

## Effect of Open Stock Market on Domestic Investors: The Korean Stock Market

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**Abstract:** Foreign investment in rising nations affect not only the domestic stock market globally but also the domestic investors. Korea first opened its stock market in 1992, and, in 1998, except for several public corporations, it completely opened the stock market by abolishing the limit on foreign stock investment. This study aims to gain better understanding of how the opening of stock market affects domestic investors. Data from the Korean stock market spanning from year 1993 to 2004 were analyzed to determine the correlation of stock trading values between foreign investors and domestic investors. Analysis showed significant correlation (p-value 0.000) over the entire study period. However, when analyzed by dividing the period into years 1993-1998 and 1999-2004 based on the point of complete opening of the stock market, there is no significance (5% level of significance) between foreign investors and domestic investors. Yet, upon analysis per type of domestic investors (4 groups), following complete opening of the market, the institutional investor type exhibits significantly positive correlation (p-value 0.012) in relation to foreign investors.

**Key word:** open stock market; foreign investment; domestic investors; correlation; Korean stock market

**JEL codes:** G140

### 1. Introduction

Foreign investment in Korea started with the permission of domestic listed stock investment by foreigners on January 3 1992. Total investment limit per item and daily investment limit for foreigners were determined, and the Foreign Investment Management System (FIMS) was implemented in order to electronically manage foreign investment registration and investment limits. Subsequently, the investment limit for foreigners was raised and, in May 25 1998, the limit to obtaining listed cooperation shares was abolished except for public cooperation stocks. In 1992, the sum of foreign listed stock holdings in Korea was 4.1 trillion won, with total market value proportion of 4.9%. The amount continued to rise to 178 trillion won in 2004, total market value proportion of 40.1%. The opening of stock market in Korea is thought to be successful.

The increase in foreign investment can directly expand the demand base of the stock market, raise the stock index, and diversify the investors thereby stabilizing the stock market. However, the increasing stock price volatility can in turn threaten the stability of the stock market, with the domestic stock market becoming particularly sensitive to the fluctuation of foreign financial markets. Especially, the rapid increase in foreign

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investment leads to the frequent flow of international Hot Money, leading to disturb in the stock market and risks in cooperation management rights.

Foreign investment affects not only the overall stock market but also domestic investors. Foreign investors tend to focus on their preferred items thereby enhancing stock index fluctuation of related items. This investment behavior also influences domestic investors. In addition, as information possessed by foreign investors, utilizing advanced financial methods, is introduced into the domestic market, domestic investors' investment decisions are altered, leading to increased discordance in expectation between investors. Grossman and Stiglitz (1980) showed the effect of information transmission through stock index fluctuation, and Epps and Epps (1976) and Rogalski (1978) demonstrated that novel information induces expectation discordance in stock market participants and leads to an increase in stock trade volume and rise in stock index.

Among studies on foreign investors, Grinblatt and Jeloharju (2000) show the investment outcomes of individual investors, institutional investors, and foreign investors in the Finnish stock market. Baber and Odem (2001) studied investment outcome of individual investors in the US market and found that excessive investment behavior of individual investors leads to hazardous investment outcomes compared to other types of investors. Foreign investors' outcome in the Japanese stock market was investigated by Kamesaka and colleagues (2003). Regarding the Korean stock market, Shin (2006) performed an empirical analysis on the trading value of foreign investors. Trading value is a monetary representation of whole volume of stock price, calculated as the sum of individual item's trade price multiplied by number of trade stock. Larger trading value means increase in capital flow into the stock market which can function as an impetus to uptrend the future stock trend. Also, it can be concluded that the investor type with larger trading value leads the stock market. In general, investors are interested in understanding the stock market's global movement rather than an individual stock trend; trading value is a crucial index representing the global trend of the stock market.

This study investigates the relationship between foreign investors and domestic investor types in the Korean stock market. The study utilizes stock trading value data from 1993, the year following the opening of Korean stock market to foreign investors, through the complete opening of the market in 1998, and to 2004.

## 2. Data and Methods

This study spans through 12 years starting from the year 1993, one year after the opening of Korean stock market to foreign investors, until 2004. The data sources are Korea Exchange and Korea Financial Supervisory Service; the contract cost which represents the yearly trade status of listed stock by investor type in the securities market is used as the trading value. Price is a sum of the sell price and purchasing price. The types of investors provided in the data are: securities companies, institutional investors, other corporations, individual investors, and foreign investors. Institutional investors include insurance companies, investment trust companies, banks, non-bank financial institutes, funds, and mutual benefit associations. The yearly trading value from 1993 to 2004 by investor type is shown in Table 1.

Economic time series data are often non-stationary time series due to increase of the mean and/or variance as the economy grows over the given time span. Since the data used in this study are time-series, the appropriateness of the data was assessed prior to analysis. If the data were determined to be non-stationary time series, the data can be converted for analysis through transformation of variable. Pearson correlation coefficient was used as the index for correlation analysis.

