Journal, " 1990 Major Business/Public Holidays in Asia, " 1990.

Branch, B., " A Tax Loss Trading Rule, " Journal of Business, April 1977:198-207.

Dadkhah, K.M., and F. Zahedi, " A Non-parametric Approach to Model Evaluation, " Journal of Operation Research Society, 37(7), 553-695, 1986.

Fama, E.F., Foundations of Finance. New York: Basic Books, 1976.

French, K., " Stock Returns and the Weekend Effect , " Journal of Financial Economics. March 1980, 55-69.

Hogg, R.V., and A.T.Craig, Introduction to Mathematical Statistics. New York: Macmillan, 1978.

Hong, G.S., Calendar Table for Ten Thousand Years. Taipei: Da Fu Publishing Co., 1992. (in Chinese)

Jaffe J. and R. Westerfield, " The Week-End Effect in Common Stock Returns: the International Evidence, " Journal of Finance, 40, June 1985, 433-454.

Jones, S. L., W. Lee, and R. Apenbrink, " New Evidence on the January Effect before Personal Income Taxes, " Journal of Finance, 46(5), 1991, 1909-1924.

Lakonishok, J., and M.Levi, 1981 " Weekend Effects on Stock Returns: A Note, " Journal of Finance, May 1981, 36: 883-889.

Lee, C.F., G. Yen, and C.Chang, " Informational Efficiency of Capital Market Revisited: Anomalous Evidence from a Refined Test, " Advances in Quantitative Analysis of Finance and Accounting, forthcoming.

Lee, T.C., 1991 " Chinese New Year Effect and Macroeconomic Environment in Taiwan Stock Market, " Paper presented at Taiwan Stock Market Conference, Sun Yen San University, Taiwan. (in Chinese)

Roll, R., 1982 " The Turn-of-the-Year Effect and the Return Premia of Small Firms, " UCLA Graduate School of Management, Working Paper No. 2-82.

Rozeff, M. S., and William R. Kinney, 1976 " Capital Market Seasonality: The Case of Stock Returns " Journal of Financial Economics, 3, 1976, 379-402.

Shyy, G., " Bullish or Bearish: A Bayesian Dichotomous Model to Forecast Turning Points in the Foreign Exchange Market " Journal of Economics and Business, 41, 1989, 49-60.

APPENDIX A:

Actual annual return for Japan (JAP), Korea (KOR), Singapore (SIN), Malaysia (MAL), Hong Kong (HOK), Taiwan (TAI) and Asia.

	HOK	JAP	KOR	MAL	SIN	TAI
1976	27.9	14.5	5.3	7.8	7.6	12.8
1977	-9.8	-2.5	21.4	23.7	3.7	21.0
1978	22.6	23.4	16.3	37.8	32.1	18.2
1979	77.5	9.5	-22.2	31.6	24.7	3.2
1980	67.6	7.5	-13.3	78.4	51.8	1.6
1981	-4.6	8.8	27.9	3.9	18.2	-1.3
1982	-44.2	4.4	3.0	-23.5	-6.2	-19.5
1983	11.6	23.4	-4.8	37.8	36.8	71.8
1984	37.2	16.7	15.1	-24.4	-18.9	10.0
1985	46.0	13.6	17.1	-23.1	-23.7	-0.4
1986	46.6	42.6	66.9	8.1	43.7	24.4
1987	-10.3	15.3	92.6	3.5	-7.6	125.2
1988	17.1	39.9	72.8	36.8	26.1	118.8
1989	5.2	29.0	0.3	57.3	42.6	88
1990	6.6	-38.7	-23.5	-11.0	-22.1	-52.9
mean	19.8	13.8	18.3	16.3	13.9	28.1

Table 1. Corresponding Chinese New Year Date in Gregorian Calendar

1976	January 31	1983	February 13
1977	February 18	1984	February 2
1978	February 7	1985	February 20
1979	January 28	1986	February 9
1980	February 16	1987	January 29
1981	February 5	1988	February 17
1982	January 25	1989	February 6
		1990	January 27

Table 2. 5-day cumulative return before Chinese New Year for Japan (JAP), Korea (KOR), Singapore (SIN), Malaysia (MAL), Hong Kong (HOK), Taiwan (TAI) and Asia. (in percentage)

