

Oberlin

## Digital Commons at Oberlin

---

Honors Papers

Student Work

---

2020

### The Stock Connect Programs: A Study of their Impact on Chinese Stock Returns and Global Stock Markets Integration

Jiadi Cheng  
*Oberlin College*

Follow this and additional works at: <https://digitalcommons.oberlin.edu/honors>



Part of the [Economics Commons](#)

---

#### Repository Citation

Cheng, Jiadi, "The Stock Connect Programs: A Study of their Impact on Chinese Stock Returns and Global Stock Markets Integration" (2020). *Honors Papers*. 681.  
<https://digitalcommons.oberlin.edu/honors/681>

This Thesis is brought to you for free and open access by the Student Work at Digital Commons at Oberlin. It has been accepted for inclusion in Honors Papers by an authorized administrator of Digital Commons at Oberlin. For more information, please contact [megan.mitchell@oberlin.edu](mailto:megan.mitchell@oberlin.edu).

Oberlin College  
Economics Honors Thesis

The Stock Connect Programs:  
A Study of their Impact on Chinese Stock Returns and Global Stock Markets Integration

Jiadi Cheng  
Feb 14, 2020

## **Acknowledgment**

I want to thank the Oberlin College Economics Department's faculty that guided me in completing this research paper. I am grateful to everyone in the seminar for the instructions and patient explanation of economic and financial concepts.

Also, I would like to thank Professor Craig for organizing the 2019/2020 Honor Seminar in a challenging time in history caused by the COVID-19. I appreciate the comments from Professor Duca and Professor Veras as they improved the research greatly.

## **Abstract**

The Stock Connect programs are important steps for China to liberate its relatively restricted financial market. The Shanghai – Hong Kong Stock Connect program launched in 2014, and the Shenzhen – Hong Kong program launched in 2016 allowed both institutional and individual international investors access to the Chinese stock market for the first time. This paper studies the impact of the Stock Connect programs on Chinese stock returns and Chinese stock market's integration with international stock markets using 2SLS regression analysis. Regression results show that the launch of the SH – HK Stock Connect program increased daily returns of all four eligible indexes under Stock Connect programs but did not increase correlation between daily performances of Chinese stock market and global stock markets with statistical significance.

## **Part 1: Introduction**

### **1.1 Purpose of Study**

The Stock Connect programs are important steps for Chinese financial market to open itself to global investors. The additional openness can have an impact on stock market returns, but it can also curb Chinese financial stability (Detragiache & Demirguc-Kunt, 1998). The Base-broadening hypothesis argues that broadening the investor base for emerging market equities should have profound implications for their pricing: in particular, because broadening increases risk-sharing and liquidity, stock prices should rise, and the expected returns should fall (Clark & Berko, 1997). This paper studies whether the Stock Connect program increased Chinese stock returns or made its performance more related to international stock markets' performance. Recognizing and utilizing the trade-off between additional stock market returns and financial stability is crucial for emerging stock markets as the global financial markets are more integrated than ever. Besides, the Stock Connect programs grant international investors more power to influence the Chinese stock market and understanding how global financial factors can impact Chinese stock returns provide additional insight for local and international stock investment.

### **1.2 Contribution to the Literature**

The existing literature on the Stock Connect program has focused on the program's effectiveness in eliminating price disparities between cross-listed companies in the Shanghai Stock Exchange and the Hong Kong Stock Exchange. The relationship between transactions under the Stock Connect program and stock market returns has mostly been left unexamined. Therefore, this paper provides additional information on how stock liberation affects stock prices and correlation with global stock markets.

### **1.3 Research Method**

The launch days of the Shanghai – Hong Kong Stock Connect program (SH – HK Stock Connect program) and Shenzhen – Hong Kong Stock Connect program (SZ – HK Stock Connect program) provide two precise policy cutoffs to exam the Stock Connect programs' impact. Foreign inflow to the Chinese stock market through the Stock Connect program happens only after the launches of those programs. Therefore, daily returns of four eligible indexes (Shanghai Stock Exchange 180 & 380 indexes, Shenzhen Stock Exchange Composite & Small/Mid Cap Innovation Indexes) which contain all eligible stocks of the Stock Connect program are regressed with the Stock Connect dummy variables to test changes in stock returns using 2SLS regression to treat endogeneity on the inflow data. Interaction terms between the Stock Connect dummy variables and global financial factors are added to the regression to demonstrate changes in sensitivity to global financial factors.

### **1.4 Main Results and implication**

Regression results show the SH - HK Stock Connect program increased indexes' daily returns but did not show an impact on integrating the Chinese stock market with global stock markets.

### **1.5 Outline**

To establish the findings, this study is organized as follows. Background information of the Stock Connect program is presented in Part 2. Part 3 reviews some prominent articles that analyze the Stock Connect program and the Chinese stock market return. Part 4 discussed the selected data and the methodology used to study them. Regression results are presented in Part 5, and perspective on the findings is provided in conclusion in Part 6.

## **Part 2: Stock Connect Background**

### **2.1 Chinese Stock Market Background**

The Chinese economic miracle made China the second-largest economy in just forty years. With strong economic fundamentals supporting sustained and robust growth, many Chinese companies are thriving, and Chinese financial markets are providing funding for them to grow. In contrast to the nonfinancial sectors of the Chinese economy which have integrated into the global economy quickly after the 1978 economic reforms pushed by Deng<sup>1</sup>, the Chinese financial industry has faced scrutiny and regulatory restrictions on foreign investment. Subsequently, the Chinese government loosened its tight capital controls in 2002 when it launched the Qualified Foreign Institutional Investor (QFII) program to allow foreign licensed institutional investors to purchase stocks listed in the Shanghai and Shenzhen Stock Exchange (CSRC Solicits Public Comments, 2019). After QFII, the Shanghai-Hong Kong Stock Connect program was initiated in 2014 to expand investment opportunities for international investors further. The Stock Connect programs, for the first time, gave individual foreign investors access to the Chinese stock market.

