Stock Price-Volume Relation in Asian Markets

Kumpol Watsooksunti

MASTER OF SCIENCE PROGRAM IN FINANCE
(INTERNATIONAL PROGRAM)
FACULTY OF COMMERCE AND ACCOUNTANCY
THAMMASAT UNIVERSITY, BANGKOK, THAILAND
May 2007

Stock Price-Volume Relation in Asian Markets

by

Kumpol Watsooksunti

An Independent Study
Submitted in Partial Fulfillment of
the Requirement for the Degree of
Master of Science Program (Finance)

Master of Science Program in Finance (International Program)
Faculty of Commerce and Accountancy
Thammasat University, Bangkok, Thailand
May 2007

Thammasat University

Faculty of Commerce and Accountancy

An Independent Study

by

Kumpol Watsooksunti

"Stock Price-Volume Relation in Asian Markets"

has been approved as a partial fulfillment of the requirements for

the degree of Master of Science Program (Finance)

On May, 2007 by

Main Advisor   (……. ……. ……. …………..)

Assoc. Prof. Dr. Pantisa Pavabutr

Table of Content

Table of Figures and Tables

Abstract

This paper studies the relationship between price and trading volume of stocks in 6 Asian markets over the period 2000 to 2006. These countries include Hong Kong, South Korea, Malaysia, Singapore, Taiwan and Thailand. The result shows that there is evidence of price momentum effect in all countries. Portfolios of better performance stocks continue to perform better than portfolios of worst performance stocks. In term of volume, however, only in Hong Kong, portfolios with high volume outperform portfolios with low volume, while in other countries low volume portfolios outperform high volume portfolios suggesting a positive relationship between illiquidity and return.

1. Introduction

Many studies have been carried out to investigate the interaction between stock return and measures of trading volume such as turnover. Attentions attracted to do this study may due to various reasons. One of them is how past information on price can be used to form trading strategy to earn abnormal return or to observe the stock market anomalies. There are a few prominent trading strategies that have been established basing on past price information, namely momentum and contrarian strategies.

Momentum strategy makes use of the momentum effect, which is the effect that over intermediate horizons, winners continue to perform well and losers continue to perform poorly. A number of studies have shown that momentum strategies that buy stocks with high returns over the last three to twelve months and sell stocks with low returns over the previous three to twelve months earn statistically significant profits. Jegadeesh and Titman (1993, 2001), Chan, Jegadeesh, and Lakonishok (1996) and Lee/Swaminathan (2000) show that momentum strategies are successful in the U.S. stock market. Investors' under reaction to market news is attributed as the prime source of the price momentum.

In addition, Lee and Swaminathan (2000) also came up with a casual theory of the Momentum Life Cycle. The idea is that stocks go through cycles of investor favoritism (high volume) and neglect (low volume). During the period of favoritism, high-volume winners are overvalued. Later on when prices start to revert, they enter into the next phase, becoming high-volume losers. They are still popular, but their performance declines. Following that, as investors reassess these stocks' performance over time, they enter into a period of neglect. These stocks become low-volume losers. In the next phase, they become low-volume winners that outperform other stocks due to their relatively lower prices and positive surprises. However, they are still not very popular as they are still in a period of neglect (low volume). When they become more popular, their trading volume increases. They then turn back into high-volume winners. This cycle then repeats itself. Effectively, the Momentum Life Cycle labels low (high) volume winners (losers) as early stage momentum stocks whose

momentum is likely to continue. On the other hand, high (low) volume winners (losers) are categorized as late stage momentum stocks that are about to reverse.

For contrarian strategies, many researchers show that overreaction to market news by investors can result in a price reversal that contributes to the contrarian profits. Investors can beat the market with this strategy by selling recent winners and buying recent losers. DeBondt/Thaler (1985, 1987) and Jagadeesh (1990) show that contrarian profits exist in both short (week) and long (3 to 5 years) horizons. A price reversal induced by investors' overreaction to market news is attributed as the prime source of the contrarian profits. Daniel, Hirshleifer and Subrahmanyam (1998) have developed a model based on overconfidence bias. In their analysis, overconfidence together with attribution bias generates shorter (longer) term price momentum (reversal). Prices of these stocks are likely to overreact to news concerning a company's fundamentals and tend to deviate from their intrinsic value. But, ultimately, the prices would revert to their fundamental value.

In this study, we would like to look into the relationship between stock prices and trading volume to evaluate post crisis effect of price and volume momentum on Asia Pacific stock markets in recent years, when the markets have become more liberalized. This will enable us to examine the degree of market efficiency and how important volume is to these markets. Although there has been extensive research into the empirical and theoretical aspects of the stock price-volume relation, conclusions of this research is diverged, further investigation into this relation can give us a better insights into the matter.

This paper finds that there is evidence of price momentum effect in all 6 Asian countries for the period 2000 to 2006 at intermediate terms of 3 to 12 months. With respect to volume, only in Hong Kong, portfolios with high volume outperform portfolios with low volume, while in other countries low volume portfolios outperform high volume portfolios suggesting a positive relationship between illiquidity and return.

The remainder of the paper is organized as follows. Section 2 presents a brief survey of related literatures. Section 3 describes the data and shows how price and

volume correlate with one another. Section 4 presents the methodology, section 5 shows the result and section 6 concludes.

2. Related Literature

There are a number of important aspects why the study of price-volume relation is important. For instance, the empirical relation between returns and volume can help us to get a better understanding of how technical analysis works. Previously, many studies have been carried out and report that there is a correlation between volume and returns, some focused on determining whether volume causes return or return causes volume. Below are reviews of some literatures focusing on Asian markets.

Lam, Li and Wong (1991) study the Hong Kong market and find correlation between price changes and trading volume and also evidence that price changes cause volume but volume does not make price move. However, they carried out their study on only 49 stocks in the year 1984 to 1988.

Moosa and Al-Loghani (1995) find positive price-volume relation and strong evidence for bidirectional causality when examining the price-volume relation in 4 Asian stock markets: Malaysia, the Philippines, Singapore and Thailand in the year 1986 to 1993.

Chui, Titman, and Wei (2000) examine momentum profits in eight Asian markets, including Hong Kong, Korea, Malaysia, Singapore, Taiwan, Thailand, Indonesia and Japan in year 1975 to 2000. Their evidence indicates that the momentum effect is present in all of the Asian countries except for Korea and Indonesia, but it is generally weak and is statistically significant only for Hong Kong for the entire sample period and for Hong Kong, Malaysia, Singapore, and Thailand for the pre-crisis period.

Hameed and Yuanto (2002) implement the momentum trading strategies on securities traded on 6 Asian markets: Hong Kong, Malaysia, Singapore, South Korea, Taiwan and Thailand for the period 1979 to 1994. They do not find strong evidence for price momentum in these markets. Although there is some evidence of momentum

in high-turnover securities, these profits are only significant in Malaysia and South Korea. The low-turnover securities in all six countries do not show price momentum.

McInish, Ding, Pyun and Wongchoti (2006) examine trading volume and price returns for short-horizon (8 weeks) on 7 Pacific-Basin countries such as Japan, Taiwan, South Korea, Hong Kong, Malaysia, Thailand and Singapore during 1990 to 2000. They use this information to test the profitability of contrarian and momentum strategies. They find that momentum profits are persistent and significant only in Japan and Hong Kong.

A lot of attention has been focused on the study of relation between price and volume in Asian markets and their results are diverged. This paper tries to give an extended analysis of this relationship and examine the momentum effect in Asian markets during the post-crisis period. The markets under study are the common markets that are studied by Chui, Titman and Wei (2000) and Hameed and Yuanto (2002). Comparing to their findings, the result of this paper shows that there are momentum effect in all six markets during the year 2000 to 2006, which is the continuation period from these previous research.

3. Data

This study covers the stock market in Thailand, Hong Kong, Singapore, Malaysia, South Korea and Taiwan from year 2000 to 2006. All data, including daily returns on individual stocks and each country's market, number of shares traded and number of shares outstanding are obtained from DataStream.

We eliminate any firm that is a close-end fund, a real estate investment trust (REIT) or a Depository Receipt (DR). We also have taken out firms that have been delisted. For firms that have no information on price, trading volume and number of outstanding shares are also left out.

Figure 1 shows the numbers of firms that are included in this study. These records are listed according to their countries and years. On average, in each year, the number

of firms being investigated are about 385 firms for Thailand, 606 firms for Singapore, 886 firms for Hong Kong, 974 firms for Taiwan, 795 firms for South Korea and 801 firms for Malaysia.

Figure 2 shows for each country the index at the beginning of each year, their yearly market return and yearly average trading volume. For all countries, in year 2000, the index returns are in negative. Thereafter, the returns performed differently for each country. Figure 3 to Figure 8 plot out index value and volume for all countries from year 2000 to 2006.

In order to investigate how volume and return correlate with one another, we use Pearson correlation test for autocorrelation of turnover, autocorrelation of return and cross-correlation of turnover and return. Pearson correlation test can help to identify if the correlation between variables is zero, positive or negative. The following short section describes the test results, provided in Table 1 to Table 6.

In each table, it gives 3 set of results. The first set is the turnover correlation. This is obtained by running Pearson test for monthly turnover of current month against monthly turnover of period lagging by 1 month, 3 months, 6 months, 9 months and 12 months. The second set is the return correlation. This is obtained by running Pearson test for monthly return of current month against monthly return of period lagging by 1 month, 3 months, 6 months, 9 months and 12 months. The last set of result is the cross-correlation between monthly return and monthly turnover of current months with theirs lags for period of 1 month, 3 months, 6 months, 9 months and 12 months.

3.1.   Turnover Autocorrelation

The results show that the volume of trading in stocks exhibits positive serial correlation in all six countries. Especially in Hong Kong, South Korea, Taiwan and Singapore, the correlation is high. Figure 9 shows a plot of turnover autocorrelation for all six countries using correlation between current months and other lagging periods. From this figure, it can be clearly seen that the trading volume is persistence.

5

3.2.   Return Autocorrelation

Countries like Hong Kong, Malaysia, Singapore and Thailand appear to exhibit positive return autocorrelation. These positively correlated returns are observed in contrary to most theoretical models of market efficiency, which generally require returns to be serially uncorrelated. Thus, for these countries, the result could suggest that the market is not efficient. Nonetheless, for countries like South Korea and Taiwan, we obtained a different result. Correlations in these latter two countries appear to be in a mix of negative and positive.

Patrick (1997) documented that, in Stockholm, return autocorrelation is non-symmetric, positive following positive returns, but close to zero following negative returns. This may suggest that if further work to differentiate return between positive and negative, we may get a clearer picture of return autocorrelation for these countries.

This mixed result of positive and negative return autocorrelation also suggests that to use only return to determine the direction of stock price may not be enough. There may be a need to look for other factors that could be better guide in determining the stock direction. Thus, the study in relationship between price and volume may provide us that other factor if we could find any relationship between them.

3.3.   Cross-correlation of Return and Turnover

In all countries, the result shows a positive contemporaneous correlation between return and turnover. Figure 10 shows the relationship between return and turnover. This figure is plotted using correlation of turnover of 6 months lagging against return of various periods for all countries. This figure strongly suggests that volume is an important factor affecting the movement of return. It shows that the correlation between return of 3 to 6 months lagged period and turnover of current period is almost zero. Then it jumps to a more pronounced positive number when return and turnover of the current period is compared and fades away periods there after.

4. Methodology

4.1.   Portfolio Formation

At first, we obtained the daily data from DataStream. We then reduce these daily data into monthly data by focusing on its monthly return and monthly turnover. Monthly return is the difference in price of current month and price of previous month. Monthly turnover is average of daily turnover in a month. The daily turnover is calculated by dividing the daily trading volume by number of shares available in the market.

Then we calculate the geometric average return and the average turnover of the 1, 3, 6, 9 and 12 month's periods for each stock for every month. We filter out records that contain null value, by this; we mean that for records that have no average return or average turnover are taken out. We also filter out records that contain the extreme outliner. For stocks that have return and turnover value on the extreme 1 percent of both ends, we will take them out from calculation. This is done to avoid any inconsistency in the result.

Then, at the beginning of each month, we rank all eligible stocks independently on the basis of past geometric average returns and past average trading volume. The stocks are then assigned to one of 5 portfolios based on geometric average returns over the previous J months (J = 1, 3, 6, 9, 12) and one of 5 portfolios based on the average turnover over the same time period. The intersections resulting from the two independent rankings give rise to 25 price-volume portfolios. The study focus on the monthly returns of extreme winner and loser deciles over the next K months (K = 3, 6, 9, or 12).

The monthly return for a K-month holding period is an equal-weighted geometric average monthly return of these portfolios. For example, the monthly return for a three-month holding period is based on an equal-weighted geometric average of this month's return, last month's return, and the return from two months ago.

4.2.   Trading Activity

The trading volume is defined as the average daily turnover in percentage during the portfolio formation period, where daily turnover is the ratio of the number of shares traded each day to the number of shares outstanding at the end of the day. The choice of the turnover ratio rather than share trading volume is made in order to separate the effect of firm size from trading volume. This volume categorization does not classify stocks into high and low volume groups based on whether the formation period is higher or lower than its historical average.

Also, using the number of shares traded directly would require controlling for events such as stock splits, rights issues, and stock dividends. Because such events increase the number of shares outstanding, without adjustments, trading volume would become non-comparable before and after the event occurrence.

5. Result

Table 7 to Table 12 reports returns to portfolios formed on the basis of a two-way sort between price momentum and past trading volume for each country. To create this table, we sort all sample firms at the beginning of each month based on their geometric average returns over the past J months and divide them into 5 portfolios (R1 to R5). We then sort these same firms based on their average daily turnover rate over the past J months and divide them into 5 volume portfolios (V1 to V5). V1 represents the lowest trading volume portfolio, and V5 represents the highest trading volume portfolio. These figures represent the average monthly return over the next K months (K = 3, 6, 9, 12). We look into these figures in more detail and discuss what can be found from them.

