# ABNORMAL RETURNS AFTER THE LUNAR NEW YEAR IN THE TAIWAN STOCK MARKET

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#### ABSTRACT

This paper examines the existence of Chinese lunar new-year effect in the Taiwan Stock Market. As an emerging market, Taiwan Stock Market provides ample opportunities for market anomalies and potential short-term profits. The most common practice of studying these anomalies has been to use an event analysis. In our investigation we employ repeated regression and GARCH models. Our results indicate a significant lunar new-year effect for the small-size portfolios and the lunar new-year effect being significant in the first two trading weeks, especially in the first seven days for all portfolios. Our results further indicate that the liberalization of the Taiwan's financial market over the years has impacted the magnitude of the lunar new-year effect.

#### **INTRODUCTION**

Stock market anomalies have been the subject of considerable research and inconclusive explanations. Some of the extensively studied anomalies are the January effect, the size effect, the market-to-book value effect. Our study examines the existence of Chinese lunar new-year effect in the Taiwan Stock Market. As an emerging market, Taiwan Stock Market provides ample opportunities for market anomalies and potential short-term profits. The most common practice of studying the January effect in the U.S. stock market has been to examine the abnormal cumulative return within the framework of an event study. In our investigation we employ repeated regression and GARCH models. We employ weekly returns in order to avoid noises in daily returns and use an alternate definition of weekly returns. We also examine whether a long-term or short-term trend exists in the abnormal return after the Chinese new-year. Further, we use a GARCH model to observe whether the empirical results change with different measuring methods.

The remainder of the paper is as follows: Section II reviews the literatures. Section III presents the research design and the research approaches, which indicate the resources of data, the applied models and statistic methods of measurements. Section IV reports the empirical results. Finally, Section V concludes the paper.

### LITERATURES REVIEW

Banz (1981) added firm size as an independent variable in the capital asset pricing model (CAPM) to explore the scale effect. He found that small-size corporation has higher return than the large-size one, that is to say the average return on stocks is inversely related to the market value of the corporation. Although the relationship between the corporate size and its return on stocks can correspond to the relationship between the average return and risks, there is no linear relationship between them. The reason is that such phenomena only occur in the group of small-size companies. Banz (1981) couldn't eliminate the above-said phenomena even by employing residual error analysis; therefore he regarded the firm size as a proxy, which can't completely explain the phenomena of abnormal return.

Kiem (1983) explored the seasonal phenomena in stock market in his empirical study and discovered an inverse relationship between abnormal return and the stock's market value over its book value, and the abnormal returns are in January. He also found out that the stock return of small-size portfolio has more obviously seasonal feature than that of large-size portfolio. He also found out January Effect before 1930s is more obvious than after 1930s. In his study of 1930 he further explored risk coefficient  $\beta$  and extra return in terms of corporate size. He formed 10 portfolios in order of corporate size, and applied Scholes-Willams (1977) and Dimson (1979) methods to each portfolio to calculate the value of coefficient  $\beta$  and the extra return of each portfolio. From the above research he drew the following conclusions: 1) there is no definite relationship between  $\beta$  value and the rate of return. 2) The daily abnormal return in January is higher than that in other 11 months. 3) The average daily abnormal return is inversely related to the size of the corporation, which is more obvious in January than in other months. 4) Approximately 50% scale effect is caused by the January extra return and approximately 25% ratio occur in the first week (the first five trading days) of January, especially in the first trading day of January.

In Haugen and Jorion (1996) formed 10 capitalizations based portfolios and compared the monthly return of January with that of other months, and found out the January Effect existed in the period from 1926 to 1933. They made further analysis by dividing the research period into two sub research periods. And such effect was still obvious during the past 13 years and it showed that this market lacked efficiency. They observed the change of January Effect in long term by employing the year data. They set the research year minus 1977 as long-term coefficient, and set short-term coefficient before 1977 as zero. Their research result discovered that January Effect had no trend and the coefficient of long term or short term in different portfolio is positive as well as negative.

