Do Foreign Investors Better Seize the Moment of Buying and Selling Stocks? An Empirical Investigation Based on SH-HK Connect Scheme

Kai SHI
School of Economics, Northeast Normal University, Changchun, Jilin, China
shik142@nenu.edu.cn

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Abstract. We empirically investigate the Granger causality between northbound SH-HK Connect and domestic market behavior using a newly proposed sequential multiple-horizon non-causation test strategy. Empirical results illustrate that the northbound SH-HK Connect only cause onshore market change in very few windows, which means that foreign investors do not better seize the moment of buying and selling than domestic investors. Given the low proportion of the Qualified Foreign Institutional Investors (QFII) and the northbound Stock Connect quotas in aggregate free float A-share market cap and much lower turnover velocity than individual A-share investors, domestic investors would remain a dominant marginal price setter in the onshore market until foreign ownership reaches more meaningful levels.

Introduction

Shanghai-Hong Kong Stock Connect (simplified Chinese: 沪港通; traditional Chinese: 滬港通), launched on November 17th, 2014, is a cross-boundary investment channel that connects the Shanghai Stock Exchange and the Hong Kong Stock Exchange (Fig. 1). The Connect scheme brings China A to the global arena and potentially unleashes significant portfolio flows from China to HK. Meanwhile, it creates a single “China” market which ranks as the 2nd/3rd largest globally by cap/turnover, and adds 855 US$ 1bn companies to the investable universe. Global investors may be able to trade China growth more efficiently in China A.

Figure 1. What is the Shanghai-Hong Kong Stock Connect Scheme?
It is believed the Stock Connect scheme will create a platform whereby A-share and global investors can exchange investment philosophies, allowing the two investor pools to assimilate and reshape the future development of the Chinese capital market. In the short run, however, the collision of the two groups may usher in new dynamics to the market. Although the two markets are still largely dominated by separate investor pools with different investment philosophies, the onshore and offshore markets will gradually converge due to more tight connections. Generally, Hong Kong investors are widely believed to have more mature investment philosophies and thus will drive domestic market to become mature gradually. Since the launch of SH-HK Connect Scheme, many new trading strategies have been developed. One of the frequently asked questions in practice is that if the analysis of offshore investors’ trading behavior is helpful to predict the behavior of the domestic market. Does foreign investor really better seize the buying and selling moment? In the paper, we will focus on the empirical test of this hypothesis.

Hypothesis

Historically, Korea and Taiwan allowed foreign investors to directly purchase domestic equities in 1992 and 1991 respectively subject to specific regulations. It appeared to have limited return impact on Korea while Taiwan enjoyed a strong rally (and outperformance) on these catalysts. So what is the China’s case?

Typically, investors in Hong Kong stock market have different investment philosophies from domestic investors. Offshore investors show more concern about valuation while onshore investors pay more attention to returns. Thus, behaviors of offshore investors should be more rational than those of domestic investors. If foreign investors really better seize the buying and selling moment, Hong Kong investors should be able to lead the value center of the market to return to rationality. Analyzing the behavior of offshore investors through SH-HK Connect should be helpful for predicting market behaviors.

Thus, the essential question in this paper is to empirically investigate the predicative ability of transaction data recorded by Shanghai Stock Exchange under SH-HK Connect Scheme. We made such key assumptions:

$H_0$: The northbound SH-HK Connect cannot predict the behavior of Shanghai stock market.

$H_1$: The northbound SH-HK Connect better seize the moment of buying and selling and Granger cause the change of domestic market.

The null hypothesis means that foreign investors are not more rational than domestic investors while the alternative hypothesis indicates that foreign investors do better seize the moment of buying and selling.

Methodology

In order to test the causality between northbound SH-HK Connect data and domestic market behavior, the sequential multiple-horizon non-causation test strategy proposed by Hill (2007) was applied to a rolling window study [1]. An efficient test procedure for multi-step-ahead causation has yet to be established. The fundamental problem lies in the inherently nonlinear nature of parametric conditions for non-causality in VAR models and the potential for asymptotic degeneracy of test statistics (Sims, 1980; Lütkepohl and Burda, 1997; Dufour and Renault, 1998) [2-4]. Thoma (1994) and Swanson (1998) are most relevant to Hill (2007) [5,6]. However, both of them ignore the possibility that the asymptotic distribution of the test statistic may be a poor proxy for the true small-sample distribution. We apply the test procedure to the question of whether northbound SH-HK Connect data could anticipate domestic market behaviors.
Empirical Results

Daily trading data of SH-HK Connect, Shanghai Stock Exchange Composite Index and Shanghai stock market A-share PE ratio, ranging from November 17th, 2014 to September 28th, 2016 were used. All come from CEIC database.