Table 7 reports result from Hong Kong. Generally, high volume stocks do better than low volume stocks for all the portfolios. For example, with a six-month portfolio formation period and six-month holding period (J = 6, K = 6), high volume losers

outperform low volume losers, and high volume winners also outperform low volume winners. We find similar results in almost every (J, K) cell. Firms that experience high trading volume in the recent past tend to outperform firms that experience low trading volume.

Price momentum also can be seen in Hong Kong market. Looking at the average column, we can see that for all the portfolios, winners outperform losers. This signifies that price momentum does exist. For example, with a nine-month portfolio formation period and six-month holding period (J = 12, K = 6), on average the winners portfolio have a return of 0.08 percent while the losers portfolio have a return of -3.60 percent. We can see a similar result throughout the table.

Table 8 shows result from South Korea. First, let us look at what volume can tell us, here low volume stocks generally do better than high volume stocks, which is opposite to Hong Kong market. On the average, every low volume portfolio do outperform high volume portfolio. This finding can be interpreted as evidence that low volume firms command a greater illiquidity premium.

However, when we take a close look at loser portfolio, for example, with a nine-month portfolio formation period and six-month holding period (J = 9, K = 6), it gives different picture. The loser portfolio with lower volume does not outperform the loser portfolio with higher volume, while low volume winners still outperform high volume winners.

Price momentum also can be observed in South Korea, with the exception of the winner portfolios (R5). Winner high volume portfolios have a negative return while other winner portfolios have positive return. And in general, winner portfolios (R5) actually underperform R4 and R3 portfolios.

Table 9 shows the result from Malaysian market. At first look, it can be seen that the returns are all in negative term. This could be the result of the underperformance of Malaysian market for the last few years, after its government has issued laws that control the foreign direct inflow of investment. However, on relative term, we can still observe what volume and price do in this market. For volume, it can be seen

clearly that, in Malaysian market, low volume portfolios do outperform high volume portfolios. For return, winner portfolios do perform better than loser portfolios.

Table 10 shows result from Singapore market. There is a prominent evidence that shows price momentum in portfolio J=6, 9, 12. Winner portfolio does outperform loser portfolio. In volume prospective, there is clear evidence that low volume portfolios can outperform high volume portfolios.

Table 11 shows result from Taiwanese market. For Taiwan, the returns are in negative term, as an evidence of underperformance of this market during the recent years. We thus need to compare these returns relatively. In general, it seems that high volume portfolios perform worse than low volume portfolios, suggesting a positive relationship between illiquidity and return. However, with the exception of loser portfolios, for example, looking at (J = 12, K = 6) portfolio, we can see that high volume loser portfolios do better than low volume loser portfolios where as the high volume winner portfolios underperform low volume winner portfolios.

What seems to be most obvious in Taiwanese market is the loser portfolios always perform very poorly when compared to other portfolios. Looking at the average column, it can be noticed that the return are of about -2 percent for these loser portfolios, where as the returns of other portfolios is in the range of -1.27 to -0.32 percent.

Table 12 shows result form Thai market. In this market, neither low nor high portfolios can outperform middle volume portfolios. Also, high volume portfolios actually underperform other portfolios. Regarding the price momentum, winner portfolios do outperform loser portfolios. One observation that is worth taking note in Thai market is that loser low volume portfolio can actually outperform winner high volume.

6. Conclusion

This study investigates the relation between price and volume relation in six Asian markets. It shows that the volume of trading in stocks exhibits positive serial correlation in all six countries, especially in Hong Kong, South Korea, Taiwan and Singapore. Also, countries like Hong Kong, Malaysia, Singapore and Thailand exhibit positive return autocorrelation, while in South Korea and Taiwan, correlations appear to be in a mix of negative and positive. In all countries, the result shows a positive contemporaneous correlation between return and turnover.

It is only in Hong Kong that we can observe high volume portfolios outperform low volume portfolios. In contrast, in other countries, this phenomenon cannot be observed, low volume portfolios instead outperform high volume portfolios, suggesting a positive relationship between illiquidity and return. This unique condition in Hong Kong may due to its differences in capital market restriction, such as foreign exchange. For foreign investors in Hong Kong, the conversion of currency is free of restrictions. In the other countries, the repatriation of a large amount of foreign capital may require approval.

Price momentum is more pronounced in all the countries. The result also shows that low volume winners are the best performers when comparing to other portfolios in all countries, except Hong Kong. This seems to fit the Momentum Life Cycle explanation of Lee and Swaminathan (2000) which suggests that low volume winners are stocks that are in the early momentum stage, thus these are the stocks that will earn the most return when comparing to stocks in other stages. This finding suggests that the market is not efficient and there may be a possibility that one can observe market anomalies in these six Asian countries.

7. References

Chan, K. C., Jegadeesh, N., & Lakonishok, J. (1996). Momentum strategies. *Journal of Finance*, 51, 1681−1713.

Chordia, T., & Swaminathan, B. (2000). Trading volume and cross-autocorrelations in stock returns. *Journal of Financ*e, 55, 913−935.

Chui, C. W., Titman, S., & Wei, K. C. (2000). Momentum, legal systems and ownership structure: An analysis of Asian stock markets, Working Paper, Hong Kong Polytechnic University.

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under- and overreactions. *Journal of Finance*, 53, 1839–1886.

McInish, T. H., Ding, D. K., & Wongchoti, U. (2007). Behavioral explanations of trading volume and short-horizon price patterns: An investigation of seven Asia-Pacific markets. *Pacific Basin Finance Journal*. Article in press.

DeBondt, W., & Thaler, R. (1985). Does the stock market overreact? *Journal of Fina*nce, 40, 793-805.

DeBondt, W., & Thaler, R. (1987). Further evidence on investor overreaction and stock market seasonality. *Journal of Finance,* 42, 557-581.

Hameed, A., & Ting, S. (2000). Trading volume and short-horizon contrarian profits: Evidence from the Malaysian market. *Pacific-Basin Finance Journal*, 8, 67−84.

Hameed, A., & Yuanto, K. (2002). Momentum strategies: Evidence from Pacific Basin stock markets. *Journal of Financial Research,* 25, 383-397.

Jegadeesh, N. (1990). Evidence of predictable behavior of security returns. *Journal of Finance*, 45, 881-898.

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implication for stock market efficiency. *Journal of Finance*, 48, 65−91.

Jegadeesh, N., & Titman, S. (2001). Profitability of momentum strategies: An evaluation of alternative explanations. *The Journal of Finance*, 56, 699−720.

Lam, K., Li, W.K. & Wong, P.S. (1991). Price changes and trading volume relationship in the Hong Kong Stock market. *Asia Pacific Journal of Management*, 7, Special Issue, 25-42.

Lee, C., & Swaminathan, B. (2000). Price momentum and trading volume. *Journal of Finance*, 55, 2017-2069.

McInish, T. H., Ding, D. K., Pyun, C. S. & Wongchoti, U. (2006). Short-horizon contrarian and momentum strategies in Asian markets: An intergrated analysis. *International Review of Financial Analysis*. Article in press.

Moosa, I. A. & Al-Loughani, N. E. (1995). Testing the price-volume relation in emerging Asian stock markets. *Journal of Asian Economics*, 6, 407-422.

Patrick Safvenblad (1997), Trading volume and autocrrelation: empirical evidence from the Stockholm Stock Exchane. *EFI, Ekonomiska For Sknings Institutet,* Working Paper No. 191.

Year	Thailand	Singapore	Hong Kong	Taiwan	Korea	Malaysia
2000	307	591	684	682	686	600
2001	316	599	749	780	729	657
2002	338	601	844	908	769	719
2003	371	603	905	1009	802	800
2004	420	612	963	1104	830	887
2005	473	616	1022	1166	874	968
2006	473	617	1037	1168	874	975
Mean	385	606	886	974	795	801

Figure 1 Number of firms included in this study

		2000	2001	2002	2003	2004	2005	2006
Hong Kong	Index	17369.63	14869.94	11350.85	9365.52	12801.48	14237.42	14944.77
	Market Return	-14.39%	-23.67%	-17.49%	36.69%	11.22%	4.97%	33.59%
	Average Volume	25535737	33199082	25772838	32306633	40751829	52091052	108975534
Korea	Index	1059.04	520.95	724.95	635.17	821.26	893.71	1389.27
	Market Return	-50.81%	39.16%	-12.38%	29.30%	8.82%	55.45%	3.25%
	Average Volume	30387154	45334387	85414815	54200810	37289079	46762249	27909636
Malaysia	Index	833.89	666.63	682.83	632.43	788.49	903.84	892.85
	Market Return	-20.06%	2.43%	-7.38%	24.68%	14.63%	-1.22%	22.78%
	Average Volume	54803213	45747788	48425992	64471480	73535845	68150903	116294189
Singapore	Index	2582.94	1896.28	1625.69	1335.98	1791.35	2070.15	2369.37
	Market Return	-26.58%	-14.27%	-17.82%	34.09%	15.56%	14.45%	26.02%
	Average Volume	96056173	98267796	101897584	156193279	142949452	157109600	189075068
Taiwan	Index	8756.55	4935.28	5600.05	4524.87	6041.56	6143.12	6462.06
	Market Return	-43.64%	13.47%	-19.20%	33.52%	1.68%	5.19%	21.07%
	Average Volume	2390110	2530320	3587835	4162562	4396856	3200866	3589692
Thailand	Index	498.46	272.03	305.19	351.52	790.93	684.48	725.64
	Market Return	-45.43%	12.19%	15.18%	125.00%	-13.46%	6.01%	-6.31%
	Average Volume	244950	731585	1079830	2226489	2246626	2610931	3077329