	HOK	JAP	KOR	MAL	SIN	TAI
1976	6.6	1.0	2.0	4.8	5.1	2.4
1977	0.7	0.5	0.3	0.8	0.0	-0.8
1978	1.9	-0.1	3.5	0.8	0.7	1.5
1979	1.3	1.1	6.3	1.3	1.3	3.8
1980	5.9	0.3	2.8	4.6	1.0	1.1
1981	3.9	0.5	0.8	3.5	1.9	1.8
1982	0.5	3.0	0.2	1.2	1.6	2.0
1983	3.9	1.3	2.2	3.1	2.5	2.3
1984	5.0	-0.2	7.3	0.4	1.9	2.6
1985	6.0	0.6	0.0	2.1	1.0	1.7
1986	0.3	0.7	2.0	-0.1	-1.0	0.5
1987	2.2	2.4	1.1	1.8	1.0	0.7
1988	3.2	2.8	2.8	3.6	2.2	1.9
1989	1.1	0.8	0.4	0.9	0.9	1.3
1990	-0.1	-1.0	0.8	-2.1	-3.0	1.5
mean	2.8	0.9	2.2	1.8	1.1	1.6

Table 3. 10-day cumulative return after Chinese New Year Holiday for Japan (JAP), Korea (KOR), Singapore (SIN), Malaysia (MAL), Hong Kong (HOK), Taiwan (TAI) and Asia. (in percentage)

	HOK	JAP	KOR	MAL	SIN	TAI
1976	-3.0	-3.5	-0.2	-1.8	-2.1	-5.4
1977	-4.1	0.3	-1.5	-0.4	-0.8	-6.5
1978	-1.5	-0.1	-0.8	1.2	1.4	0.1
1979	3.5	-1.6	3.7	-0.3	-0.4	2.5
1980	-6.3	-1.3	-1.8	-2.4	-0.4	-1.6
1981	-4.7	-1.2	-2.3	3.3	3.0	2.2
1982	-1.1	-1.0	-1.6	-2.9	0.9	-1.0
1983	6.3	-2.6	0.9	1.7	1.3	6.3
1984	-5.2	-1.9	-0.4	-0.4	-1.0	2.7
1985	-4.2	1.4	-0.1	3.2	3.5	-1.6
1986	2.2	1.6	1.9	-0.7	1.7	3.9
1987	4.7	-1.3	4.7	5.2	1.8	3.8
1988	1.2	2.7	-0.3	0.2	0.4	2.7
1989	-0.2	0.5	1.4	-0.1	-2.0	5.4
1990	-0.4	2.1	-3.1	7.2	5.5	3.0
mean	-0.9	-0.4	0.0	0.9	0.9	1.1

Table 4. Correlation Coefficient for Cumulative Returns before and After Chinese New Year.

Hong Kong	-0.24
Japan	-0.065
Korea	0.298
Malaysia	-0.34
Singapore	-0.57
Taiwan	0.29

Table 5. The Normalized Wilcoxon Statistics and probabilities for annualized CR(-5) higher than average annual return in each year for Hong Kong (HK), Japan (JAP), Korea (KOR), Malaysia (MAL), Singapore (SIN) and Taipei (TAI). (Test Period: 1976 - 1990)

	HK	JAP	KOR	MAL	SIN	TAI
WILCOXIN	3.18**	2.21*	3.01**	2.73**	2.10*	2.84**
PROBABILITY	0.87	0.80	0.80	0.87	0.80	0.87

*significant at 2.5% significance level.
** significant at 1% significance level.

Table 6. The Normalized Wilcoxon Statistics and probabilities for annualized CR(+10) higher than average annual return in each year for Hong Kong (HK), Japan (JAP), Korea (KOR), Malaysia (MAL), Singapore (SIN) and Taipei (TAI). (Test Period: 1976 - 1990)

