

The Day of the Week Effect in the Pakistani Equity Market: An Investigation

Fazal Husain*

This paper investigates the day of the week effect in the Pakistani equity market. Using daily data on eight sector indices as well as the general market index from January 1989 to December 1993, the analysis did not find, in general, significant differences in stock returns across trading days in the market. An overtime analysis indicates the presence of this anomaly in the period before the market was opened to international investors which disappeared in the later periods.

Abstract

An active area of investigation in finance literature is to explore the existence of a pattern in stock returns. A predictable pattern is evidence against market efficiency. Even if the pattern does not seem to affect the stock returns directly, it can provide useful clues to investors concerning their investment decision.

One of the significant patterns identified is the day of the week effect which implies that stock returns are not distributed identically across the days. For example, in the U.S. capital market, rates of return on Mondays tend to be negative while those on Fridays tend to be high. Cross (1973), French (1980), Gibbons and Hess (1981), Keim and Stambagh (1984) and others consistently observed lowest returns on Mondays, termed as the 'Monday effect'.

Similar kinds of effects have been found in other capital markets. For example, Jaffe and Westerfield (1985 a,b) observed the Tuesday effect in the Japanese and the Australian capital markets, whereas Broca (1992) found the Wednesday effect in the Indian capital market. On the other hand, Malaikah (1990) and Aybar (1992) did not find any evidence of the day of the week pattern in the capital markets of Saudi Arabia, Kuwait, and Turkey. At present, there is no satisfactory explanation for this anomaly. Perhaps evidence from other capital markets will provide some clues to explain the phenomenon.

* The author is Senior Research Economist at the Pakistan Institute of Development Economics, Islamabad.

This paper investigates the day of the week effect in the Pakistani equity market using daily sector indices from the Karachi Stock Exchange (KSE), the main equity market in Pakistan¹. The market has been the subject of significant changes in the 1990's. Like other developing economies, Pakistan has also taken significant steps towards the development of its capital markets. Various measures have been taken for privatisation, economic liberalisation, relaxation of foreign exchange controls, and the easing of regulations on the repatriation of profits, investment and operation of financial institutions. The most significant step was the opening of the equity market to international investors in February 1991.

The paper is organised as follows. The first section describes the data and the sample. Section II discusses the methodology, whereas results are presented in section III. The final section is the summary and conclusions.

Data and Sample

The data consist of eight sector indices besides the general market index, covering the period from January 1, 1989 to December 30, 1993. The data were obtained from the files of the State Bank of Pakistan, the central bank, that prepares and maintains these indices. The general index, called the State Bank General Prices Index, covers all the stocks listed on the exchange.

The analysis was done for the full sample period as well as for three sub-samples to examine the effects of liberalisation measures, particularly the opening of the market to international investors, announced on February 7, 1991. The first sub-sample consists of the period before the market was opened.

The market became bullish after its opening and unprecedented trends were observed. It appears, however, that the market overreacted in that period because it was followed by a correction phase, (IFC 1993). This first year of the opening of the market, characterised by overreaction and/or the correction phase, constitutes the second sub-sample period. Finally, the third sub-sample consists of the period from one year after the opening of the market to the end of the sample period.

¹ Interested readers can see Mirza (1993) and Khan (1993) for comprehensive information concerning the evolution, regulations, and operations of the Pakistani equity market, particularly the KSE.

Methodology

In Pakistan, the trading days are different from the usual days of Monday to Friday². Further there was a change in the trading days during the sample period. Earlier the trading days were Saturday to Wednesday which was changed to Sunday to Thursday in June, 1992.

The change in trading days during the sample period caused some problems in examining the day of the week effect for the full sample. In order to overcome this difficulty it was decided to treat the trading days as the sequence of the days, i.e., first trading day, second trading day etc., instead of the labels of the days i.e., Sunday, Monday etc. With this adjustment, the day of the week effect was examined by the following regression.

$$R_t = \lambda_1 + \lambda_2 D_{2t} + \lambda_3 D_{3t} + \lambda_4 D_{4t} + \lambda_5 D_{5t}$$

Where R_t is the return at time t , calculated as the first log difference i.e., $\ln P_t - \ln P_{t-1}$, and

$D_2 = 1$ for second trading day (Sunday for earlier period and Monday for later period),

$D_3 = 1$ for third trading day (Monday for earlier period and Tuesday for later period),

$D_4 = 1$ for fourth trading day (Tuesday for earlier period and Wednesday for later period),

$D_5 = 1$ for fifth trading day (Wednesday for earlier period and Thursday for later period).

λ_1 represents the mean return on the first trading day whereas λ_2 to λ_5 indicate the shifts in mean return across days. Significant values of λ 's imply significant shifts in mean return, thus confirming the existence of the day of the week effect.