Figure 2 Market Statistic
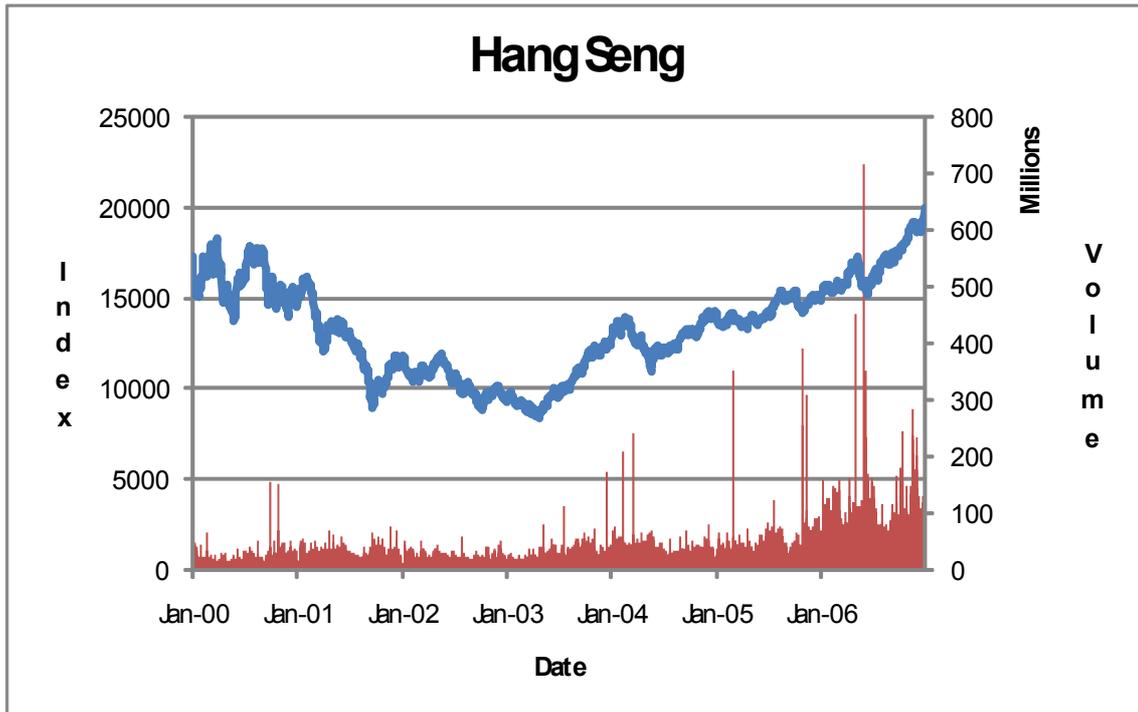
Figure 3 Hang Seng Index VS Volume
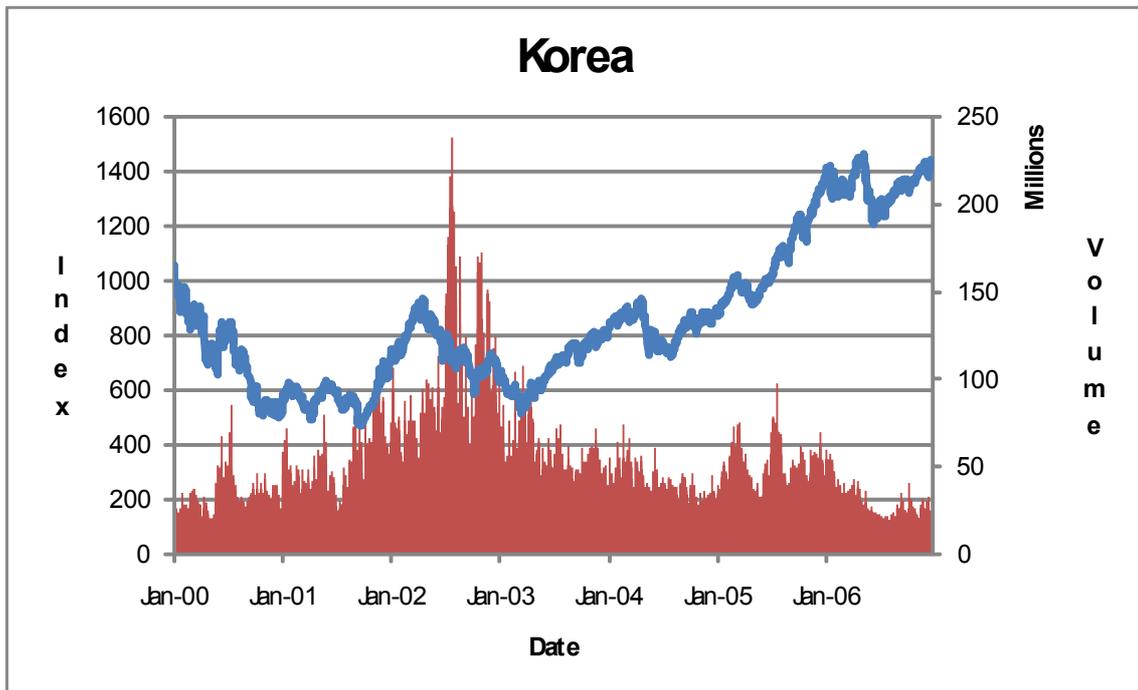
Figure 4 KOSPI Composite Index VS Volume
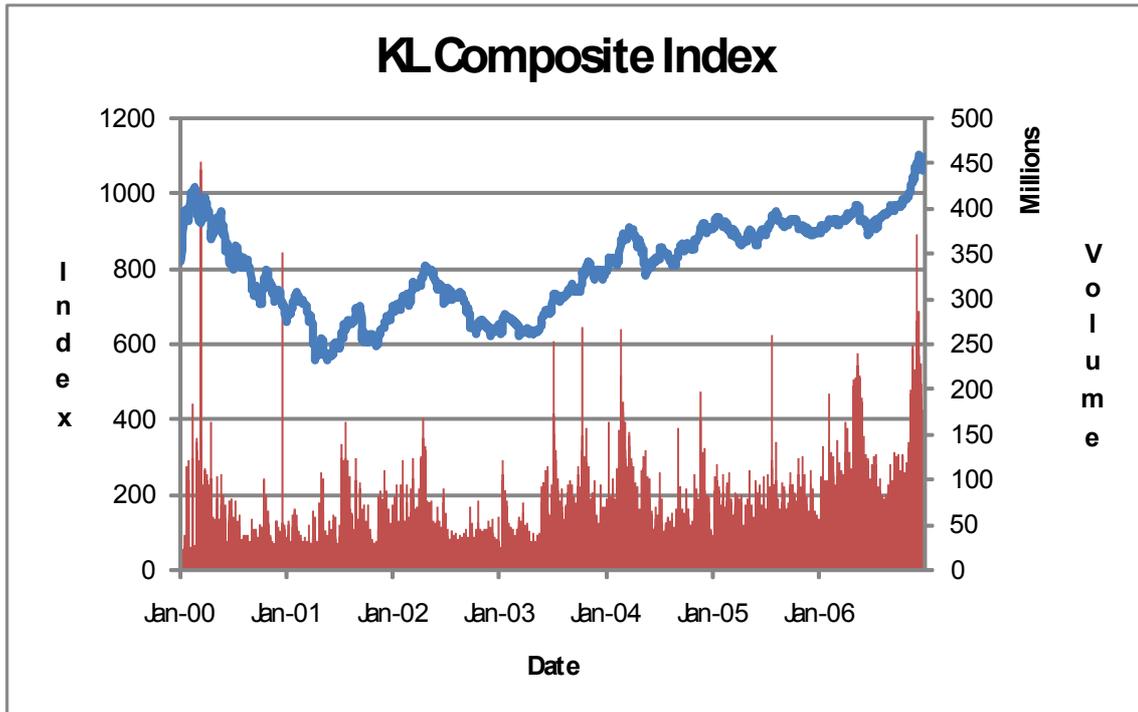
Figure 5 Kuala Lumpur Composite Index VS Volume
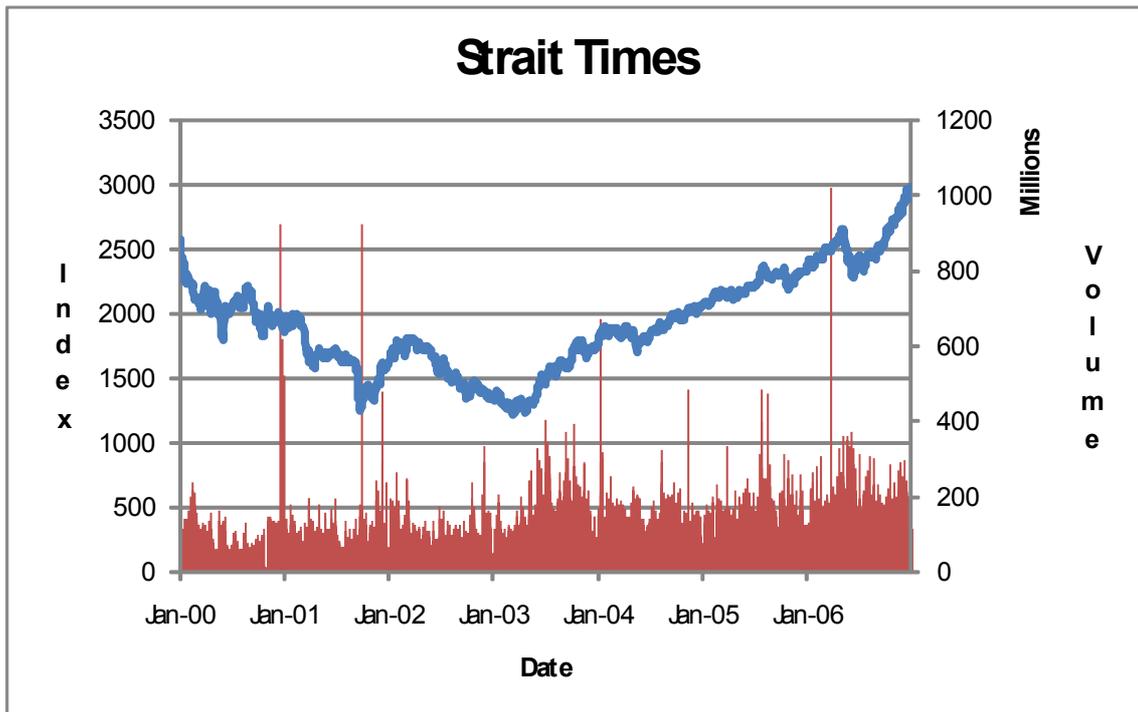
Figure 6 Straits Times Index VS Volume
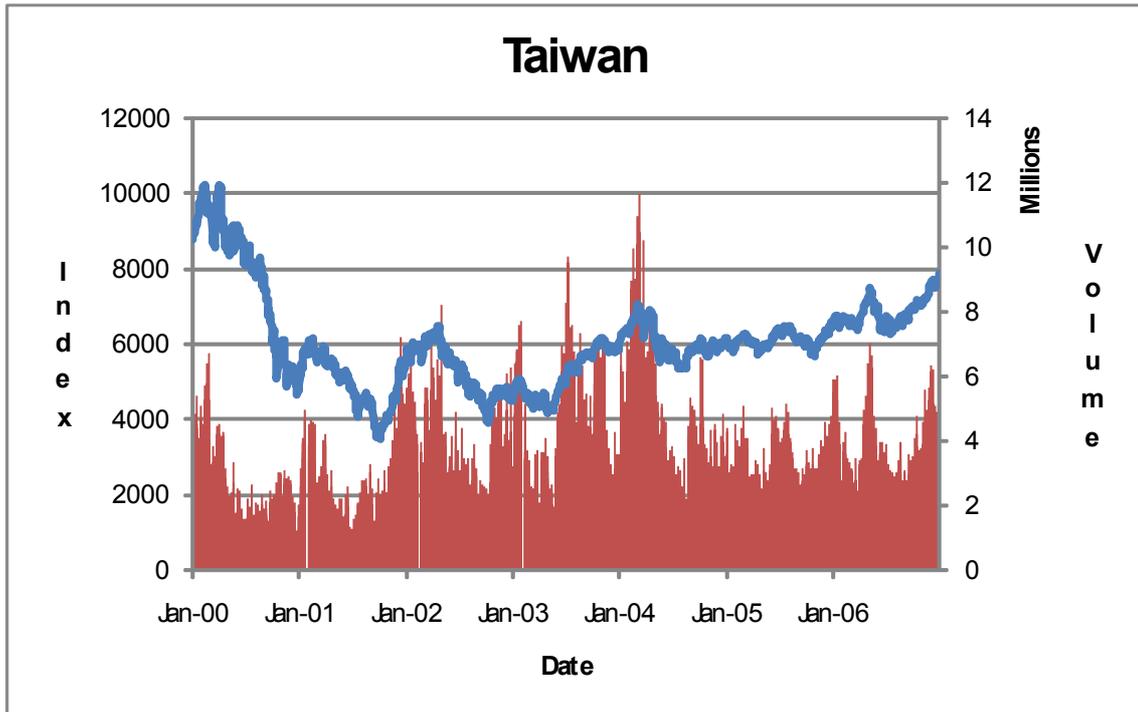
Figure 7 Taiwan Weighted Index VS Volume
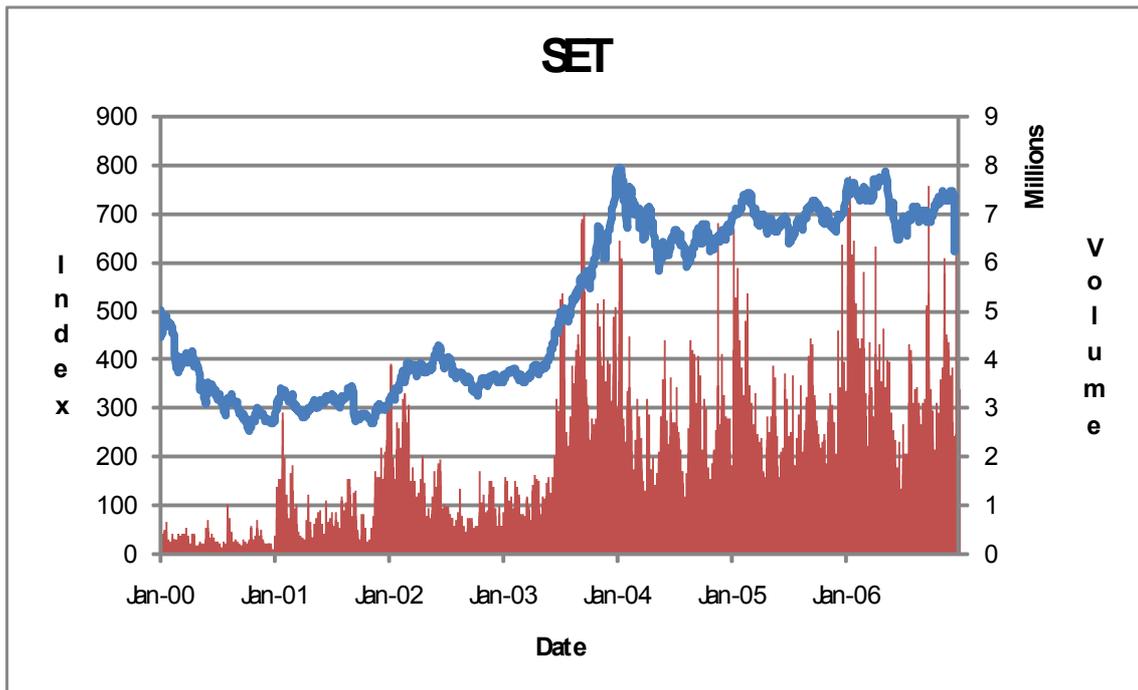
Figure 8 SET Index VS Volume

Table 1 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for Hong Kong Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

Pearson Correlation Coefficients, N = 56385 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
TO0mth	1					
TO1mth	0.7987 <.0001	1				
TO3mth	0.35896 <.0001	0.43062 <.0001	1			
TO6mth	0.32358 <.0001	0.34144 <.0001	0.40123 <.0001	1		
TO9mth	0.25938 <.0001	0.26724 <.0001	0.31383 <.0001	0.42965 <.0001	1	
TO12mth	0.15847 <.0001	0.15386 <.0001	0.18206 <.0001	0.24739 <.0001	0.29235 <.0001	1

Pearson Correlation Coefficients, N = 56385 Prob > |r| under H0: Rho=0						
	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
ret0mth	1					
ret1mth	0.02631 <.0001	1				
ret3mth	-0.01174 0.0053	0.00116 0.7822	1			
ret6mth	0.03085 <.0001	0.02365 <.0001	-0.01147 0.0064	1		
ret9mth	0.02447 <.0001	-0.02879 <.0001	0.03552 <.0001	-0.01124 0.0076	1	
ret12mth	0.02611 <.0001	0.0273 <.0001	0.02123 <.0001	0.04843 <.0001	-0.01304 0.002	1

Pearson Correlation Coefficients, N = 56385 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
ret0mth	0.10798 <.0001	0.01015 0.0159	-0.00465 0.27	0.007 0.0965	0.0054 0.1996	0.00552 0.1896
ret1mth	0.08901 <.0001	0.10074 <.0001	-0.00899 0.0328	0.00498 0.2372	0.00329 0.4344	0.00065 0.8773
ret3mth	0.03813 <.0001	0.06102 <.0001	0.09618 <.0001	-0.01295 0.0021	0.00513 0.2229	-0.00269 0.5237
ret6mth	0.01935 <.0001	0.01882 <.0001	0.03436 <.0001	0.10535 <.0001	-0.01437 0.0006	0.00322 0.4445
ret9mth	0.01572 0.0002	0.01383 0.001	0.02113 <.0001	0.04224 <.0001	0.09623 <.0001	-0.01454 0.0006
ret12mth	0.00403 0.3387	0.0063 0.1346	0.01867 <.0001	0.02871 <.0001	0.03975 <.0001	0.0665 <.0001

Table 2 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for South Korean Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
			Pearson Correlation Coefficients, N = 52095			
			Prob > |r| under H0: Rho=0			
TO0mth	1					
TO1mth	0.75207 <.0001	1				
TO3mth	0.51419 <.0001	0.48004 <.0001	1			
TO6mth	0.45999 <.0001	0.42935 <.0001	0.45794 <.0001	1		
TO9mth	0.35592 <.0001	0.32549 <.0001	0.38991 <.0001	0.45499 <.0001	1	
TO12mth	0.28528 <.0001	0.24453 <.0001	0.31642 <.0001	0.39402 <.0001	0.46937 <.0001	1

