The Day-of-the-week Effect in the Hang Seng Index

Ricky Chee-Jiun Chia

Universiti Malaysia Sabah, Malaysia

Venus Khim-Sen Liew

Universiti Malaysia Sarawak, Malaysia

Syed Azizi Wafa Syed Khalid Wafa

Universiti Malaysia Sabah, Malaysia

Abstract: This study finds the existence of Friday effect in the return of Hang Seng Index. This finding implies that the Hong Kong Stock market is inefficient with respect to price information. Besides, the Hang Seng Index returns are predictable and hence profitable trading strategies can be developed. Thus, investors could use the day-of-the-week effect information when investing in the Hong Kong stock market.

Keywords: Day-of-the-week-effect; Hang Seng Index

1. Introduction

The day-of-the-week effect is a stock market phenomenon in which the observed average daily stock return of certain day(s) is consistently different from the other days of the week. Empirical studies have found that the day-of-the-week effect appears not only in the United States, the biggest capital market of the world and in other developed markets such as United Kingdom, Germany and Japan, but also in many emerging markets. See for instance, Gibbons and Hess (1981), Keim and Stambaugh (1984), Rogalski (1984), Jaffe and Westerfiled (1985), Arsad and Coutts (1996), and Apolonario *et al*. (2006) for empirical studies on developed markets. On the other hand, Wong *et al*. (1992), Clare *et al*. (1998), and Kok and Wong (2004), Brooks and Persand (2001), and Hui (2005), among others, deal with the emerging markets. Among those emerging markets, one of the most appealing markets is the Hong Kong stock market. It is well known for its open yet regulated policies on the securities industry. Besides, it has sound technical market infrastructure, as well as corporate governance (Ghosh, 2006). Apart from that, the Hong Kong's ideal geographical location, high-speed communications, the free flow of information, no restriction on capital flows and the world's freest economy system enable its market to grow as a strategic stock market for international investors. In fact, Hong Kong was the Asian's largest fund raising center for the few consecutive years since 2004.

As of the end of the year 2006, a total of 1156 companies with a market capitalization of US\$1.7 trillion were listed on the Stock Exchange of Hong Kong. According to the International Business and Financial Centre, Hong Kong's stock market is the world's sixth largest and Asia's second largest in term of market capitalization, as of January 2007. Due to the importance of this market to investors, this study examines the existence of day-of-the-week effect in the Hong Kong stock market.

2. Data and Method

The data of this study consists of the daily closing values of the Hang Seng Index (HSI), the major Hong Kong stock index, over the period 1st January 2000 to 31st December 2006. HSI is a capitalization weighted stock market index in the Hong Kong Stock Exchange. It is used to record and monitor daily changes of the largest companies of the Hong Kong stock market and as the main indicator of the overall market performance in Hong Kong. When HSI was started published 40 years ago, its base of 100 points was set equivalent to the stocks' total value as of the market close on July 31, 1964. As of December 28, 2006, it passed the 20,000 point milestone.   These dates were chosen based on the studies of Jang and Sul (2002) which noted that the post crisis period starts from February 1, 1998 toward. However, to avoid our results affected by the crisis period, therefore, we examined this study start from year of 2000.

Following the literature, daily returns are calculated as the first difference in the natural logarithms of the stock market index. The following adjusted return was used (Koop, 2006):

$$R_t = 100 \times \ln(I_t / I_{t-1}) \tag{1}$$

where I_t and I_{t-1} are the values for each index for periods t and $t-1$, respectively. In the case of a day following a non-trading day, the return is calculated using the closing price indices of the latest trading day.