**Table 1 Trading Value by Investor Type (Unit: Trillion Korean Won)**

	Securities Companies	Institutional Investors	Other Corporations	Individual Investors	Foreign Investors	Total (Total Trading value)
1993	38,149.60	45,712.60	2,325.40	245,137.20	8,507.90	339,832.70
1994	43,491.20	91,526.90	3,570.30	309,564.00	11,273.90	459,426.30
1995	20,497.10	55,971.70	6,964.90	188,492.80	13,886.30	285,812.80
1996	16,113.40	46,145.90	5,815.90	200,003.50	17,173.10	285,251.80
1997	14,438.30	42,136.90	6,329.20	239,960.30	21,698.20	324,562.90
1998	13,045.80	34,303.40	11,045.10	298,480.40	28,815.80	385,690.50
1999	50,955.80	227,557.80	45,637.00	1,320,282.30	89,414.00	1,733,846.90
2000	41,981.50	163,497.70	32,070.40	902,165.50	114,950.90	1,254,265.90
2001	32,111.40	106,193.70	21,977.60	719,478.50	102,969.60	982,730.80
2002	48,018.40	156,062.10	44,041.90	1,065,645.90	170,531.70	1,484,300.00
2003	36,529.70	137,176.60	36,812.50	714,989.50	169,507.70	1,095,015.90
2004	23,927.30	152,630.50	41,549.60	642,391.90	251,104.50	1,111,603.80

Data Source: Korea Exchange (KRX)

### 3. Results

Upon analysis of the data shown in Table 1 using SPSS Trends, the data was found to be non-stationary time series exhibiting increasing variance with time. Therefore, the data were converted to stationary time-series prior to analysis. Variance-stabilizing variable conversion was applied for the conversion, using natural log conversion which is most widely utilized for economics data. Table 2 represents the correlation coefficient data calculated from the raw data (in Table 1) through natural log conversion followed by correlation analysis. SPSS was used for the analysis. The analysis period was determined as following: total study period (1993-2004); and two periods divided to before and after the complete opening of stock market, years 1993-1998 and 1999-2004.

**Table 2 Correlation of Trading Value between Foreign Investors and Domestic Investor Types**

	Securities Companies	Institutional Investors	Other Corporations	Individual Investors	Total
Yr 1993 ~ 2004	0.351 (0.264)	0.788*** (0.002)	0.964*** (0.000)	0.865*** (0.000)	0.893*** (0.000)
Yr 1993 ~ 1998	-0.991** (0.011)	-0.606 (0.203)	0.922*** (0.009)	0.110 (0.836)	-0.079 (0.836)
Yr 1999 ~ 2004	-0.755 (0.083)	0.909** (0.012)	0.768* (0.074)	0.479 (0.336)	-0.579 (0.229)

Note: Values shown are Pearson correlation coefficients, with significant chance value within parentheses. \*, \*\*, and \*\*\* indicate significance at 10%, 5%, and 1% levels, respectively.

As shown in Table 2, between years 1993 and 2004, the total trading value of foreign investors exhibit a positive correlation in relation to that of the domestic investors with 5% significance. Per type of domestic investors, the trading value of foreign investors shows positive correlation with the trading values of institutional investors, other corporations, and individual investors with 5% significance.

However, from year 1993 to 1998 spanning the period since the stock market partially opened until its complete opening, the analysis suggests no significance in the relationship between total trading value of foreign investors and that of domestic investors. In particular, there is negative correlation in relation to securities companies. During the period of completely open stock market (years 1999-2004), the analysis on trade status

shows no significant relationship between total trading value of foreign investors and that of domestic investors. Per domestic investor type, only the institutional investor type has positive correlation with 5% significance.

#### 4. Conclusion

This study aimed to gain insight on how the opening of stock market affects domestic investors. As the Korean stock market partially opened to foreign investors in 1992 and subsequently opened completely in 1998, data on periods from year 1993 to 2004, year 1993 to 1998, and year 1999 to 2004, were analyzed to assess correlation between stock trading values of foreign investors and domestic investors. Analysis reveals that for the entire study period (1993-2004), all domestic investor types show statistically significant correlation, yet, the correlation differs for analyses performed by distinct periods. When the analysis periods are divided to years 1993-1998 and 1999-2004 based on the point of complete opening of the stock market, there appears to be no significant correlation between the foreign investors and domestic investors. However, in depth analysis by domestic investor types — securities companies, institutional investors, other corporations, and individual investors — showed significant correlation in some types. After the complete opening of the stock market, institutional investors exhibit positive correlation in relation to foreign investors. These results strongly suggest the requirement for period-specific and investor type-specific management in order to better supervise the effect of foreign investment on domestic investors in the stock market.

#### References:

- Korea Exchange, available online at: <http://www.krx.co.kr>.
- Korea Financial Supervisory Service, available online at: <http://www.fss.or.kr>.
- Baber B. M. and Odem T. (2000). "Trading is hazardous to your wealth: The common stock investment performances of individual investors", *Journal of Finance*, Vol. 55, pp. 773-806.
- Clark P. K. (1973). "A subordinated stochastic process model with finite variance for speculative prices", *Econometrica*, pp. 135-155.
- Choe H., Kho B. C. and Stulz R. (1999). "Do foreign investors destabilize stock markets? The Korean experience in 1997", *Journal of Financial Economics*, Vol. 54, pp. 227-264.
- Choe H., Kho B. C. and Stulz R. (2005). "Do domestic investors have an edge? The trading experience of foreign investors in Korea", *Review of Financial Studies*, Vol. 18, pp. 795-830.
- Epps T. W. and Epps M. L. (1976). "The Stochastic dependence of security price changes and transaction volumes: Implications for the mixture-of-distributions hypothesis", *Econometrica*, pp. 305-321.
- Grinblatt M. and Keloharju M. (2000). "The investment behavior and performance of various investor-types: A study of Finland's unique data set", *Journal of Financial Economics*, Vol. 55, pp. 43-67.
- Kamesaka Akiko, John R. Nofsinger and Hidetaka kawakita (2003). "Investment patterns and performance of investor groups in Japan", *Pacific-Basin Finance Journal*, Vol. 11, pp. 1-22.
- Rogalski R. J. (1978). "The dependence of prices and volume", *Review of Economics and Statistics*, pp. 268-274.
- Shin Y. K. (2006). "An exploratory analysis on sales value of foreign investors in the Korean stock market", *J. Basic Sci. Res.*, Vol. 10, No. 2, pp. 19-27.