	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
			Pearson Correlation Coefficients, N = 52095			
			Prob > |r| under H0: Rho=0			
ret0mth	1					
ret1mth	-0.02492 <.0001	1				
ret3mth	0.02327 <.0001	-0.0143 0.0011	1			
ret6mth	-0.02055 <.0001	0.03068 <.0001	0.0097 0.0269	1		
ret9mth	0.10193 <.0001	-0.01243 0.0046	-0.02811 <.0001	0.017 0.0001	1	
ret12mth	-0.01135 0.0096	0.00372 0.3963	0.07769 <.0001	-0.01563 0.0004	0.0217 <.0001	1

	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
			Pearson Correlation Coefficients, N = 52095			
			Prob > |r| under H0: Rho=0			
ret0mth	0.04292 <.0001	-0.04199 <.0001	-0.0224 <.0001	-0.02329 <.0001	-0.01408 0.0013	-0.01977 <.0001
ret1mth	0.05215 <.0001	0.03742 <.0001	-0.02376 <.0001	-0.02218 <.0001	-0.01422 0.0012	-0.00881 0.0444
ret3mth	0.00124 0.7764	0.00903 0.0393	0.03791 <.0001	-0.01757 <.0001	-0.02546 <.0001	-0.01163 0.008
ret6mth	-0.01119 0.0107	-0.00257 0.5572	-0.00024 0.9568	0.03434 <.0001	-0.02111 <.0001	-0.02507 <.0001
ret9mth	-0.01403 0.0014	-0.01596 0.0003	-0.01389 0.0015	-0.00688 0.1162	0.03814 <.0001	-0.02365 <.0001
ret12mth	-0.01444 0.001	-0.00102 0.8157	-0.00906 0.0387	-0.01439 0.001	-0.00497 0.2564	0.0419 <.0001

Table 3 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for Malaysia Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

Pearson Correlation Coefficients, N = 52200 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
TO0mth	1					
TO1mth	0.42526 <.0001	1				
TO3mth	0.24113 <.0001	0.53323 <.0001	1			
TO6mth	0.22551 <.0001	0.39015 <.0001	0.37324 <.0001	1		
TO9mth	0.07859 <.0001	0.24703 <.0001	0.11159 <.0001	0.09221 <.0001	1	
TO12mth	0.06458 <.0001	0.10119 <.0001	0.07397 <.0001	0.07756 <.0001	0.04648 <.0001	1

Pearson Correlation Coefficients, N = 52200 Prob > |r| under H0: Rho=0						
	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
ret0mth	1					
ret1mth	-0.00624 0.1539	1				
ret3mth	0.05864 <.0001	-0.02453 <.0001	1			
ret6mth	0.04454 <.0001	0.02265 <.0001	0.08606 <.0001	1		
ret9mth	0.06461 <.0001	-0.03653 <.0001	0.06577 <.0001	0.09863 <.0001	1	
ret12mth	0.00001 0.9977	-0.04888 <.0001	0.02443 <.0001	0.04855 <.0001	0.08045 <.0001	1

Pearson Correlation Coefficients, N = 52200 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
ret0mth	0.02487 <.0001	-0.01209 0.0057	-0.0041 0.3488	-0.00114 0.7953	-0.00932 0.0333	-0.01132 0.0097
ret1mth	0.03437 <.0001	0.03613 <.0001	-0.01055 0.0159	-0.0066 0.1317	0.00194 0.6573	-0.01385 0.0016
ret3mth	0.01947 <.0001	0.03919 <.0001	0.01821 <.0001	-0.00495 0.258	-0.00074 0.866	-0.01595 0.0003
ret6mth	0.00835 0.0565	0.01803 <.0001	0.00954 0.0292	0.02598 <.0001	-0.00067 0.8786	-0.00535 0.2215
ret9mth	0.00366 0.4029	0.00689 0.1155	0.00541 0.2163	0.0177 <.0001	0.03107 <.0001	-0.00265 0.5447
ret12mth	-0.01017 0.0202	-0.01324 0.0025	-0.00878 0.0449	-0.00001 0.9976	0.01271 0.0037	0.04233 <.0001

Table 4 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for Singapore Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

Pearson Correlation Coefficients, N = 29420 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
TO0mth	1					
TO1mth	0.71954 <.0001	1				
TO3mth	0.51375 <.0001	0.50352 <.0001	1			
TO6mth	0.31314 <.0001	0.33255 <.0001	0.43975 <.0001	1		
TO9mth	0.2863 <.0001	0.27726 <.0001	0.37436 <.0001	0.46664 <.0001	1	
TO12mth	0.20152 <.0001	0.20651 <.0001	0.21429 <.0001	0.27377 <.0001	0.37202 <.0001	1

Pearson Correlation Coefficients, N = 29420 Prob > |r| under H0: Rho=0						
	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
ret0mth	1					
ret1mth	-0.03966 <.0001	1				
ret3mth	0.03177 <.0001	0.04986 <.0001	1			
ret6mth	0.0154 0.0082	-0.00171 0.7694	0.03558 <.0001	1		
ret9mth	0.00503 0.3886	-0.04385 <.0001	0.02232 0.0001	0.03265 <.0001	1	
ret12mth	0.03361 <.0001	-0.00052 0.929	-0.0031 0.5944	0.03009 <.0001	0.03116 <.0001	1

Pearson Correlation Coefficients, N = 29420 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
ret0mth	0.11156 <.0001	-0.00709 0.2239	-0.01575 0.0069	-0.02418 <.0001	-0.02253 0.0001	-0.00347 0.5519
ret1mth	0.11438 <.0001	0.10437 <.0001	-0.00428 0.4627	-0.01016 0.0814	-0.0321 <.0001	0.00298 0.6088
ret3mth	0.0655 <.0001	0.07738 <.0001	0.10444 <.0001	-0.01851 0.0015	-0.0239 <.0001	-0.0216 0.0002
ret6mth	0.01497 0.0102	0.04415 <.0001	0.07015 <.0001	0.10489 <.0001	-0.02477 <.0001	-0.02394 <.0001
ret9mth	0.00582 0.3179	0.00873 0.1341	0.02058 0.0004	0.07878 <.0001	0.09985 <.0001	-0.02659 <.0001
ret12mth	-0.00505 0.3868	-0.00624 0.2844	0.00947 0.1043	0.02021 0.0005	0.06952 <.0001	0.08363 <.0001

Table 5 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for Taiwan Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

Pearson Correlation Coefficients, N = 57401 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
TO0mth	1					
TO1mth	0.79923 <.0001	1				
TO3mth	0.58064 <.0001	0.64396 <.0001	1			
TO6mth	0.47631 <.0001	0.49944 <.0001	0.57299 <.0001	1		
TO9mth	0.47425 <.0001	0.46585 <.0001	0.46389 <.0001	0.56287 <.0001	1	
TO12mth	0.39885 <.0001	0.42531 <.0001	0.46142 <.0001	0.44869 <.0001	0.54448 <.0001	1

Pearson Correlation Coefficients, N = 57401 Prob > |r| under H0: Rho=0						
	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
ret0mth	1					
ret1mth	0.06272 <.0001	1				
ret3mth	-0.06243 <.0001	-0.02865 <.0001	1			
ret6mth	-0.06984 <.0001	-0.04926 <.0001	-0.06207 <.0001	1		
ret9mth	0.05472 <.0001	-0.05215 <.0001	-0.08376 <.0001	-0.04528 <.0001	1	
ret12mth	0.01608 0.0001	0.03802 <.0001	0.03815 <.0001	-0.07315 <.0001	-0.04861 <.0001	1

Pearson Correlation Coefficients, N = 57401 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
ret0mth	0.23612 <.0001	-0.03453 <.0001	-0.05783 <.0001	-0.03513 <.0001	0.03118 <.0001	-0.03431 <.0001
ret1mth	0.2438 <.0001	0.23781 <.0001	-0.05648 <.0001	-0.04787 <.0001	-0.00105 0.8006	-0.00253 0.5447
ret3mth	0.07777 <.0001	0.13178 <.0001	0.23992 <.0001	-0.0486 <.0001	-0.04089 <.0001	0.03059 <.0001
ret6mth	0.00698 0.0944	0.02579 <.0001	0.06717 <.0001	0.23604 <.0001	-0.05083 <.0001	-0.06387 <.0001
ret9mth	0.0346 <.0001	0.01469 0.0004	0.00359 0.3901	0.06731 <.0001	0.22807 <.0001	-0.06294 <.0001
ret12mth	0.03194 <.0001	0.0478 <.0001	0.03746 <.0001	0.0118 0.0047	0.07702 <.0001	0.22887 <.0001

Table 6 Turnover autocorrelations, return autocorrelations and cross-correlations between return and turnover for Thai Market. These correlations are calculated using turnover of current month is compared with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago, together with return of current month with its lags of 1 month, 3 months, 6 months, 9 months and 12 months ago.

Pearson Correlation Coefficients, N = 19295 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
TO0mth	1					
TO1mth	0.17757 <.0001	1				
TO3mth	0.10441 <.0001	0.39866 <.0001	1			
TO6mth	0.11127 <.0001	0.36746 <.0001	0.35586 <.0001	1		
TO9mth	0.1243 <.0001	0.40561 <.0001	0.43218 <.0001	0.47517 <.0001	1	
TO12mth	0.02799 0.0001	0.0949 <.0001	0.09912 <.0001	0.10986 <.0001	0.14952 <.0001	1

Pearson Correlation Coefficients, N = 19295 Prob > |r| under H0: Rho=0						
	ret0mth	ret1mth	ret3mth	ret6mth	ret9mth	ret12mth
ret0mth	1					
ret1mth	0.05071 <.0001	1				
ret3mth	0.0521 <.0001	0.02422 0.0008	1			
ret6mth	0.01544 0.0319	-0.02662 0.0002	0.05037 <.0001	1		
ret9mth	-0.00312 0.6647	-0.05294 <.0001	0.00398 0.5802	0.04517 <.0001	1	
ret12mth	0.02279 0.0016	-0.00559 0.4377	-0.00565 0.4328	-0.00606 0.3996	0.06416 <.0001	1

Pearson Correlation Coefficients, N = 19295 Prob > |r| under H0: Rho=0						
	TO0mth	TO1mth	TO3mth	TO6mth	TO9mth	TO12mth
ret0mth	0.06009 <.0001	0.01221 0.0898	-0.00759 0.2919	-0.0074 0.3041	-0.00977 0.175	-0.00837 0.2448
ret1mth	-0.00649 0.3676	0.04222 <.0001	-0.0051 0.479	-0.00032 0.9649	-0.01828 0.0111	0.015 0.0372
ret3mth	-0.00742 0.3024	0.0202 0.005	0.03938 <.0001	-0.00682 0.3435	-0.01237 0.0856	-0.00777 0.2808
ret6mth	0.00353 0.6236	0.00871 0.2263	0.01418 0.0489	0.03917 <.0001	-0.00323 0.6538	-0.00063 0.9304
ret9mth	0.00599 0.4051	0.00134 0.8526	0.00038 0.9584	0.01925 0.0075	0.05712 <.0001	-0.00117 0.8712
ret12mth	0.00682 0.3438	-0.00142 0.8438	0.00187 0.7952	0.00177 0.8061	0.01779 0.0135	-0.0002 0.9778
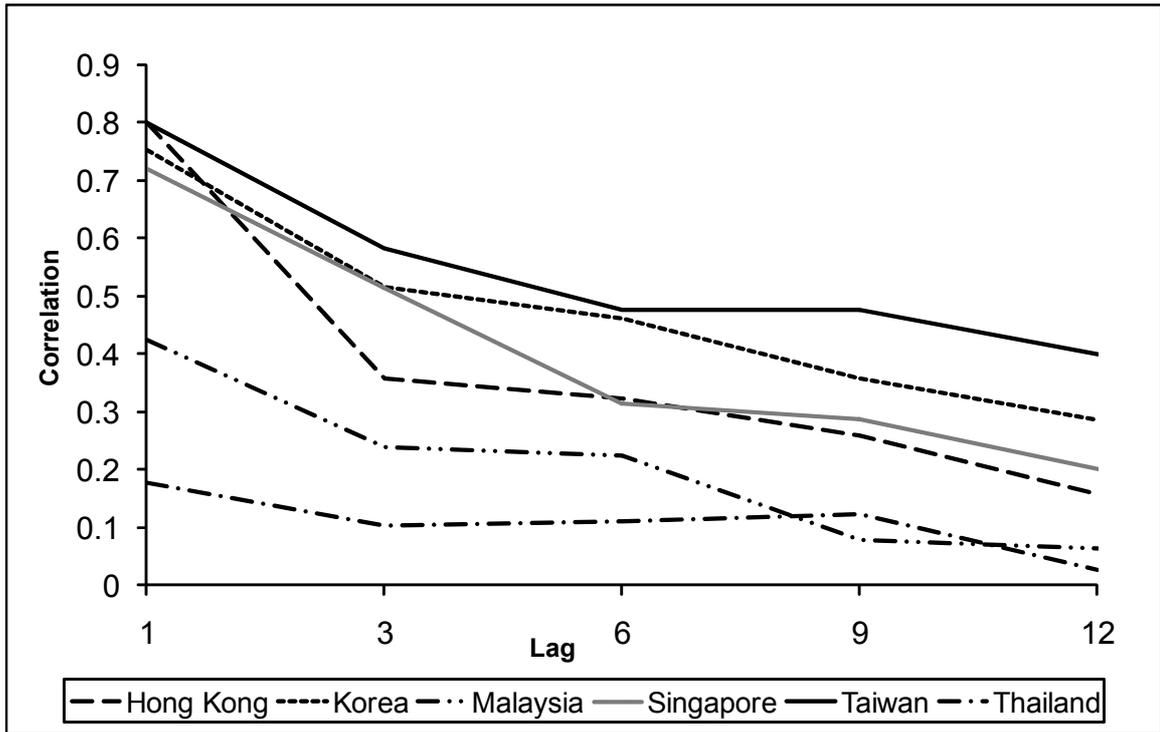
Figure 9 Turnover Autocorrelation
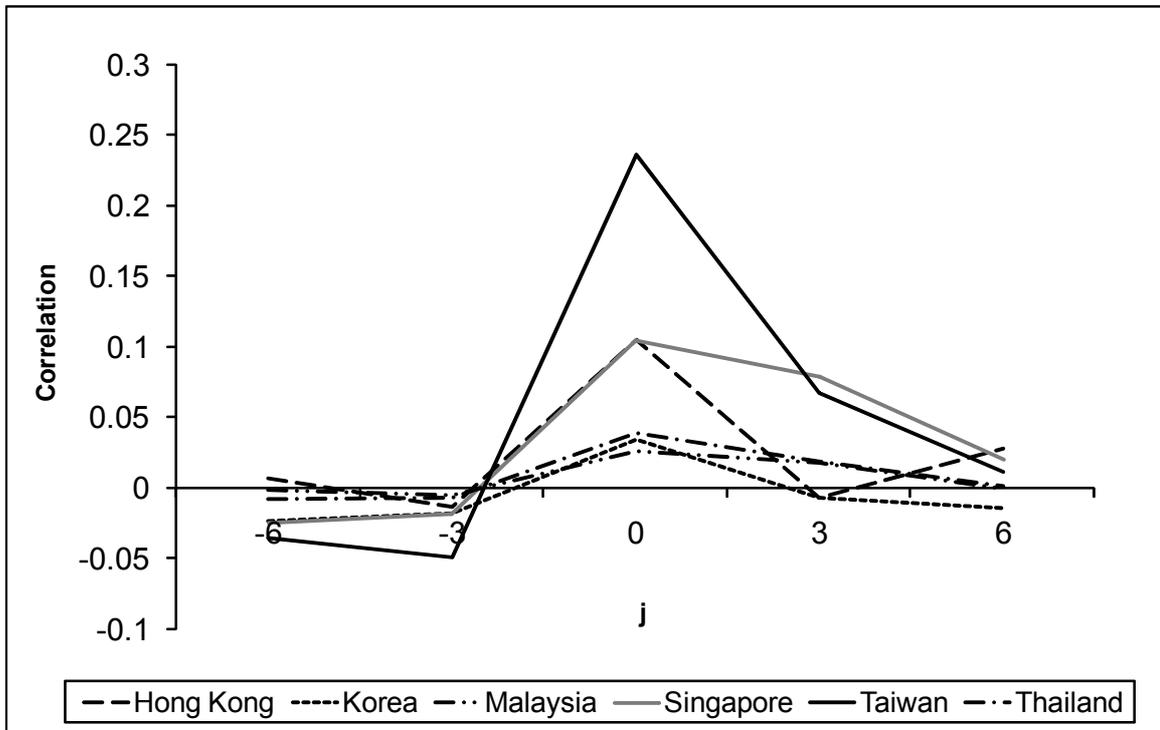
Figure 10 Cross-correlation between turnover and return. Correlation of returns at (t+j) and turnover at t.