To examine the effects of the opening of the market, the analysis was also done for the three sub-samples. However, it was confined to the indices only to make the comparison simple. Further, in these analyses the labels of the days were used. The use of labels reduced the third sample to June, 1992 to December, 1993.

² The trading days changed to Mondays to Fridays in 1997.

Empirical Results

The results show some evidence of significant differences in mean return across days. However these cases are very few relative to the whole sample. Hence it can be generally inferred that the market does not have any day of the week effect.

One reason of not finding any conclusive result may be the change of the days during the sample period. In other words, it may be possible that investors give more preference to the labeling of the days. Some people may consider some days lucky for them and they do not care whether it is a first trading day or any other trading day. In order to capture this behaviour as well as to examine the effects of the opening of the market, the analysis was done for the three sub-samples using labeling of the days instead of sequence.

For the first two periods the trading days were Saturday to Wednesday. Hence the constant represents the mean return on Saturday whereas the label dummies represent the differences in mean, relative to Saturday's mean. It can be seen that in the first period, the period before the market was opened, there is evidence of negative returns on Saturday, the first trading day. Although, these returns are not significant, these to some extent match with the negative Monday effect, observed in the USA, where Monday is the first trading day. In contrast, in the second period, the period immediately after the market was opened, there is conclusive evidence of significant positive returns on Saturday.

In the third period the trading days were different, that is, from Sunday to Thursday. Hence the constant term representing the mean return on Thursday, the last trading day. Here too there is some evidence, although not significant, that the average returns are lower on Sunday and Monday, the first two trading days. A comparison of the results of three periods suggests that there is some evidence of significant differences in mean return across days in the period before the opening of the market, but these differences tend to disappear in the periods after the market was opened. Hence, there is no conclusive evidence of any day of the week effect in the market.

Summary and Conclusion

The objective of the paper was to investigate the existence of the day of the week effect in the Pakistani equity market. Using daily data on eight sector indices as well as the general market index from January 1989 to December 1993, the issue was examined by regressing stock returns on

dummies for trading days. To overcome the problem of change in trading days during the sample period the trading days were identified as the sequence of the days i.e., the first trading day, the second trading day, etc.

The results did not indicate, in general, any significant differences in stock returns across days in the Pakistani equity market. An analysis of this anomaly overtime indicates its presence in the market earlier in the form of lowest returns on Saturdays, the first trading day. However, the behaviour tends to disappear after the opening of the market to international investors. Though the paper indicates identical distribution of stock returns across days in the Pakistani equity market, a thorough analysis will be useful to understand the anomaly in the context of Pakistan.

References

- Aybar, C., 1992, 'Descriptive Analysis of Stock Return Behaviour in an Emerging Market: The Case of Turkey,' *Ph.D. Dissertation*, Ohio State University.
- Broca, D., 1992, 'Day of the Week Patterns in the Indian Stock Market,' *Decision*, April-June, pp 57-64.
- Cross, F., 1973, 'The Behaviour of Stock Prices on Mondays and Fridays,' *Financial Analyst Journal*, Nov-Dec, pp 67-69.
- French, K., 1980, 'Stock Returns and the Weekend Effect,' *Journal of Financial Economics*, Vol. 8, pp 55-69.
- Gibbons, M. and Hess, P., 1981, 'Day of the Week Effects and Asset Returns,' *Journal of Business*, Vol. 54, pp 579-596.
- Husain, F., 1996, 'Stock Price Behaviour in an Emerging Market: A Case Study of Pakistan,' *Ph.D. Dissertation*, Catholic University of America.
- International Finance Corporation, 1993, 'Emerging Stock Market Fact Book,' Washington D.C.
- Keim, D. and Stambagh, R., 1984, 'A Further Investigation of the Weekend Effect in Stock Returns,' *Journal of Finance*, Vol. 39, pp 819-840.
- Khan, M. S., 1993, The Securities Market in Pakistan. Pakistan: Royal Book Company.
- Jaffe, J. and Westerfield, R., 1985a, 'The Weekend Effect in Common Stock Market Returns: The International Evidence,' *Journal of Finance*, Vol. 40, pp 433-454.
- Jaffe, J. and Westerfield, R., 1985b, 'Patterns in Japanese Common Stock Returns: Day of the Week and Turn of the Year Effects,' *Journal of Financial and Quantitative Analysis*, pp 469-481.
- Malaikah, S. J., 1990, 'Saudi Arabia and Kuwait: A Study of Stock Market Behaviour and its Policy Implications.' *Ph.D. Dissertation*, Michigan State University.
- Mirza, Khalid, 1993, 'Pakistan: A Small Market with Potential,' in The World's Emerging Stock Markets, ed. Keith Park and Antoine Agtmael. Chicago: Probus Publishing Company, 197-221.