Fig. 2 illustrates the 120 rolling window correlations between northbound SH-HK Connect data and Shanghai Stock Exchange Composite Index. There are three important discoveries: first, no strong correlations ($|\rho| > 0.8$) between the northbound SH-HK Connect and Shanghai Stock Exchange Composite Index could be found; second, the correlations vary with time and fluctuate fiercely; third, during our sample period, both positive correlations and negative correlations are found. All these findings seem to show some nonlinear time-varying characteristics of the linkage between the northbound SH-HK Connect and Shanghai Stock Exchange Composite Index.

![Figure 2](image_url)

Figure 2. 120 rolling window correlations between northbound SH-HK Connect data and Shanghai Stock Exchange Composite Index.

Thus, we employ the sequential non-causation test strategy investigating the nexus between the northbound SH-HK Connect and Shanghai stock market. We choose the amount of buying in (BuyingIn), the amount of selling out (SellingOut) and the usage rate of daily quota (UsageRate) as three representatives of northbound SH-HK Connect Scheme and choose the Shanghai Stock Exchange Composite Index and Shanghai Stock Exchange A-share PE ratio as two indicators of market behavior to test 6 relevant hypotheses. Table 1 reports the empirical results.

<table>
<thead>
<tr>
<th>Null hypothesis</th>
<th>Average VAR order $p$ over all windows</th>
<th>Percent of all windows in which the null hypothesis is rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>BuyingIn $\rightarrow$ &gt; Shanghai Stock Exchange Composite Index at horizon $h = 1$</td>
<td>15.0841</td>
<td>19.0939%</td>
</tr>
<tr>
<td>BuyingIn $\rightarrow$ &gt; Shanghai Stock Exchange A share PE ratio at horizon $h = 1$</td>
<td>14.9288</td>
<td>17.7994%</td>
</tr>
<tr>
<td>SellingOut $\rightarrow$ &gt; Shanghai Stock Exchange Composite Index at horizon $h = 1$</td>
<td>12.9741</td>
<td>38.5113%</td>
</tr>
<tr>
<td>SellingOut $\rightarrow$ &gt; Shanghai Stock Exchange A share PE ratio at horizon $h = 1$</td>
<td>12.5243</td>
<td>32.6861%</td>
</tr>
<tr>
<td>UsageRate $\rightarrow$ &gt; Shanghai Stock Exchange Composite Index at horizon $h = 1$</td>
<td>15.7508</td>
<td>11.6505%</td>
</tr>
<tr>
<td>UsageRate $\rightarrow$ &gt; Shanghai Stock Exchange A share PE ratio at horizon $h = 1$</td>
<td>15.0227</td>
<td>9.7087%</td>
</tr>
</tbody>
</table>

Notes: the largest lag length equals to 30. The percentage of significance is based on bootstrapped $p$ values.
The empirical results show that the northbound SH-HK Connect only causes onshore market change in very few windows. This finding means that foreign investors do not better seize the moment of buying and selling and thus analyzing the behaviors of offshore investors will not help domestic investors predict the future market evolutions.

**Concluding Remarks**

The SH-HK Connect Scheme builds a bridge that makes China’s capital market better blend in the globalization of finance. Do foreign investors drive market returns? Possibly in the longer term, but unlikely in China A in the near future. While the relationships are far from stable, foreign investors’ influence on stock prices has been generally high in Asian markets, especially in South Korea and Taiwan, in recent years. Given the QFII (based on granted quota) and the northbound Stock Connect quotas in aggregate represent 5.5% of free float A-share market cap, with much lower turnover velocity than individual A-share investors, domestic investors would remain a dominant marginal price setter in the onshore market until foreign ownership reaches more meaningful levels.

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