Table 7 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for Hong Kong

J		K = 3						K = 6						K = 9						K = 12					
		V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average
1	R1	-3.33	-1.57	-1.93	-2.07	-2.75	-2.35	-4.09	-2.31	-2.46	-2.16	-2.69	-2.80	-4.27	-2.51	-2.21	-2.05	-2.51	-2.78	-4.22	-2.48	-2.30	-2.01	-2.42	-2.75
	R2	-2.74	-1.23	-1.16	-1.19	-1.03	-1.47	-3.07	-1.53	-1.02	-1.15	-1.14	-1.58	-2.98	-1.50	-1.12	-1.21	-1.00	-1.56	-2.98	-1.53	-1.07	-1.13	-0.92	-1.53
	R3	-2.27	-1.26	-0.82	-0.27	-1.40	-1.21	-2.38	-1.15	-0.90	-0.56	-1.34	-1.27	-2.31	-1.05	-0.88	-0.54	-1.21	-1.21	-2.24	-0.98	-0.84	-0.45	-1.05	-1.13
	R4	-2.92	-1.24	-0.51	-0.35	-0.72	-1.07	-2.70	-1.11	-0.48	-0.53	-0.59	-1.02	-2.58	-1.18	-0.60	-0.54	-0.70	-1.06	-2.36	-1.03	-0.45	-0.52	-0.62	-0.94
	R5	-4.25	-2.60	-1.74	-1.08	-1.07	-1.92	-4.15	-2.21	-1.25	-0.87	-1.24	-1.76	-3.97	-2.14	-1.39	-0.94	-1.17	-1.74	-3.80	-2.02	-1.32	-0.79	-1.00	-1.60
	Average	-3.04	-1.53	-1.20	-0.96	-1.35	-1.60	-3.26	-1.64	-1.20	-1.02	-1.37	-1.68	-3.22	-1.65	-1.21	-1.02	-1.30	-1.67	-3.13	-1.59	-1.17	-0.94	-1.18	-1.59
3	R1	-3.09	-1.68	-2.58	-2.21	-2.63	-2.47	-4.01	-2.77	-2.95	-2.60	-3.08	-3.14	-4.27	-2.92	-2.88	-2.40	-2.80	-3.14	-4.39	-2.91	-3.01	-2.32	-2.64	-3.15
	R2	-2.52	-1.61	-0.98	-1.35	-1.67	-1.63	-3.15	-1.50	-1.36	-1.46	-1.60	-1.83	-3.16	-1.50	-1.31	-1.29	-1.45	-1.77	-3.06	-1.38	-1.28	-1.29	-1.31	-1.70
	R3	-1.93	-0.98	-0.63	-0.58	-0.76	-0.97	-1.97	-1.12	-0.54	-0.62	-0.79	-1.00	-1.95	-1.08	-0.54	-0.69	-0.73	-0.99	-1.87	-0.98	-0.56	-0.64	-0.69	-0.94
	R4	-2.26	-0.80	-0.18	-0.08	-0.65	-0.74	-2.09	-0.65	-0.35	-0.03	-0.60	-0.69	-1.88	-0.56	-0.36	-0.17	-0.58	-0.67	-1.81	-0.44	-0.27	-0.13	-0.51	-0.59
	R5	-4.23	-2.24	-0.83	-0.60	-0.38	-1.32	-3.74	-1.53	-0.63	-0.60	-0.66	-1.19	-3.49	-1.37	-0.73	-0.64	-0.51	-1.12	-3.15	-1.35	-0.67	-0.58	-0.44	-1.02
	Average	-2.74	-1.42	-1.01	-0.89	-1.10	-1.42	-3.03	-1.51	-1.14	-0.98	-1.25	-1.57	-3.02	-1.49	-1.14	-0.97	-1.12	-1.53	-2.95	-1.41	-1.13	-0.92	-1.02	-1.48
6	R1	-3.56	-2.77	-2.57	-2.71	-3.32	-3.02	-4.32	-3.09	-3.17	-2.76	-3.09	-3.37	-4.66	-3.24	-3.14	-2.84	-2.77	-3.44	-4.68	-3.29	-2.99	-2.88	-2.67	-3.42
	R2	-2.59	-1.72	-1.49	-1.66	-1.88	-1.88	-2.87	-1.91	-1.47	-1.49	-1.34	-1.85	-2.94	-1.88	-1.44	-1.56	-1.25	-1.85	-2.98	-1.72	-1.51	-1.55	-1.23	-1.84
	R3	-1.66	-0.71	-0.64	-0.57	-0.72	-0.85	-1.82	-0.64	-0.55	-0.52	-0.85	-0.86	-2.01	-0.55	-0.62	-0.53	-0.79	-0.88	-1.88	-0.60	-0.58	-0.53	-0.66	-0.84
	R4	-1.81	-0.64	-0.28	-0.21	0.00	-0.56	-1.74	-0.44	-0.14	-0.24	-0.28	-0.54	-1.54	-0.30	-0.05	-0.19	-0.45	-0.47	-1.52	-0.25	-0.01	-0.16	-0.45	-0.45
	R5	-2.95	-1.01	0.06	-0.20	-0.28	-0.63	-2.39	-0.56	0.09	-0.34	-0.13	-0.48	-1.95	-0.58	-0.05	-0.43	-0.08	-0.46	-1.91	-0.59	-0.04	-0.29	-0.22	-0.46
	Average	-2.56	-1.38	-0.98	-0.96	-1.09	-1.39	-2.77	-1.35	-1.04	-0.97	-0.98	-1.41	-2.83	-1.33	-1.05	-1.01	-0.92	-1.42	-2.81	-1.31	-1.01	-0.97	-0.92	-1.40
9	R1	-3.59	-2.33	-2.48	-2.36	-3.30	-2.86	-4.61	-3.22	-2.80	-2.65	-2.95	-3.37	-4.90	-3.53	-2.81	-2.85	-2.87	-3.53	-4.80	-3.45	-2.68	-2.85	-2.54	-3.41
	R2	-2.85	-1.08	-1.43	-1.24	-1.22	-1.60	-2.98	-1.30	-1.51	-1.62	-1.47	-1.81	-3.20	-1.36	-1.60	-1.62	-1.47	-1.89	-3.03	-1.43	-1.56	-1.52	-1.32	-1.81
	R3	-1.32	-0.90	-0.26	-0.63	-0.41	-0.71	-1.47	-0.82	-0.37	-0.66	-0.71	-0.80	-1.60	-0.73	-0.44	-0.68	-0.70	-0.82	-1.61	-0.61	-0.34	-0.53	-0.60	-0.73
	R4	-1.59	-0.11	0.10	-0.16	-0.19	-0.35	-1.34	-0.10	0.03	-0.22	-0.21	-0.33	-1.36	-0.04	0.13	-0.20	-0.39	-0.33	-1.35	0.08	0.16	-0.13	-0.35	-0.28
	R5	-2.16	-0.18	0.27	0.08	0.17	-0.15	-1.52	-0.13	0.44	0.04	0.16	-0.05	-1.31	-0.14	0.34	-0.09	-0.06	-0.14	-1.44	-0.23	0.36	-0.03	-0.15	-0.18
	Average	-2.44	-0.94	-0.74	-0.76	-0.82	-1.13	-2.67	-1.13	-0.83	-0.90	-0.86	-1.27	-2.80	-1.17	-0.86	-0.96	-0.95	-1.34	-2.75	-1.14	-0.79	-0.88	-0.87	-1.28
12	R1	-4.24	-2.69	-1.98	-2.85	-3.05	-3.07	-5.14	-3.58	-2.33	-3.06	-3.08	-3.60	-5.26	-3.62	-2.50	-2.96	-2.70	-3.60	-5.08	-3.55	-2.48	-2.82	-2.46	-3.47
	R2	-2.59	-1.10	-1.35	-1.66	-1.74	-1.71	-3.09	-1.28	-1.43	-1.87	-1.81	-1.92	-3.05	-1.44	-1.32	-1.80	-1.65	-1.89	-2.98	-1.33	-1.26	-1.62	-1.47	-1.77
	R3	-1.17	-0.75	-0.43	-0.69	-0.44	-0.70	-1.42	-0.74	-0.42	-0.72	-0.66	-0.78	-1.48	-0.50	-0.39	-0.59	-0.59	-0.70	-1.47	-0.46	-0.28	-0.50	-0.57	-0.64
	R4	-1.39	0.03	0.16	-0.17	-0.29	-0.29	-1.02	0.10	0.27	-0.15	-0.34	-0.19	-0.90	0.10	0.36	0.01	-0.22	-0.10	-0.86	0.09	0.30	0.08	-0.22	-0.09
	R5	-1.14	0.03	0.33	0.31	0.46	0.16	-1.06	0.19	0.37	0.10	0.20	0.08	-1.06	0.07	0.48	-0.04	0.01	-0.02	-1.09	0.06	0.50	0.01	0.01	0.00
	Average	-2.41	-0.91	-0.63	-0.87	-0.81	-1.12	-2.75	-1.08	-0.67	-0.99	-0.95	-1.28	-2.77	-1.09	-0.64	-0.94	-0.88	-1.25	-2.69	-1.05	-0.61	-0.84	-0.81	-1.19