	HK	JAP	KOR	MAL	SIN	TAI
WILCOXIN	-1.14	-1.59	-1.19	-0.11	0.45	0.62
PROBABILITY	0.40	0.33	0.33	0.47	0.53	0.53

FIGURE 1

Cumulative Return Index: Hong Kong

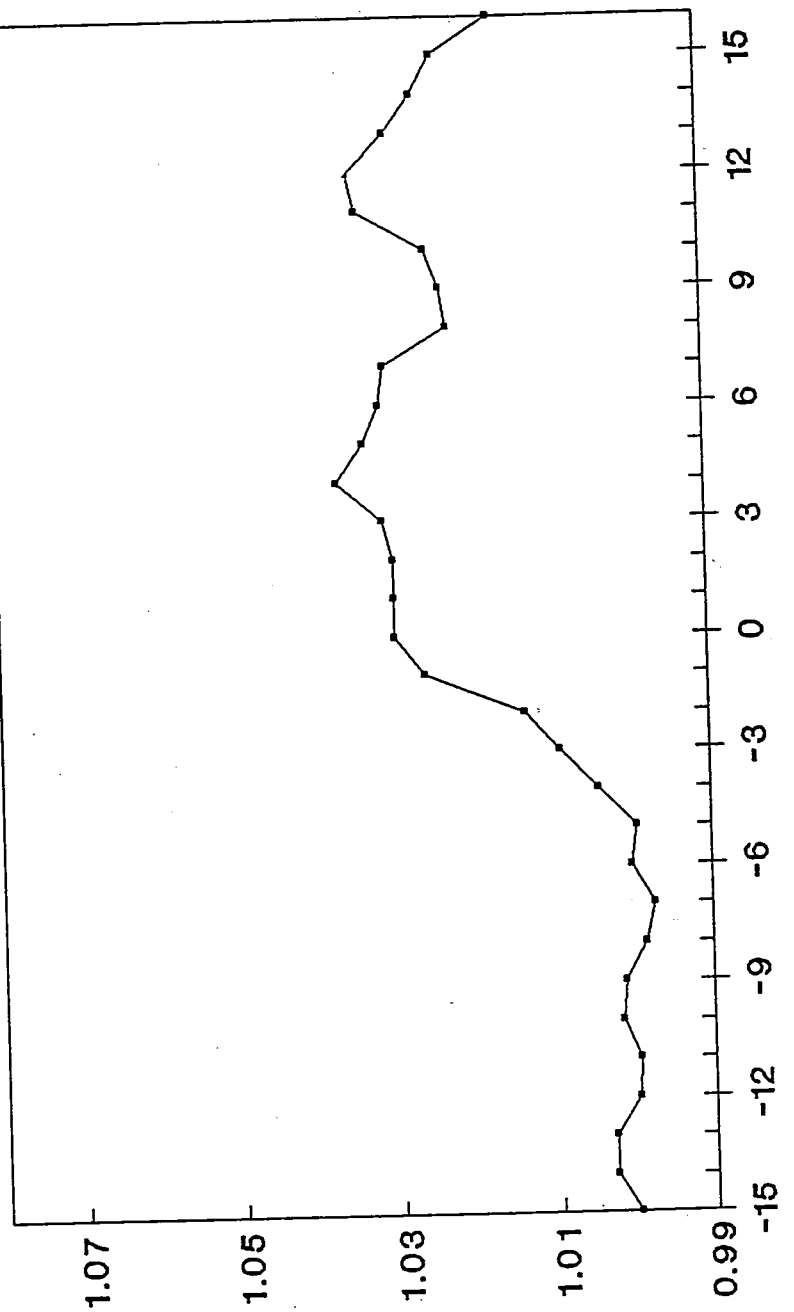

FIGURE 2
Cumulative Return Index: Japan

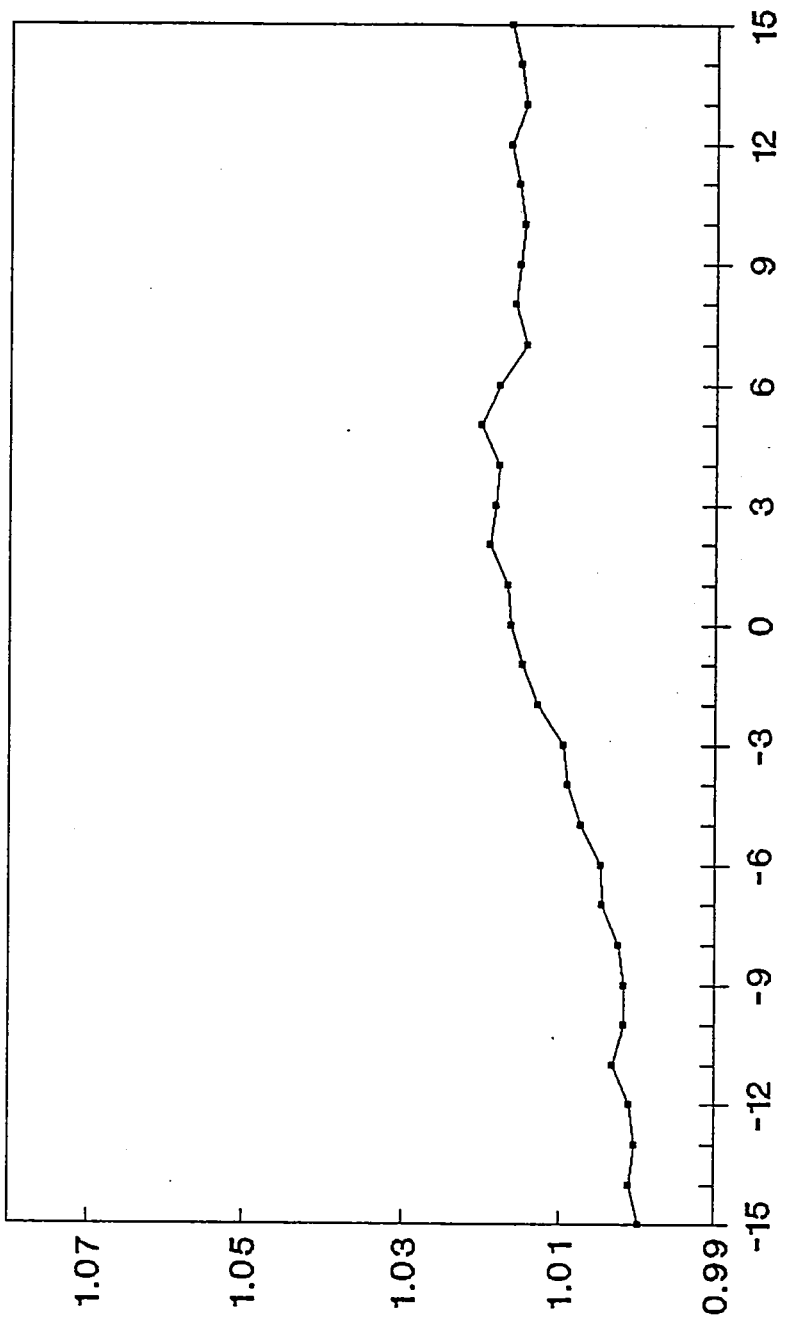

FIGURE 3
