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A causality between fund performance and stock market

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HIGHLIGHTS

- We propose a method of analyzing stock market stability.
- Information flow is important source of risk management in financial market.
- We observed the significant relation between FPI and market volatility.

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ABSTRACT

We investigate whether the characteristic fund performance indicators (FPI), such as the fund return, the Net asset value (NAV) and the cash flow, are correlated with the asset price movement using information flows estimated by the Granger causality test. First, we find that the information flow of FPI is most sensitive to extreme events of the Korean stock market, which include negative events such as the sub-prime crisis and the impact of QE (quantitative easing) by the US subprime and Europe financial crisis as well as the positive events of the golden period of Korean Composite Stock Price Index (KOSPI), except for the fund cash flow. Second, both the fund return and the NAV exhibit significant correlations with the KOSPI, whereas the cash flow is not correlated with the stock market. This result suggests that the information resulting from the ability of the fund manager should influence stock market. Finally, during market crisis period, information flows between FPI and the Korean stock market are significantly positively correlated with the market volatility.

1. Introduction

Information flow among the financial objects are increasingly important source of econophysics literature [1,2]. The Korean economy has been in recovery following the Asian currency crisis (1997), and significant amounts of money have flooded the real-estate market and the stock market. Therefore, the investment boom in the stock market should activate the fund market. The Equity fund setting of 9.4 trillion won has increased by approximately 10 times to 85 trillion won. In early 2008, the stock market boom in Korea peaked at 142 trillion won.

However, this boom in the Korean stock market cooled in the aftermath of the global financial crisis when the Lehman Brothers went bankrupt in September 2008; unsurprisingly, the motion of the fund market has also been downward. The rapid recovery of the global stock market has caused the Korean stock market to rise together with the fund market.

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Thus, both the global and Korean stock markets are intimately related to the fund market. That is, information from the fund market can affect the stock market. Here, we investigate whether the fund market affects the stock market. The representative factors for the stock market are the return and volatility time series; the fund return, the net asset value (NAV),[1] the cash flows, and the measured fund performance are also considered to be important elements. Usually, information from the stock market is a significant factor in determining the timing of investors and affects the fund return.

Warther [3], Fortune [4], Edelen and Warner [5] analyzed the relation between the market return and the cash flow for the fund market from a macroscopic perspective and showed that these factors are closely related to each other. Here, we investigate the effect these factors that determine the fund performance have on the underlying assets in the stock market. Capital may suddenly flow into the fund market because of a market disturbance from the opening of the financial market and short-term profit takers. This situation can cause price fluctuations in the stock market and impede market stability by the contagion effect from abnormal events in the mutual fund market.

Kaufman [6] and Hale [7] pointed out that sudden fluctuations in mutual fund flows can magnify fluctuations in financial markets and harm the stability of financial systems, as in the case of the rapidly increase in the scale of the US mutual fund industry.

Analogously, the Korean financial market could also progress beyond its current boundaries. The opened financial market in Korea rapidly manifested the negative characteristics and fluctuations that occurred in various countries. These negative characteristics made investors nervous, provoking fund repurchase and investment. This behavior of investors further shocked the financial market.

Against this background, it is significant to study the relationship between the stock market and fund performance. Earlier studies on funds have primarily focused on microscopic issues, such as the performance analysis of individual funds and the investment behavior of the fund managers, whereas in-depth macroscopic studies on the relationship between the stock market and fund performance have not been conducted.

The subject of this study, the analysis of the relationship between fund information and stock market information has recently received considerable attention. Studies have been conducted on two subjects: the relationship between the fund information and the market return and the relationship between the fund information and the market volatility.

The studies on the relationship between the fund information and the market return can be divided into two parts. First, cash inflow to funds can temporarily increase demands for stocks and raise current stock prices, however, this price rise cannot be sustained and is rapidly reversed (which corresponds to the price pressure hypothesis). Warther [3] used US monthly data to show that fund flow and the stock return were positively correlated, but his results did not agree with the price pressure hypothesis because the fund flow over the previous period was negatively correlated with the stock return. Also, Edelen and Warner [5], Goetzmann and Massa [8] showed that the daily fund flow was significantly positively correlated with the stock market return, but a converse relationship was found between the previous fund flow and the stock market return. However, the results of Ben-Rephael, Kandel and Wohl [9] strongly supported the price pressure hypothesis for the Israeli market.

In contrast, there are the results that show that fund performance does not affect the stock market return. Fortune [4], Potter and Schneeweis [10] have shown that the cash flow of equity funds does not precede the stock market return, and Edwards and Zhang [11] have shown that the cash flow of both equity and bonds does not affect the stock market return and the bond market return, respectively. Fant [12] and Cha and Lee [13] have shown that there is a positive momentum trading (positive feedback trading) that changes the fund flow following the stock market return. These results show that a highly marked previous stock return produces momentum trading and increases the demand of funds. It finally affects the rise of stock market return.

Meanwhile, recent studies have shown that investor sentiment is an important factor in determining market movement. Goetzmann and Massa [8] stated that the behavior factor derived from the cash flow of investors investing in the S&P 500 index fund is a significant variable determining the fund flow and return. Indro [14], Frazzini and Lamont [15] also considered investor sentiment to be an essential factor in the mutual fund industry. If investor sentiments are affected negatively by bad news, then investor herd behavior can result in the repurchase of funds and low investment. Therefore, the previous stock market return can affect present fund performance, which would be a strongly positive relationship.

Studies on the relationship between fund information and stock market volatility have investigated the effects of momentum trading, noise traders, volatility timing and demand shock (Jung and Park (2010)).

First, analyses on the influence of momentum trading, Sirri and Tufano [16], Ippolito [17], Coval and Stafford [18] have shown that many fund managers follow positive momentum trading. Fund managers using this strategy move stock prices away from their intrinsic value by selling stocks in a bear market and buying stocks in a bull market. Therefore, the fund flow magnifies the short-term volatility of the stock market when funds following positive momentum trading dominate the fund market.

Second, if noise traders dominate the market, the stock price further secedes from its intrinsic value, and the stock market volatility increases further by Black [19], Lee, Shleifer and Thaler [20]. Individual investors investing in funds could be

[1] Net asset value (NAV) is the value of an entity's assets minus the value of its liabilities, often in relation to public or mutual funds, since shares of such funds are redeemed at their net asset value. Also, the NAV of a collective investment scheme such as a public mutual fund or a hedge fund is calculated by reference to the total value of the fund's portfolio (its assets) less its accrued liabilities (money owed to lending banks, fees owed to investment managers and service providers and other liabilities).

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