Table 8 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for South Korea

J				K = 3							K = 6							K = 9							K = 12			
		V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average
1	R1	-0.66	-0.69	-0.64	-1.28	-2.04	-1.13	-1.63	-1.12	-0.88	-1.58	-2.57	-1.61	-1.97	-1.21	-1.04	-1.68	-2.59	-1.74	-2.06	-1.13	-0.96	-1.56	-2.35	-1.64
	R2	0.33	0.70	0.33	-0.35	-0.97	0.10	-0.31	0.21	0.00	-0.71	-1.25	-0.34	-0.49	0.17	-0.14	-0.71	-1.38	-0.44	-0.39	0.20	-0.05	-0.62	-1.40	-0.38
	R3	0.49	0.96	0.67	-0.26	-1.52	0.22	0.11	0.63	0.43	-0.53	-1.79	-0.09	0.04	0.53	0.38	-0.58	-1.76	-0.14	0.02	0.59	0.40	-0.52	-1.45	-0.08
	R4	0.35	0.55	0.50	-0.66	-1.34	-0.05	0.17	0.36	0.29	-0.88	-1.54	-0.25	0.12	0.36	0.18	-0.77	-1.45	-0.25	0.22	0.41	0.21	-0.65	-1.28	-0.16
	R5	-2.33	-0.18	-0.06	-1.36	-2.68	-1.46	-2.27	-0.23	-0.34	-1.08	-2.49	-1.39	-2.02	-0.20	-0.28	-1.00	-2.31	-1.27	-1.78	-0.13	-0.20	-0.81	-2.11	-1.11
	Average	-0.13	0.36	0.18	-0.83	-1.88	-0.46	-0.58	0.05	-0.08	-0.99	-2.06	-0.73	-0.67	0.00	-0.16	-0.98	-2.01	-0.76	-0.62	0.06	-0.11	-0.86	-1.82	-0.67
3	R1	-1.48	-0.83	-0.84	-1.42	-2.20	-1.44	-2.58	-1.13	-1.41	-1.56	-2.51	-1.87	-2.61	-1.22	-1.54	-1.73	-2.66	-2.00	-2.79	-1.31	-1.41	-1.66	-2.45	-1.94
	R2	0.71	0.54	0.58	-0.45	-1.27	0.11	0.07	0.18	0.47	-0.55	-1.48	-0.19	0.07	0.06	0.36	-0.55	-1.49	-0.24	0.00	0.01	0.38	-0.49	-1.36	-0.23
	R3	0.83	1.03	0.88	0.03	-1.13	0.44	0.46	0.87	0.66	-0.14	-1.10	0.25	0.48	0.75	0.54	-0.12	-1.02	0.22	0.44	0.73	0.46	-0.15	-0.98	0.19
	R4	0.27	1.07	0.95	0.02	-0.78	0.37	0.21	0.81	0.58	-0.04	-1.19	0.15	0.21	0.70	0.61	-0.09	-0.94	0.16	0.25	0.72	0.49	-0.18	-0.93	0.13
	R5	-1.06	0.51	0.00	-0.28	-1.31	-0.46	-1.00	0.52	0.26	-0.52	-1.51	-0.50	-0.86	0.39	0.31	-0.35	-1.43	-0.44	-0.78	0.50	0.38	-0.39	-1.49	-0.42
	Average	0.05	0.55	0.33	-0.46	-1.43	-0.19	-0.36	0.34	0.14	-0.61	-1.66	-0.43	-0.34	0.22	0.08	-0.62	-1.63	-0.46	-0.37	0.22	0.08	-0.62	-1.55	-0.45
6	R1	-3.01	-1.74	-0.81	-1.33	-2.24	-1.78	-3.34	-1.90	-1.19	-1.59	-2.61	-2.09	-3.54	-2.12	-1.28	-1.79	-2.65	-2.23	-3.57	-2.17	-1.18	-1.79	-2.38	-2.15
	R2	0.04	0.46	0.73	-0.17	-0.83	0.08	0.01	0.55	0.43	-0.25	-0.93	-0.01	-0.18	0.40	0.36	-0.35	-1.00	-0.13	-0.26	0.37	0.34	-0.41	-1.10	-0.18
	R3	0.78	1.09	1.01	-0.35	-0.38	0.52	0.62	0.92	0.85	-0.10	-0.49	0.44	0.53	0.71	0.63	-0.01	-0.70	0.31	0.52	0.61	0.60	0.00	-0.68	0.29
	R4	0.71	1.44	1.10	0.43	-0.65	0.69	0.59	1.20	0.95	0.46	-0.49	0.61	0.61	1.04	0.72	0.21	-0.46	0.49	0.63	1.01	0.56	0.05	-0.67	0.39
	R5	-0.50	1.20	0.59	0.78	-1.56	0.08	-0.09	1.09	0.69	0.41	-1.40	0.10	-0.03	1.04	0.62	0.17	-1.63	-0.02	-0.01	0.93	0.47	0.04	-1.69	-0.11
	Average	-0.11	0.65	0.54	-0.17	-1.29	-0.08	-0.18	0.53	0.37	-0.28	-1.37	-0.18	-0.25	0.38	0.23	-0.43	-1.47	-0.31	-0.27	0.32	0.18	-0.49	-1.46	-0.35
9	R1	-3.08	-1.25	-0.52	-1.34	-2.24	-1.67	-3.78	-1.90	-1.29	-1.71	-2.52	-2.17	-4.14	-2.16	-1.39	-1.88	-2.40	-2.28	-4.00	-2.07	-1.35	-1.78	-2.25	-2.17
	R2	0.57	1.18	0.77	0.03	0.01	0.51	0.14	0.58	0.49	-0.08	-0.54	0.12	-0.03	0.31	0.44	-0.19	-0.78	-0.04	-0.14	0.27	0.52	-0.26	-0.75	-0.07
	R3	1.14	1.14	1.42	0.61	-0.15	0.91	0.76	0.93	1.14	0.65	-0.21	0.70	0.63	0.91	1.02	0.40	-0.55	0.55	0.63	0.84	0.89	0.24	-0.51	0.49
	R4	0.93	1.52	1.32	0.92	0.28	1.04	1.00	1.40	0.98	0.76	0.03	0.89	0.87	1.21	0.56	0.34	-0.32	0.61	0.91	1.06	0.66	0.40	-0.35	0.61
	R5	0.73	1.22	1.19	1.30	-1.10	0.66	0.79	1.16	1.05	0.46	-1.51	0.37	0.65	1.04	0.66	0.12	-1.73	0.13	0.51	1.03	0.45	0.05	-1.66	0.05
	Average	0.35	0.92	0.87	0.20	-0.85	0.30	0.10	0.62	0.52	-0.11	-1.17	-0.01	-0.07	0.46	0.30	-0.36	-1.34	-0.20	-0.08	0.41	0.27	-0.38	-1.27	-0.21
12	R1	-3.64	-1.45	-0.84	-1.30	-2.04	-1.76	-4.36	-1.87	-1.41	-1.59	-2.26	-2.15	-4.28	-1.90	-1.39	-1.64	-2.21	-2.14	-4.16	-1.82	-1.37	-1.60	-2.12	-2.07
	R2	0.28	0.49	0.75	0.42	-0.78	0.23	-0.04	0.38	0.61	0.22	-0.94	0.04	-0.30	0.44	0.61	-0.01	-0.85	-0.03	-0.41	0.31	0.49	-0.14	-0.72	-0.10
	R3	1.01	0.98	1.17	0.95	0.23	0.91	0.79	0.88	1.05	0.68	-0.16	0.70	0.72	0.81	0.87	0.36	-0.36	0.54	0.82	0.76	0.72	0.22	-0.44	0.49
	R4	1.22	1.64	1.36	0.94	0.13	1.14	1.24	1.26	0.90	0.55	-0.46	0.80	1.12	1.06	0.76	0.44	-0.58	0.66	1.01	1.00	0.80	0.36	-0.57	0.62
	R5	1.47	1.52	1.36	0.50	-1.29	0.72	1.11	1.28	0.93	-0.06	-1.50	0.36	0.91	1.10	0.69	-0.16	-1.60	0.20	0.68	1.02	0.54	-0.13	-1.54	0.13
	Average	0.41	0.84	0.80	0.18	-0.95	0.25	0.14	0.60	0.45	-0.16	-1.24	-0.04	0.02	0.50	0.34	-0.32	-1.27	-0.15	-0.03	0.45	0.27	-0.37	-1.22	-0.18

Table 9 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for Malaysia

J		K = 3						K = 6						K = 9						K = 12					
		V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average
1	R1	-1.89	-1.92	-2.35	-2.29	-3.04	-2.32	-1.95	-2.07	-2.26	-2.52	-3.25	-2.43	-1.94	-2.06	-2.12	-2.47	-3.29	-2.40	-1.88	-1.88	-2.00	-2.35	-3.09	-2.26
	R2	-1.71	-1.77	-2.19	-2.14	-2.63	-2.04	-1.61	-1.86	-2.00	-1.91	-2.43	-1.93	-1.53	-1.76	-1.87	-1.84	-2.39	-1.84	-1.43	-1.63	-1.70	-1.76	-2.25	-1.72
	R3	-1.60	-1.64	-1.55	-1.63	-2.46	-1.73	-1.45	-1.51	-1.52	-1.55	-2.35	-1.63	-1.39	-1.47	-1.49	-1.63	-2.16	-1.59	-1.24	-1.36	-1.36	-1.50	-2.04	-1.46
	R4	-1.57	-1.34	-1.21	-1.40	-1.92	-1.48	-1.39	-1.35	-1.18	-1.29	-2.01	-1.43	-1.23	-1.29	-1.23	-1.29	-1.94	-1.38	-1.14	-1.18	-1.17	-1.26	-1.92	-1.32
	R5	-2.35	-1.92	-1.84	-1.46	-2.51	-2.03	-1.96	-1.76	-1.58	-1.49	-2.56	-1.93	-1.75	-1.60	-1.51	-1.53	-2.38	-1.82	-1.56	-1.36	-1.46	-1.50	-2.36	-1.73
	Average	-1.78	-1.71	-1.82	-1.77	-2.53	-1.92	-1.64	-1.71	-1.70	-1.74	-2.56	-1.87	-1.54	-1.64	-1.64	-1.74	-2.47	-1.80	-1.43	-1.49	-1.54	-1.66	-2.38	-1.70
3	R1	-1.89	-1.92	-2.35	-2.29	-3.04	-2.32	-1.95	-2.07	-2.26	-2.52	-3.25	-2.43	-1.94	-2.06	-2.12	-2.47	-3.29	-2.40	-1.88	-1.88	-2.00	-2.35	-3.09	-2.26
	R2	-1.71	-1.77	-2.19	-2.14	-2.63	-2.04	-1.61	-1.86	-2.00	-1.91	-2.43	-1.93	-1.53	-1.76	-1.87	-1.84	-2.39	-1.84	-1.43	-1.63	-1.70	-1.76	-2.25	-1.72
	R3	-1.60	-1.64	-1.55	-1.63	-2.46	-1.73	-1.45	-1.51	-1.52	-1.55	-2.35	-1.63	-1.39	-1.47	-1.49	-1.63	-2.16	-1.59	-1.24	-1.36	-1.36	-1.50	-2.04	-1.46
	R4	-1.57	-1.34	-1.21	-1.40	-1.92	-1.48	-1.39	-1.35	-1.18	-1.29	-2.01	-1.43	-1.23	-1.29	-1.23	-1.29	-1.94	-1.38	-1.14	-1.18	-1.17	-1.26	-1.92	-1.32
	R5	-2.35	-1.92	-1.84	-1.46	-2.51	-2.03	-1.96	-1.76	-1.58	-1.49	-2.56	-1.93	-1.75	-1.60	-1.51	-1.53	-2.38	-1.82	-1.56	-1.36	-1.46	-1.50	-2.36	-1.73
	Average	-1.78	-1.71	-1.82	-1.77	-2.53	-1.92	-1.64	-1.71	-1.70	-1.74	-2.56	-1.87	-1.54	-1.64	-1.64	-1.74	-2.47	-1.80	-1.43	-1.49	-1.54	-1.66	-2.38	-1.70
6	R1	-1.83	-2.01	-1.98	-2.76	-3.68	-2.53	-1.68	-1.91	-1.91	-2.67	-3.48	-2.41	-1.74	-1.86	-1.88	-2.60	-3.20	-2.32	-1.79	-1.74	-1.86	-2.52	-3.05	-2.25
	R2	-1.65	-1.72	-1.96	-2.01	-2.64	-1.95	-1.57	-1.60	-1.68	-1.64	-2.55	-1.76	-1.47	-1.51	-1.62	-1.53	-2.53	-1.68	-1.36	-1.42	-1.46	-1.47	-2.33	-1.56
	R3	-1.20	-1.20	-1.30	-1.40	-2.35	-1.43	-1.08	-1.14	-1.25	-1.37	-2.24	-1.36	-0.98	-1.02	-1.11	-1.32	-2.10	-1.25	-0.89	-0.94	-1.05	-1.23	-2.00	-1.17
	R4	-0.94	-0.94	-0.84	-1.30	-1.52	-1.09	-0.82	-0.79	-0.82	-1.36	-1.69	-1.07	-0.65	-0.67	-0.86	-1.32	-1.73	-1.01	-0.58	-0.59	-0.79	-1.11	-1.61	-0.90
	R5	-1.05	-1.00	-0.54	-0.91	-1.57	-1.05	-0.68	-0.82	-0.58	-1.00	-1.78	-1.06	-0.49	-0.60	-0.70	-0.95	-1.79	-1.01	-0.34	-0.55	-0.67	-0.87	-1.71	-0.94
	Average	-1.34	-1.38	-1.33	-1.63	-2.37	-1.61	-1.19	-1.26	-1.25	-1.58	-2.37	-1.53	-1.09	-1.15	-1.23	-1.52	-2.29	-1.45	-1.01	-1.06	-1.17	-1.42	-2.17	-1.36
9	R1	-1.16	-1.63	-1.47	-2.45	-3.24	-2.10	-1.40	-1.71	-1.63	-2.43	-3.02	-2.13	-1.59	-1.66	-1.60	-2.40	-2.86	-2.10	-1.75	-1.79	-1.77	-2.52	-2.80	-2.19
	R2	-1.17	-1.33	-1.31	-1.74	-2.53	-1.56	-1.16	-1.33	-1.22	-1.56	-2.43	-1.49	-1.06	-1.31	-1.23	-1.52	-2.31	-1.44	-1.10	-1.33	-1.29	-1.56	-2.24	-1.46
	R3	-1.10	-1.14	-1.39	-1.49	-2.26	-1.41	-0.95	-0.87	-1.24	-1.32	-2.14	-1.23	-0.98	-0.84	-1.08	-1.31	-1.97	-1.17	-0.85	-0.80	-1.00	-1.18	-1.89	-1.08
	R4	-0.60	-0.64	-0.67	-1.21	-1.56	-0.90	-0.41	-0.53	-0.77	-1.17	-1.62	-0.85	-0.34	-0.45	-0.79	-1.10	-1.59	-0.80	-0.28	-0.40	-0.69	-1.03	-1.52	-0.73
	R5	-0.47	-0.45	-0.41	-0.69	-1.43	-0.76	-0.31	-0.26	-0.38	-0.69	-1.70	-0.77	-0.18	-0.16	-0.50	-0.69	-1.70	-0.76	-0.11	-0.17	-0.50	-0.68	-1.68	-0.74
	Average	-0.93	-1.05	-1.05	-1.47	-2.23	-1.35	-0.86	-0.95	-1.04	-1.40	-2.22	-1.29	-0.85	-0.90	-1.03	-1.37	-2.13	-1.25	-0.83	-0.91	-1.04	-1.36	-2.07	-1.24
12	R1	-1.36	-1.63	-1.32	-1.89	-2.96	-1.95	-1.63	-1.62	-1.43	-2.00	-2.90	-2.02	-1.93	-1.88	-1.70	-2.29	-2.83	-2.20	-2.02	-1.81	-1.78	-2.35	-2.86	-2.24
	R2	-1.18	-1.12	-1.14	-1.55	-2.61	-1.46	-1.06	-1.18	-1.09	-1.44	-2.16	-1.34	-1.11	-1.25	-1.15	-1.70	-2.10	-1.42	-1.09	-1.27	-1.19	-1.68	-2.04	-1.42
	R3	-0.95	-0.64	-1.00	-1.29	-1.40	-1.03	-0.80	-0.63	-0.96	-1.13	-1.35	-0.94	-0.73	-0.69	-0.92	-1.16	-1.58	-0.97	-0.67	-0.68	-0.94	-1.18	-1.56	-0.96
	R4	-0.08	-0.22	-0.57	-1.09	-1.79	-0.67	-0.17	-0.15	-0.63	-1.00	-1.75	-0.66	-0.16	-0.18	-0.56	-1.03	-1.68	-0.65	-0.14	-0.19	-0.52	-0.95	-1.64	-0.62
	R5	0.14	-0.33	-0.16	-0.69	-1.48	-0.59	0.22	-0.27	-0.23	-0.66	-1.75	-0.64	0.16	-0.22	-0.34	-0.70	-1.71	-0.66	0.12	-0.22	-0.41	-0.69	-1.71	-0.68
	Average	-0.70	-0.78	-0.83	-1.28	-2.12	-1.14	-0.69	-0.76	-0.86	-1.23	-2.08	-1.12	-0.74	-0.83	-0.92	-1.35	-2.06	-1.18	-0.74	-0.82	-0.96	-1.35	-2.05	-1.18