Cumulative Return Index: Korea

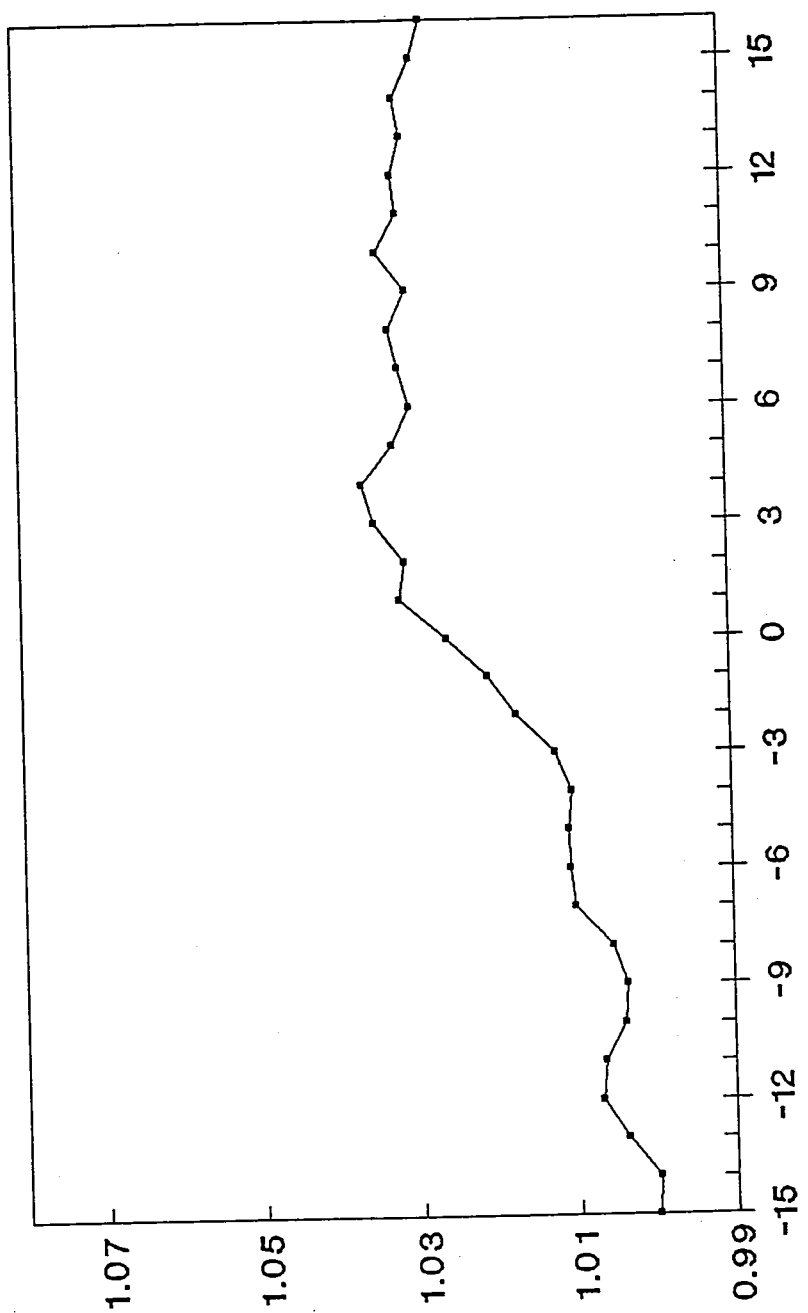

FIGURE 4
Cumulative Return Index: Malaysia

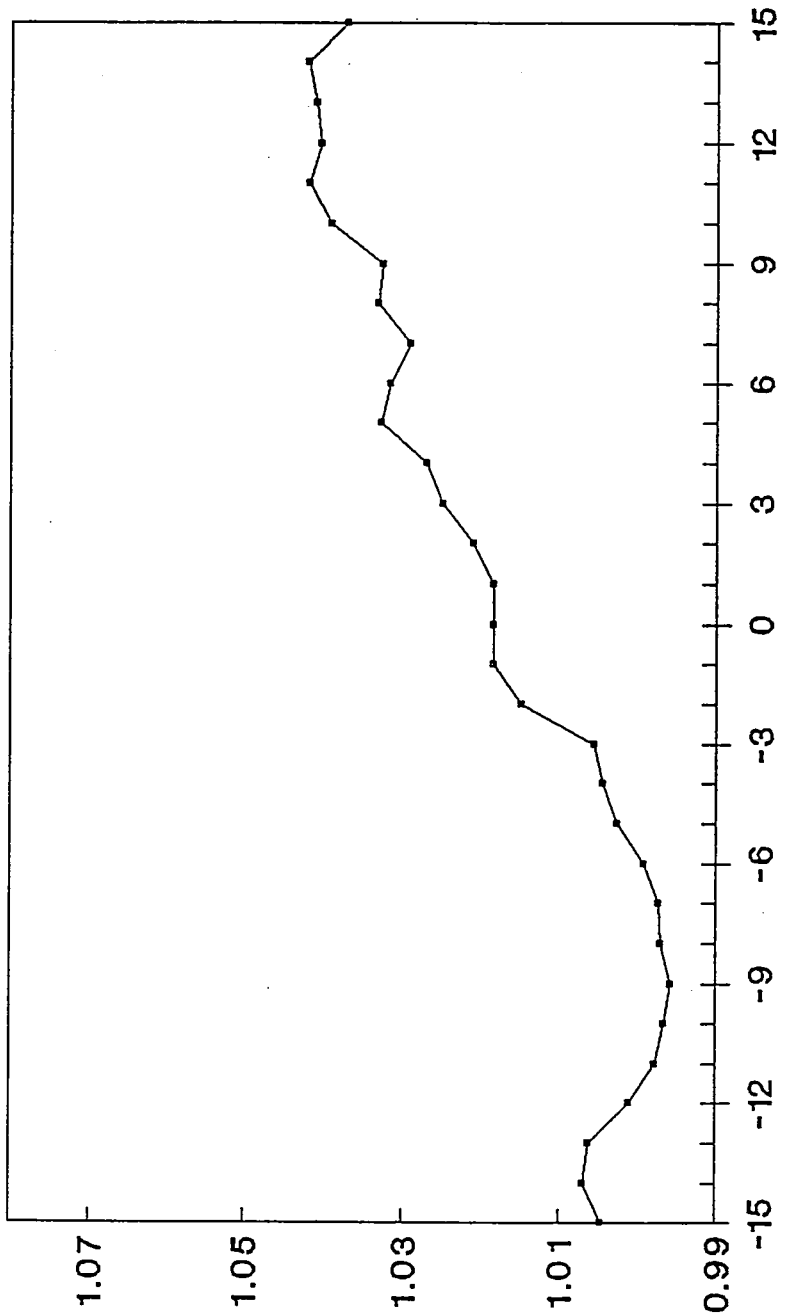

