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Day-of-the-week effects in US and Asia–Pacific stock markets during the Asian financial crisis: a non-parametric approach

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Abstract

This paper is devoted to extending the determination of day-of-the-week effect existing in a sample of Asia–Pacific markets such as Hong Kong, Korea, Singapore and Taiwan. At the same time, we also like to test for the presence of weekend effects in developed markets of the US and Japan. In view of recent studies regarding the disappearing day-of-the-week effect for US firms, we will focus our attention on the recent years to better track the presence of weekend effects during and after the Asian financial crisis in 1997 and the recent collapse of the blue chip stocks in the United States. The results reveal that there exists no evidence of the day-of-the-week effect in all countries except Singapore. For Singapore, it is low returns on Monday and Tuesday and high returns on Wednesday to Friday.
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Keywords: Weekend effect; Stock markets; Normality; Kruskal–Wallis test

1. Introduction

A number of researches done in the past had found a tendency towards day-of-the-week effects in stock returns in the US market. In particular, the average returns on Friday close exhibited high returns while those of Monday close are negative. French [1] found that the effect was a weekend effect rather than a more general "closed market effect". Gibbons and Hess [2], Lakonishok and Levi [3] and Keim and Stambaugh [4], Harris [5] and Smirlock and Starts [6] also found extensive evidence of the "weekend" effect in the US.

Nevertheless, early studies of some of the world's major stocks, bond and foreign exchanges have also discovered important seasonal variations in the parameters of return distribution, especially the mean returns. Early studies suggest that a tendency towards negative weekend returns is the norm rather than being US specific. For instance, Theobald and Price [7] and Condoyanni et. al. [8] found the evidence of weekend effect in the UK market. An independent study by Jaffe and Westerfield [9] also found similar results for other major markets like Japan, Australia and Canada.

However, recent literature review has complicated the international day-of-the-week effect. According to Connolly [10,11] and Chang et al. [12], the sample size and/or error term adjustments render US day-of-the-week effects to be statistically insignificant. Dubois and Louvet [13] confirmed these findings. Kim et al. [14] also found no evidence of day-of-the-week effects in the Korean and Thailand stock markets.

This study is devoted to extend the determination of weekend effect existing in a sample of the four Asia–Pacific markets, namely, Taiwan, Korea, Hong Kong and Singapore. At the same time, we will test for the presence of weekend effect in developed markets of the US and Japan. In view of recent studies regarding the disappearing day-of-the-week effect for US market, we will only focus our attention on the recent years to better track the presence of weekend effect

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especially the periods after the Asian financial crisis in 1997 and the recent global downturn that adversely affect prices of blue chip stocks in the Untied States.

The remainder of the paper is structured as follows. Section 2 summaries the literature review on the topic and discusses some related issues. Section 3 outlines the data used and the methodology that will be applied. The findings will be included in Section 4 while Section 5 concludes the findings.

2. Literature review

Extensive research has been provided that there is day-of-the-week effects in stock returns in the US market, notably one of the most developed one in the world. French [1] found that the average returns from Tuesday to Friday were positive while that of Monday was significantly negative. Gibbons and Hess [2], Lakonishok and Levi [3] and Keim and Stambaugh [4], Rogalski [15], Harris [5] and Smirlock and Starts [6] also found extensive evidence of the "weekend" effect in US.

In Europe, seasonal patterns vary across countries and time periods. Board and Sutcliffe [16] and Hawawini [17] had showed in their studies that there were some evidence of seasonality in the London Stock Exchange and smaller exchanges in Europe (France and Finland). In general, it seems to be the case that Mondays and Tuesdays provided lower returns, while the latter three days of the week provided higher returns. For the Greek Stock Exchange, Condoyanni et al. [18] however found that returns were negative on Tuesday and Wednesday. On the other hand, Spanish [19] and Danish markets [20] did not experience a day-of-the-week effect.

Jaffe and Westerfield [9] found the existence of weekend effect in other countries like Japan, Canada and Australia, together with US and UK. In contrast to previous studies on the US, the lowest mean returns for both the Japanese and Australian stock markets occur on Tuesday. On the other hand, the Canadian market displayed similar results to the US markets, displaying significantly negative returns on Monday. Kim [21] also concluded similar results for the UK and Canadian market.

On the contrary, more recent literature review had complicated the international day-of-the week effect. According to Connolly [10,11], the sample size and/or error term adjustments rendered US day-of-the-week effects to be statistically insignificant. Chang et al. [12] confirmed this result. Dubois and Louvet [13] also re-examined the day-of-the-week effect for eleven indexes from nine countries during the 1969–1992 period. The standard methodologies as well as the moving average methodology were used and returns were found to be lower in the beginning of the week, but not necessarily on Monday. The anomaly disappeared for the most recent periods in US market. However, the effect was strong for European countries, Hong Kong and Taiwan. Fortune [22] found that in the last 18 years the volatility over weekends had been stable, at about 10–20% greater for the 3 days from Friday's close to Monday's close than for a single intra-week trading day. However, while there was a large and statistically significant negative return over weekends prior to 1987, the post-1987 results indicated no weekend drift. In short, the negative weekend drift appeared to have disappeared although weekends continued to have low volatility.

Kim et al. [14] analyzed the day-of-the-week effects in the relatively newer, smaller and less developed stock markets of Thailand and Korea for the period January 1980–December 1988. A regression model as well as non-parametric technique was being adopted in the paper. Results of the tests did not follow the pattern of high and positive returns on the last trading day and low, negative returns on the beginning trading day of the week. Also, test of the weekend-effect did not show any evidence.

One of the most notable international financial developments of the 1980s was the evolvement of the four "Asian Tigers"—South Korea, Hong Kong, Taiwan and Singapore. Their astonishing economic growth prompted Chan et al. [23] to examine their linkages to developed markets like US. Wong et al. [24] extended the day-of the week effect to the stock markets of Hong Kong, Taiwan, Thailand, Singapore and Malaysia during the period of January 1975–May 1988. It was found that the day-of-the-week effect is present in all the market except Taiwan and that the US stock market has little influence on the Asian markets.

Our findings will focus on the period of 1998 to that of June 2001 to track the newest development on the day-of-week effects of matured markets and emerging ones. In particular, we want to examine the 1997 Asian crisis and the recent collapse of the US blue chip stocks and its significance to the day-of-the-week effects. This will lead us to the objective of our study Objective:

(1) to study the most recent trend of any day-of-the-week effects of matured markets: namely US and Japan;
(2) to study the most recent trend of any day-of-the-week effects of Asia Pacific markets, namely Hong Kong, South Korea, Singapore and Taiwan.

3. Data and methodology

We employed daily data from DataStream of National University of Singapore (NUS) for the six stock market indices, covering the period January 1, 1998–June 30, 2001. The various indices that we use include the S&P 500 Composite, the Nikkei 225 Stock Average, the Hang Seng Index, the Korea SE Composite, the SES All-Share Index and Taiwan SE Weighted.

The daily return, R_t, of a stock index is calculated as follows:

$$R_t = (P_t/P_{t-1}) - 1,$$

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