Table 10 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for Singapore

J		K=3 V1	V2	V3	V4	V5	Average	K=6 V1	V2	V3	V4	V5	Average	K=9 V1	V2	V3	V4	V5	Average	K=12 V1	V2	V3	V4	V5	Average
1	R1	-0.55	-0.94	-1.76	-2.53	-3.21	-1.83	-1.17	-1.41	-2.07	-2.65	-3.12	-2.10	-1.42	-1.65	-2.05	-2.56	-3.03	-2.16	-1.44	-1.75	-1.95	-2.50	-2.90	-2.12
	R2	-0.78	-1.38	-1.28	-1.67	-1.80	-1.35	-1.02	-1.44	-1.19	-1.27	-1.94	-1.34	-1.00	-1.42	-1.22	-1.41	-1.73	-1.33	-0.95	-1.40	-1.24	-1.27	-1.68	-1.29
	R3	-0.82	-0.82	-1.00	-0.65	-1.30	-0.90	-0.76	-0.82	-0.96	-1.08	-1.44	-0.98	-0.64	-0.76	-1.03	-1.02	-1.61	-0.96	-0.58	-0.59	-0.96	-1.08	-1.64	-0.92
	R4	-1.65	-0.90	-0.65	-0.53	-0.98	-0.94	-1.20	-0.87	-0.77	-0.68	-1.07	-0.91	-1.07	-0.83	-1.02	-0.85	-1.02	-0.96	-0.90	-0.76	-0.90	-0.80	-1.22	-0.91
	R5	-3.02	-2.08	-1.57	-0.98	-1.65	-1.75	-2.28	-1.40	-1.42	-1.04	-1.61	-1.51	-2.08	-1.28	-1.32	-1.14	-1.71	-1.50	-1.86	-1.27	-1.22	-1.02	-1.56	-1.38
	Average	-1.24	-1.19	-1.24	-1.26	-1.84	-1.35	-1.21	-1.17	-1.27	-1.33	-1.87	-1.37	-1.17	-1.17	-1.32	-1.39	-1.86	-1.38	-1.08	-1.13	-1.25	-1.33	-1.82	-1.32
3	R1	-1.31	-1.21	-2.23	-2.83	-3.60	-2.28	-1.84	-1.54	-2.47	-3.05	-3.67	-2.56	-2.00	-1.65	-2.60	-2.88	-3.43	-2.54	-1.99	-1.88	-2.51	-2.80	-3.25	-2.51
	R2	-0.83	-1.62	-1.47	-1.77	-2.04	-1.51	-1.13	-1.53	-1.60	-1.68	-1.91	-1.55	-1.12	-1.35	-1.61	-1.67	-1.79	-1.49	-1.00	-1.30	-1.59	-1.49	-1.73	-1.40
	R3	-0.87	-1.08	-0.67	-0.95	-2.01	-1.06	-0.73	-0.92	-0.96	-0.88	-1.99	-1.03	-0.65	-0.88	-1.01	-0.88	-2.01	-1.02	-0.57	-0.85	-0.95	-0.87	-1.81	-0.95
	R4	-0.47	-0.58	-0.50	-0.22	-1.16	-0.56	-0.30	-0.42	-0.50	-0.50	-1.28	-0.57	-0.44	-0.49	-0.47	-0.63	-1.48	-0.67	-0.36	-0.31	-0.45	-0.60	-1.46	-0.60
	R5	-1.96	-1.04	-0.71	-0.03	-0.89	-0.81	-1.77	-0.93	-0.76	-0.21	-0.96	-0.84	-1.47	-0.93	-0.83	-0.40	-1.17	-0.93	-1.31	-0.76	-0.66	-0.39	-1.16	-0.84
	Average	-0.99	-1.11	-1.12	-1.12	-1.89	-1.25	-1.06	-1.06	-1.26	-1.24	-1.92	-1.31	-1.06	-1.05	-1.31	-1.27	-1.95	-1.33	-0.98	-1.01	-1.24	-1.21	-1.86	-1.26
6	R1	-1.73	-1.67	-2.08	-3.51	-3.79	-2.62	-2.02	-1.83	-2.36	-3.32	-3.68	-2.70	-2.28	-2.28	-2.39	-3.38	-3.41	-2.78	-2.29	-2.37	-2.31	-3.16	-3.30	-2.72
	R2	-1.25	-1.17	-1.60	-2.03	-1.88	-1.56	-1.26	-1.26	-1.75	-1.64	-2.00	-1.56	-1.20	-1.18	-1.63	-1.54	-2.07	-1.49	-1.07	-1.17	-1.46	-1.55	-1.97	-1.41
	R3	-0.72	-0.98	-0.80	-0.98	-2.22	-1.07	-0.61	-0.79	-1.04	-0.86	-2.03	-0.99	-0.61	-0.70	-1.07	-0.73	-1.88	-0.93	-0.52	-0.62	-0.93	-0.75	-1.70	-0.84
	R4	-0.19	-0.37	-0.30	-0.30	-1.20	-0.43	-0.16	-0.27	-0.19	-0.46	-1.02	-0.38	-0.16	-0.29	-0.22	-0.57	-1.19	-0.44	-0.12	-0.22	-0.26	-0.52	-1.18	-0.41
	R5	-1.33	-0.12	-0.50	0.19	-0.60	-0.40	-1.00	-0.22	-0.40	-0.24	-0.87	-0.54	-0.67	-0.26	-0.33	-0.33	-0.99	-0.55	-0.37	-0.34	-0.22	-0.38	-0.88	-0.49
	Average	-0.99	-0.86	-1.08	-1.25	-1.90	-1.22	-0.96	-0.86	-1.17	-1.25	-1.92	-1.23	-0.96	-0.92	-1.15	-1.27	-1.90	-1.24	-0.86	-0.91	-1.06	-1.23	-1.80	-1.17
9	R1	-1.61	-1.37	-2.21	-2.88	-3.65	-2.45	-2.17	-1.96	-2.48	-2.90	-3.57	-2.69	-2.35	-2.53	-2.41	-2.83	-3.39	-2.75	-2.29	-2.43	-2.23	-2.74	-3.28	-2.64
	R2	-1.07	-1.02	-1.65	-1.76	-1.99	-1.46	-1.08	-1.06	-1.46	-1.62	-2.09	-1.42	-0.99	-1.02	-1.52	-1.45	-2.13	-1.38	-0.93	-1.03	-1.38	-1.47	-2.12	-1.34
	R3	-0.83	-0.79	-0.57	-1.00	-1.29	-0.87	-0.80	-0.62	-1.10	-0.87	-1.42	-0.92	-0.78	-0.62	-0.92	-0.91	-1.45	-0.89	-0.54	-0.60	-0.89	-0.86	-1.32	-0.79
	R4	0.27	-0.38	-0.04	-0.70	-1.26	-0.36	0.26	-0.20	0.14	-0.56	-1.20	-0.25	0.27	-0.30	-0.05	-0.53	-1.08	-0.29	0.17	-0.17	-0.04	-0.35	-0.99	-0.23
	R5	-0.75	0.05	-0.36	0.47	-0.72	-0.25	-0.31	0.04	-0.18	0.25	-0.83	-0.25	-0.15	-0.02	-0.17	-0.06	-0.87	-0.32	0.08	0.02	-0.09	-0.06	-0.73	-0.23
	Average	-0.76	-0.70	-0.99	-1.12	-1.82	-1.08	-0.80	-0.74	-1.03	-1.10	-1.86	-1.11	-0.79	-0.86	-1.03	-1.12	-1.82	-1.12	-0.69	-0.80	-0.94	-1.06	-1.72	-1.04
12	R1	-1.94	-1.21	-1.91	-3.08	-3.17	-2.37	-2.56	-1.60	-2.41	-2.80	-3.30	-2.62	-2.70	-2.06	-2.37	-2.73	-3.16	-2.65	-2.67	-2.05	-2.23	-2.41	-3.12	-2.54
	R2	-1.07	-1.07	-1.36	-1.44	-2.08	-1.36	-1.01	-1.18	-1.29	-1.37	-2.18	-1.36	-0.89	-1.03	-1.28	-1.47	-2.26	-1.33	-0.82	-0.88	-1.25	-1.34	-2.17	-1.23
	R3	-0.64	-0.58	-1.03	-0.86	-1.35	-0.84	-0.51	-0.47	-1.07	-0.85	-1.32	-0.79	-0.43	-0.43	-1.01	-0.78	-1.20	-0.72	-0.34	-0.43	-0.90	-0.87	-1.19	-0.70
	R4	0.24	-0.04	0.06	-0.63	-1.12	-0.23	0.35	-0.03	-0.04	-0.54	-1.02	-0.19	0.31	-0.13	-0.08	-0.34	-1.07	-0.20	0.31	-0.04	-0.01	-0.27	-0.98	-0.13
	R5	0.35	-0.03	0.40	0.54	-0.43	0.11	0.36	0.00	0.39	-0.04	-0.27	0.03	0.31	0.01	0.29	-0.15	-0.30	-0.03	0.46	0.04	0.34	-0.09	-0.18	0.05
	Average	-0.63	-0.57	-0.79	-1.06	-1.63	-0.94	-0.67	-0.63	-0.91	-1.10	-1.61	-0.98	-0.66	-0.68	-0.91	-1.08	-1.59	-0.98	-0.60	-0.62	-0.83	-0.98	-1.52	-0.91