Yan and Zhang (1995) selected the successive ten years just before 1984 as the research period to examine the Chinese New Year effect. They excluded 1977, 1982 and 1983 because of the extremely abnormal price fluctuation, and calculated the cumulative average extra return of each sample year to observe the price change in stock before and after the closing of the stock market for Chinese Lunar New Year, which showed there really existed a trading strategy for investors to gain extra returns and such trading strategy existed in all seven samples year.

Yan (1989) selected a sample period from 1975 to 1987 and divided it into two sub-periods; from 1975 to 1984 and 1985 to 1987. The result showed the two groups had no differences in terms of average cumulative return after the closing of the stock market for Chinese Lunar New Year. And the average value of average cumulative return in the second period was obviously higher than the first period, which showed the Taiwan stock market was not in accordance with the standards of the weak-formed efficient market and in recent years this phenomena hasn't been improved but become more serious.

Li (1982) explored the seasonal feature of stock return and the relationship between the stock return and the scale effect in the Taiwan stock market. His empirical results are as follows: 1) it can't prove the expected return in Taiwan stock market has the seasonal feature by a dependant variable analysis. 2) The seasonal feature has apparently inverse relationship with the corporate size, the smaller the corporation is, and the more obvious the seasonal feature is. 3) No matter how large the corporation is, January and February are the two months with the highest return in one year, while July and October are the two months with the lowest average return. 4) There is no long-run and stable seasonal feature in Taiwan stock market, which seems to support the conclusion that Taiwan stock market conforms to the hypothesis of weak-form efficient market. 5) Taiwan hasn't levied any tax on capital gain, which proved indirectly tax-loss selling hypothesis and couldn't account for the cause of January Effect.

Zhan (1990) observed and testified the so-called trading strategy after closing of the stock market for Chinese Lunar New Year. Employing the method of event study, she grouped the observed period into four, respectively (-5,+3), (-5,+7), (-10,+3), and (-10,+7), among which, the value in the bracket represents respectively the number of days before the market closing and the number of days after the market opening. Her result showed that the average rate of return is the highest during the period between ten days before the closing of stock market and seven days after the opening of stock market. In addition, the rate of return after the opening of the stock market is obviously higher than that before the closing of the stock market for Chinese Lunar New Year. Therefore, Taiwan stock market is evidently in contradiction with the efficient market theory.

## **RESEARCH DESIGN AND APPROACHES**

The most difference between this study and the previous studies is to employ the weekly data to analyze Chinese Lunar New Year Effect. Daily data produce noise and monthly data are easy to lose useful information. This study also applies various research approaches including repeated-regression analysis and GARCH model to make further analysis on the subjects related to Chinese Lunar New Year Effect rather than to conduct simple analysis on Chinese Lunar New Year Effect.

First of all, this study defines the period of Chinese Lunar New Year as the successive four weeks after the stock market turns red for the first time in January, and the successive fours weeks is so-called the period of Chinese Lunar New Year. Chinese Lunar New Year Effect means that there is more obviously abnormal return in the period of Chinese Lunar New Year than in any other periods. In discussion of Chinese Lunar New Year Effect, we employ four single-weekly, two bi-weekly and one quad-weekly return to conduct analysis. The weekly returns are calculated in two ways. First, we regard the first trading day immediately after the lunar new-year holidays as the beginning of a trading week. Secondly, in order to minimize the weekend effect, we apply the Wednesday-to-Tuesday return after the lunar new-year holidays as weekly return. For this empirical study, we use the following data from 1981 to 1998: daily closing price and trading volume, total shares outstanding, daily return on the weighted index of Taiwan stock market, and closing and opening of trading of Taiwan stock market around the Chinese New Year. All data were obtained from AREMOS database of the Education Ministry.

We divide the date according to lunar calendar; that is to say, the first day of lunar year is regarded as the beginning of one year. To calculate the return and to form portfolio, we need the last trading date before closing market and the first trading date after the opening of red market, all of which are shown in Table I

The methodology used in this study is an extension of Haugen and Jorion (1996) research on January effect and after taking into consideration the trading functions and features of Taiwan stock market. *Hypothesis 1: There if no Chinese Lunar New Year effect.* We verify this hypothesis we compare the quad-weekly returns following the Lunar New Year with the returns from other periods.