This study employs the following ordinary least squares (OLS) model with dummy variables to test for the daily seasonality in stock market adjusted:

$$R_t = \alpha_0 + \sum_{i=1}^{4} \alpha_i \delta_{it} + \sum_{i=1}^{k} \alpha_{4+i} R_{t-i} + \varepsilon_t \tag{2}$$

where R_t is the logarithmic return of the market index at day t; R_{t-i} is the logarithmic return of the market index at day $t-i$; $\delta_{1t}, \delta_{2t}, \delta_{3t}$ and δ_{4t} are dummy variables which take on the value 1 if the corresponding return for day t is a Tuesday, Wednesday, Thursday and Friday respectively and 0 otherwise; ε_t is the error term. Meanwhile,

$\alpha_0,...\alpha_k$ are parameters to be estimated. Among them, α_0 measures the mean return (in percentage) on Monday; whereas $\alpha_1,...\alpha_4$ capture the difference of average return of the stock index for Tuesday, Wednesday, Thursday and Friday respectively as compared to the Monday's mean return.

A lagged value of the return variable was introduced in the Equation (2) to avoid serial correlation error terms in the model, which may yield misleading inferences. Besides, Monday dummy variable was excluded from the equation is to avoid the dummy variable trap.

3. Empirical Results and Discussions

A number of points emerge from an analysis of the descriptive statistics. First, it shows a tendency for the lowest mean return to be on Monday and the highest mean return on Friday. This result is consistent with most previous studies for the day-of-the-week effect. In contrast to the mean returns, the standard deviation of returns generally is inconsistent to the portfolio theory associates higher risk with higher returns. When the highest return in Friday (0.1106%), the standard deviation seems to be the second lowest (1.1556%) among the days. The null hypothesis of the Jarque-Bera normality test is rejected implies that daily returns are not normally distributed.

Table 1: Descriptive Statistics of Daily Data

	Overall	Monday	Tuesday	Wednesday	Thursday	Friday
Mean	0.0076	-0.0443	0.0222	-0.0188	-0.0315	0.1106
Std. Dev	1.2736	1.3918	1.1166	1.4053	1.2704	1.1556
Skewness	-0.4447	-0.8205	0.4271	-1.0202	-0.0802	0.1214
Kurtosis	7.5382	8.2208	4.4624	10.1497	4.6142	5.1198
Jarque-Bera	1625.3320	455.4873	43.6221	840.7446	40.0202	69.2343
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mean Return per unit of Risk	0.0059	-0.0318	0.0199	-0.0134	-0.0248	0.0957

Table 2 presents the OLS results for the day-of-the-week effect in this study. The results show that the coefficient of intercept term that represents the benchmark day of Monday is insignificant in Hong Kong stock market. The coefficients of the dummy variables for the day of Tuesday, Wednesday and Thursday are positive but statistically insignificant. However, the positive Friday returns are statistically significant at 10% level. This Friday effect seems to be the highest returns as compared to other days in Hong Kong stock market.

Table 2: OLS Results for Day-of-the-week Effect

Parameter	Hong Kong
Constant, α_0	-0.0473 (0.4738)
Tuesday, α_1	0.0800 (0.3918)
Wednesday, α_2	0.0443 (0.6348)
Thursday, α_3	0.0278 (0.7656)
Friday, α_4	0.1541*** (0.0987)
Return (-1), α_5	0.0191 (0.4161)
Return (-2), α_6	-0.0290 (0.2148)
Return (-3), α_7	0.0310 (0.1819)
Return (-4), α_8	0.0206 (0.3757)

Notes: *, ** and *** denote significant at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-values.

4. Concluding Remarks

This study finds that the Friday's return is significantly different from other days in Hong Kong stock market over the sample period of study. The finding of Friday effect could have useful implications for trading strategies and investment decisions. Among others, it implies that (i) the Hong Kong Stock market is inefficient with respect to price information, (ii) the Hang Seng Index returns are predictable and (iii) profitable trading strategies can be developed (Engle, 1993). Nevertheless, the diagnostic results (not shown in Table 2 to conserve space) reveal the inadequacy of OLS model as there are remaining ARCH effects due to the untreated volatility of the returns in the model for the study. Therefore, such volatility needs to be modeled in order to provide a clearer picture of the seasonal anomalies in the stock markets. However, it is beyond the scope of this study and the authors reserved it for a separate study.

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