Table 11 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for Taiwan

J		K = 3						K = 6						K = 9						K = 12					
		V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average
1	R1	-1.60	-1.85	-1.81	-2.31	-1.97	-1.90	-2.08	-1.77	-1.49	-1.91	-1.79	-1.81	-2.30	-1.78	-1.55	-1.90	-1.87	-1.88	-2.12	-1.56	-1.47	-1.77	-1.88	-1.76
	R2	-0.89	-0.78	-1.10	-1.88	-2.13	-1.27	-1.12	-0.87	-1.20	-1.78	-1.60	-1.27	-1.16	-0.91	-1.18	-1.51	-1.53	-1.22	-0.96	-0.78	-1.00	-1.44	-1.49	-1.09
	R3	-0.78	-0.44	-0.69	-0.86	-2.18	-0.91	-0.93	-0.60	-0.76	-1.08	-1.99	-1.00	-0.85	-0.63	-0.88	-1.14	-1.83	-1.01	-0.77	-0.50	-0.72	-1.03	-1.73	-0.89
	R4	-1.02	-0.57	-0.90	-1.19	-1.75	-1.08	-0.94	-0.70	-0.94	-1.47	-2.03	-1.21	-0.86	-0.61	-0.84	-1.31	-1.80	-1.07	-0.73	-0.50	-0.75	-1.08	-1.59	-0.92
	R5	-1.78	-1.57	-1.13	-1.29	-1.83	-1.55	-1.83	-1.48	-1.41	-1.67	-1.84	-1.68	-1.50	-1.38	-1.20	-1.40	-1.68	-1.47	-1.45	-1.21	-1.05	-1.20	-1.52	-1.32
	Average	-1.16	-0.98	-1.12	-1.51	-1.93	-1.34	-1.34	-1.03	-1.15	-1.59	-1.85	-1.39	-1.32	-1.02	-1.13	-1.46	-1.74	-1.33	-1.18	-0.87	-1.00	-1.30	-1.62	-1.20
3	R1	-1.53	-1.54	-1.09	-2.14	-1.53	-1.57	-2.29	-1.76	-1.39	-1.70	-1.60	-1.76	-2.48	-1.88	-1.50	-1.95	-2.02	-1.97	-2.28	-1.62	-1.41	-1.73	-1.83	-1.78
	R2	-0.89	-0.82	-0.50	-1.66	-1.79	-1.08	-1.17	-1.01	-0.79	-1.38	-1.50	-1.15	-1.01	-0.88	-0.79	-1.32	-1.66	-1.09	-0.94	-0.73	-0.70	-1.13	-1.67	-0.99
	R3	-0.70	-0.29	-0.93	-1.49	-1.94	-0.99	-0.75	-0.43	-0.77	-1.46	-1.74	-0.96	-0.72	-0.44	-0.77	-1.19	-1.69	-0.90	-0.57	-0.36	-0.64	-1.10	-1.69	-0.80
	R4	-0.83	-0.32	-0.87	-1.40	-1.82	-1.04	-0.57	-0.39	-0.88	-1.48	-2.02	-1.05	-0.54	-0.36	-0.74	-1.13	-1.60	-0.86	-0.54	-0.36	-0.67	-1.05	-1.50	-0.81
	R5	-2.01	-1.06	-1.21	-1.40	-1.60	-1.47	-1.76	-1.05	-1.32	-1.43	-1.66	-1.48	-1.44	-0.87	-0.99	-1.03	-1.22	-1.11	-1.36	-0.74	-0.98	-1.07	-1.28	-1.11
	Average	-1.12	-0.78	-0.91	-1.62	-1.71	-1.23	-1.27	-0.91	-1.02	-1.49	-1.70	-1.28	-1.22	-0.88	-0.95	-1.32	-1.57	-1.19	-1.12	-0.75	-0.87	-1.22	-1.54	-1.10
6	R1	-2.12	-1.62	-1.22	-1.42	-1.44	-1.57	-2.62	-1.98	-1.35	-1.89	-2.07	-1.99	-2.67	-1.95	-1.69	-1.93	-2.16	-2.09	-2.50	-1.74	-1.50	-1.56	-1.82	-1.83
	R2	-0.59	-0.65	-0.56	-1.45	-1.01	-0.83	-0.77	-0.76	-0.52	-1.30	-1.53	-0.94	-0.87	-0.73	-0.61	-1.12	-1.76	-0.98	-0.74	-0.58	-0.64	-0.89	-1.43	-0.83
	R3	-0.52	0.11	-0.79	-1.19	-1.31	-0.69	-0.53	-0.11	-0.63	-0.98	-1.32	-0.67	-0.62	-0.17	-0.50	-0.96	-1.41	-0.69	-0.57	-0.11	-0.45	-0.90	-1.29	-0.62
	R4	-0.55	-0.48	-0.58	-1.22	-2.02	-0.94	-0.47	-0.28	-0.58	-0.85	-1.37	-0.69	-0.36	-0.34	-0.51	-0.81	-1.33	-0.65	-0.22	-0.27	-0.44	-0.83	-1.43	-0.61
	R5	-1.47	-0.77	-1.15	-1.38	-1.68	-1.35	-1.12	-0.57	-0.92	-0.90	-1.00	-0.92	-1.05	-0.52	-0.77	-0.87	-1.04	-0.88	-1.01	-0.42	-0.78	-0.95	-1.31	-0.96
	Average	-1.02	-0.65	-0.84	-1.34	-1.53	-1.08	-1.10	-0.73	-0.79	-1.19	-1.40	-1.04	-1.12	-0.73	-0.80	-1.15	-1.47	-1.05	-1.01	-0.61	-0.75	-1.04	-1.44	-0.97
9	R1	-2.19	-1.53	-1.23	-2.04	-2.05	-1.82	-2.87	-1.97	-1.65	-2.00	-2.34	-2.17	-2.81	-2.06	-1.75	-1.83	-2.12	-2.12	-2.62	-1.77	-1.49	-1.50	-1.93	-1.87
	R2	-0.55	-0.32	-0.38	-0.81	-1.80	-0.74	-0.78	-0.38	-0.49	-0.92	-1.97	-0.88	-0.87	-0.44	-0.50	-0.76	-1.58	-0.81	-0.81	-0.30	-0.49	-0.64	-1.33	-0.70
	R3	-0.54	-0.04	-0.34	-0.60	-0.65	-0.42	-0.39	-0.22	-0.41	-0.79	-0.91	-0.52	-0.42	-0.22	-0.38	-0.72	-1.18	-0.55	-0.30	-0.13	-0.26	-0.62	-0.98	-0.43
	R4	-0.36	-0.33	-0.20	-0.74	-0.76	-0.46	-0.41	-0.44	-0.28	-0.74	-1.10	-0.57	-0.24	-0.25	-0.34	-0.74	-1.24	-0.54	-0.13	-0.14	-0.35	-0.57	-1.15	-0.44
	R5	-0.50	-0.34	-0.57	-0.53	-0.42	-0.47	-0.59	-0.41	-0.54	-0.54	-0.61	-0.55	-0.57	-0.26	-0.53	-0.71	-0.99	-0.67	-0.46	-0.20	-0.56	-0.81	-1.07	-0.69
	Average	-0.84	-0.50	-0.53	-0.97	-1.06	-0.78	-1.02	-0.67	-0.66	-1.01	-1.31	-0.93	-1.00	-0.63	-0.69	-0.97	-1.38	-0.93	-0.88	-0.49	-0.62	-0.85	-1.27	-0.82
12	R1	-2.34	-1.62	-1.49	-2.00	-2.30	-1.95	-2.80	-2.02	-1.76	-1.80	-1.99	-2.07	-2.93	-2.01	-1.77	-1.55	-2.02	-2.06	-2.85	-1.61	-1.51	-1.34	-1.84	-1.83
	R2	-0.68	-0.04	-0.65	-0.84	-1.91	-0.79	-0.89	-0.26	-0.65	-0.71	-1.54	-0.78	-0.83	-0.39	-0.49	-0.73	-1.23	-0.72	-0.78	-0.33	-0.41	-0.66	-1.15	-0.65
	R3	-0.74	-0.18	-0.25	-0.95	-0.87	-0.58	-0.51	-0.13	-0.28	-0.81	-1.17	-0.54	-0.47	-0.08	-0.21	-0.63	-1.06	-0.46	-0.31	-0.06	-0.18	-0.50	-0.97	-0.37
	R4	-0.14	-0.63	-0.64	-0.57	-1.06	-0.60	0.08	-0.42	-0.46	-0.72	-1.24	-0.53	0.19	-0.20	-0.43	-0.59	-1.12	-0.41	0.31	-0.09	-0.36	-0.50	-1.07	-0.32
	R5	-0.75	-0.32	-0.52	-0.49	-0.89	-0.62	-0.62	-0.14	-0.47	-0.57	-1.16	-0.66	-0.36	0.13	-0.49	-0.70	-1.19	-0.61	-0.26	0.15	-0.55	-0.67	-1.16	-0.59
	Average	-0.93	-0.54	-0.71	-0.97	-1.37	-0.91	-0.95	-0.58	-0.72	-0.93	-1.41	-0.92	-0.89	-0.51	-0.67	-0.85	-1.33	-0.85	-0.79	-0.38	-0.59	-0.74	-1.25	-0.75

Table 12 Monthly Returns for Portfolios Based on Price Momentum and Trading Volume for Thailand

J		K = 3						K = 6						K = 9						K = 12					
		V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average	V1	V2	V3	V4	V5	Average
1	R1	0.58	0.19	-0.32	-1.14	-1.66	-0.60	0.33	0.19	0.05	-1.00	-1.47	-0.49	0.18	-0.02	-0.01	-0.78	-1.40	-0.49	-0.01	-0.03	-0.12	-0.84	-1.31	-0.54
	R2	0.33	-0.04	0.48	-0.09	-0.56	0.03	0.11	-0.12	0.37	0.07	-0.51	-0.01	-0.04	-0.06	0.30	-0.15	-0.45	-0.08	0.01	0.04	0.29	-0.15	-0.54	-0.06
	R3	0.31	0.71	1.11	0.73	-0.84	0.49	0.21	0.61	0.87	0.38	-0.67	0.35	0.08	0.48	0.64	0.04	-0.63	0.19	0.15	0.40	0.57	0.18	-0.60	0.20
	R4	0.00	0.08	0.97	0.93	-0.09	0.36	0.18	0.19	0.83	0.59	-0.31	0.29	0.27	0.37	0.62	0.49	-0.43	0.28	0.27	0.26	0.57	0.54	-0.45	0.25
	R5	-0.31	0.19	0.88	-0.19	-0.50	-0.02	-0.12	0.14	0.80	-0.22	-0.69	-0.07	-0.12	0.16	0.57	-0.16	-0.79	-0.12	0.00	0.26	0.58	-0.13	-0.69	-0.05
	Average	0.18	0.24	0.63	-0.02	-0.76	0.05	0.14	0.21	0.59	-0.08	-0.77	0.02	0.08	0.21	0.43	-0.14	-0.78	-0.04	0.10	0.20	0.38	-0.12	-0.75	-0.04
3	R1	0.40	0.15	-0.75	-0.79	-1.45	-0.62	0.23	0.22	-0.35	-0.48	-1.10	-0.40	-0.01	0.11	-0.18	-0.37	-1.05	-0.38	-0.11	-0.17	-0.22	-0.52	-1.08	-0.49
	R2	0.32	0.18	0.49	-0.01	-1.15	-0.02	0.08	0.24	0.31	0.08	-0.92	-0.03	0.03	0.01	0.19	0.15	-0.74	-0.06	0.05	-0.03	0.15	0.03	-0.84	-0.12
	R3	0.04	0.81	0.80	0.78	-0.65	0.40	-0.08	0.52	0.78	0.27	-0.55	0.23	-0.04	0.41	0.63	0.05	-0.41	0.16	0.19	0.35	0.54	0.11	-0.42	0.19
	R4	0.36	0.61	0.93	0.35	1.33	0.69	0.30	0.60	0.88	0.25	0.21	0.47	0.28	0.53	0.86	0.16	-0.22	0.35	0.28	0.53	0.80	0.24	-0.34	0.34
	R5	0.07	0.45	0.88	0.73	-0.52	0.31	0.29	0.46	0.86	0.56	-0.62	0.28	0.37	0.35	0.56	0.36	-0.71	0.15	0.40	0.44	0.51	0.28	-0.38	0.22
	Average	0.23	0.46	0.50	0.18	-0.61	0.15	0.15	0.42	0.52	0.12	-0.66	0.11	0.12	0.29	0.43	0.06	-0.68	0.05	0.17	0.25	0.37	0.01	-0.65	0.03
6	R1	0.81	-0.01	0.61	-0.11	-0.82	-0.04	0.32	0.20	0.26	0.21	-0.73	-0.03	0.09	-0.32	0.21	-0.29	-1.03	-0.36	-0.01	-0.47	-0.15	-0.51	-1.19	-0.56
	R2	0.19	0.44	0.31	0.65	-0.12	0.30	-0.01	0.17	0.14	0.36	-0.07	0.12	-0.09	-0.04	0.03	0.29	-0.36	-0.03	0.01	-0.01	0.05	0.24	-0.46	-0.04
	R3	0.26	0.48	1.24	0.24	0.61	0.56	0.13	0.41	0.92	0.26	0.41	0.42	0.17	0.40	0.74	0.18	0.26	0.35	0.22	0.29	0.61	0.14	0.24	0.30
	R4	0.34	0.62	0.72	1.05	-0.25	0.52	0.43	0.61	0.88	0.57	-0.61	0.43	0.37	0.68	0.71	0.35	-0.49	0.38	0.38	0.67	0.63	0.33	-0.34	0.38
	R5	0.50	0.54	0.86	0.50	-0.82	0.30	0.61	0.57	0.99	0.46	-0.97	0.32	0.75	0.57	0.88	0.48	-0.99	0.32	0.70	0.45	0.77	0.57	-0.70	0.34
	Average	0.39	0.44	0.75	0.44	-0.37	0.33	0.28	0.40	0.66	0.36	-0.45	0.25	0.25	0.29	0.53	0.19	-0.60	0.13	0.26	0.22	0.41	0.13	-0.59	0.09
9	R1	0.51	0.24	0.38	0.93	-0.33	0.30	0.00	-0.30	0.14	0.36	-0.59	-0.11	-0.05	-0.71	-0.02	0.01	-0.99	-0.41	0.07	-0.77	-0.23	-0.33	-1.12	-0.55
	R2	-0.12	0.30	0.71	1.26	0.10	0.45	-0.03	0.22	0.50	0.63	-0.22	0.22	-0.03	0.11	0.11	0.20	-0.39	0.00	0.07	0.03	-0.05	0.14	-0.25	-0.01
	R3	0.21	0.40	1.05	0.39	0.10	0.43	0.14	0.37	0.96	0.54	-0.13	0.37	-0.01	0.36	0.83	0.42	-0.24	0.27	0.03	0.38	0.76	0.46	-0.24	0.28
	R4	0.76	0.77	1.22	0.17	-0.39	0.59	0.51	0.81	0.91	0.19	-0.19	0.51	0.56	0.71	0.73	0.33	-0.13	0.49	0.44	0.67	0.63	0.31	-0.15	0.43
	R5	0.48	1.07	0.75	0.53	-0.34	0.50	0.82	1.09	1.05	0.47	-0.73	0.54	0.77	0.85	0.99	0.51	-0.58	0.51	0.67	0.65	0.89	0.50	-0.32	0.49
	Average	0.36	0.56	0.85	0.67	-0.18	0.46	0.29	0.47	0.74	0.44	-0.40	0.31	0.25	0.32	0.56	0.28	-0.53	0.18	0.25	0.25	0.44	0.20	-0.49	0.13
12	R1	0.08	0.07	0.77	0.24	-0.23	0.14	-0.05	-0.61	0.44	0.32	-0.68	-0.15	0.01	-0.66	0.21	-0.16	-0.88	-0.36	0.14	-0.57	0.08	-0.37	-0.97	-0.42
	R2	-0.29	0.03	0.65	1.02	-0.42	0.18	-0.19	0.06	0.29	0.51	-0.33	0.06	-0.20	-0.16	-0.02	0.28	-0.32	-0.09	-0.03	-0.17	-0.14	0.12	-0.22	-0.09
	R3	0.53	0.55	0.80	0.88	-0.13	0.54	0.42	0.36	0.71	0.54	-0.06	0.41	0.29	0.40	0.45	0.46	-0.15	0.30	0.30	0.48	0.48	0.56	-0.03	0.37
	R4	0.82	0.33	1.55	-0.03	1.04	0.76	0.63	0.69	1.29	0.09	0.48	0.67	0.45	0.68	0.93	0.29	0.19	0.54	0.43	0.67	0.75	0.19	0.08	0.46
	R5	0.56	1.53	0.77	0.78	-0.65	0.60	0.66	1.06	1.00	0.60	-0.48	0.58	0.68	0.75	0.89	0.42	-0.39	0.48	0.52	0.58	0.85	0.50	-0.23	0.46
	Average	0.36	0.49	0.93	0.58	-0.14	0.45	0.31	0.35	0.79	0.42	-0.29	0.32	0.25	0.25	0.53	0.25	-0.39	0.18	0.27	0.25	0.45	0.19	-0.36	0.16