FIGURE 5

Cumulative Return Index: Singapore

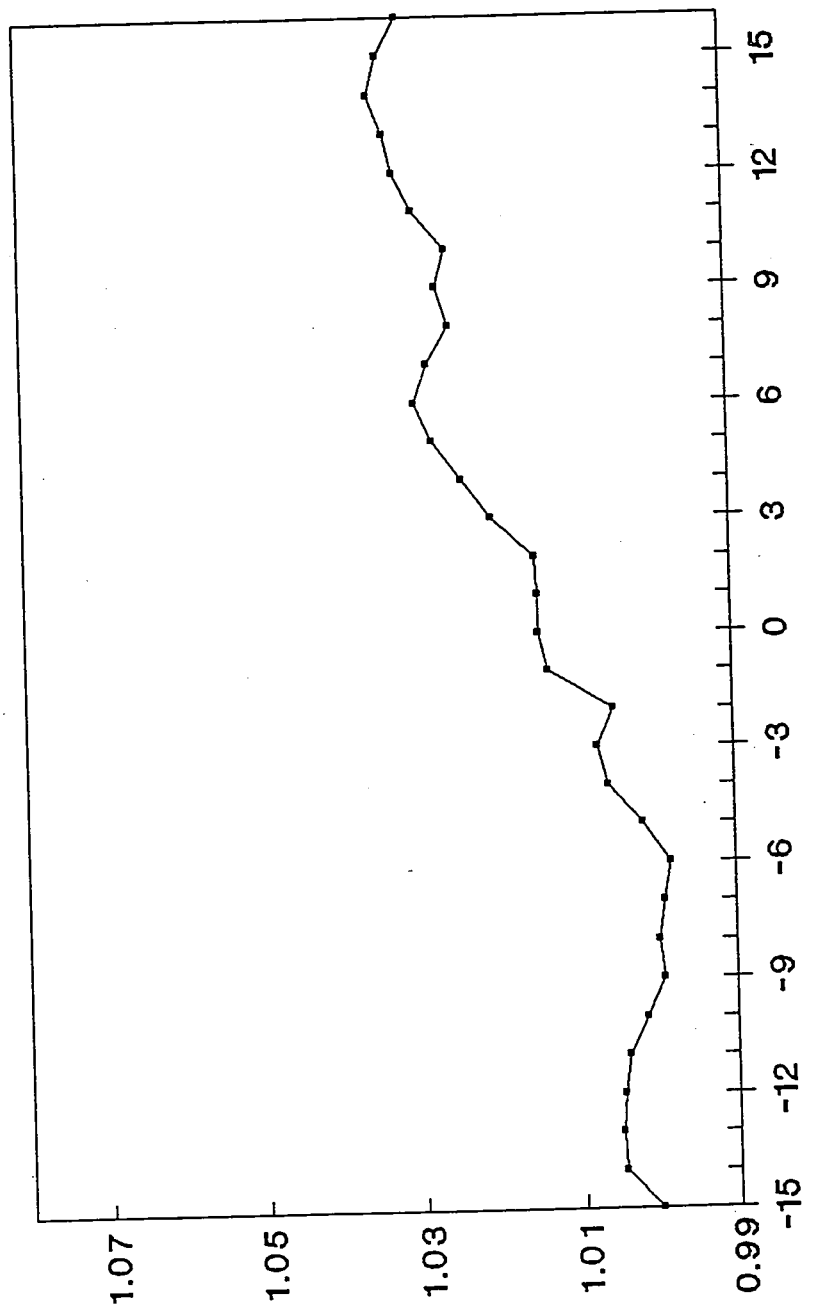

FIGURE 6
Cumulative Return Index: Taiwan