The structure of the Chinese stock market is more intricate than that of some developed markets as the Chinese financial market was developed with an idea of separating local and foreign investment. This was done by establishing three Stock Exchanges and three significant categories of shares. A shares are stocks denominated in RMB that are listed on the Shanghai (SSE) and Shenzhen Stock Exchanges (SZSE). B shares are the stocks listed on SSE or SZSE but denominated in U.S. dollars or Hong Kong dollars (Lee, 2013). H shares are the stocks that are cross-listed on the mainland stock exchanges and Hong Kong stock exchange (HKEX). The triple stock exchange structure was an attempt for the Chinese government to

---

<sup>1</sup> Deng Xiaoping was the chairman of the Chinese Communist Party who planned most of the economic reforms in China

regulate and restrict foreign capital flow and investment. Stocks listed on SSE and SZSE were only available to Chinese investors before the Qualified Foreign Institutional Investor (QFII) program and the Stock Connect programs, and this fact limited foreign investment in the Chinese stock market and made capital regulation easier. However, limits on foreign investment have not only limited the possibility for the world to share the growth of the Chinese economy but also increased the cost of capital for Chinese companies since through the stock market, they can only get investment from domestic investors.

If Deng were the director of the Chinese economic reform, then Xi<sup>2</sup> should be regarded as the gate opener who unlocked the Chinese financial market. Since Xi took office in 2012, the Chinese government has emphasized the importance of reforming its financial markets to make them even more accessible to international investors. The launches of the Shanghai-Hong Kong Stock Connect program in 2014 and the Shenzhen - Hong Kong Stock Connect program in 2016 are crucial for the development of the Chinese stock market, and their impact is worth studying since they may significantly alter the Chinese equity investment environment by allowing international investors to play a much more significant role.

## 2.2 Stock Connect Overview

The SH - HK Stock Connect program was announced on April 10, 2014, and was launched on November 17, 2014. The SZ – HK Stock Connect program was initiated on August 16, 2016. A critical difference between QFII and the Stock Connect programs is that the latter, for the first time, provided a direct channel for international individuals to invest in the Chinese stock market. However, some limits remain in place under the program. These include restrictions on investment options, daily and overall quota systems, and

---

<sup>2</sup> Xi Jinping has been the chairman of the Chinese Communist Party since 2012.



a total limit on foreign ownership, less than 30%, in a single company (MSCI Deletes Shenzhen Stock, 2019).

### Northbound Trading Eligibility

The northbound trading, which allows international investors to invest stocks listed on SSE and SZSE through HKEX, is open to all types of investors who wish to invest in the Chinese stock market, including international institutions and individuals plus all market participants in the HKEX. There is no requirement on foreign investor's net worth to participate, and eligible HKEX brokers can help their clients trade Chinese stocks through the Stock Connect program (Information Book for Investors 6).

### Eligible Securities for Northbound Trading Under Shanghai Connect

Under Shanghai Connect, SSE Securities that are eligible for trading by Hong Kong and overseas investors include all stocks in the SSE 180 Index and the SSE 380 Index, and all the SSE-listed A shares that are not constituent stocks of the relevant indices but which have corresponding H shares listed on SEHK, except SSE-listed shares which are not traded in RMB and SSE listed shares which are under risk alert<sup>3</sup> (Information Book for Investors 6).

### Eligible Securities for Northbound Trading Under Shenzhen Connect

Under SZ – HK Stock Connect, SZSE securities that are eligible for trading by Hong Kong and overseas investors include all the stocks in the SZSE Component Index and the SZSE Small/Mid Cap Innovation Index which have a market capitalization of at least RMB 6 billion, and all the SZSE-listed A shares which have corresponding H shares listed on SEHK, except SZSE-listed shares which are not traded in RMB

---

<sup>3</sup> Means the relevant shares are placed under “risk alert” by SSE including shares of “ST companies”, “\*ST companies” and shares subject to the delisting process under the SSE Rules.

and SZSE-listed shares which are under risk alert or under delisting arrangement (Information Book for Investors 7).

### Quota

Foreign investment in the Chinese Stock Market has been subject to both aggregate and daily quotas when the program began in 2014. When SH – HK Stock Connect program launched, the aggregate quota which measures the total allowed amount for international investors to invest through the Stock Connect program is set at 300 billion RMB. In addition, a single foreign investor’s shareholding in a Mainland listed company is not allowed to exceed 10% of the company’s total issued shares, while all foreign investors’ shareholding in the A shares of the listed company is not allowed to exceed 30% of its total issued shares (China Connect). The daily quota on total foreign purchases within a day was 13 billion RMB. As the Stock Connect program matured and the Chinese government later decided to open its financial market further. The aggregate quota for both SH – HK and SZ – HK Stock Connect was removed on August 16, 2016, and the daily quota for each Stock Connect program was increased to 53 billion RMB on May 1, 2018 (Q&A by CSRC Spokesperson GAO Li, 2018). The daily quota is applied on a “net buy” basis. Based on that principle, investors are always allowed to sell their cross-boundary securities regardless of the quota balance. The formula for daily quota balance is:

$$\text{Daily Quota Balance} = \text{Daily Quota} - \text{Buy Orders} + \text{Sell Trades}$$

The Daily Quota is reset every day and unused daily quota will not be carried over to next day’s daily quota (Information Book for Investor 12).

Although the daily quota has never been reached in program's history, the increase in the daily quota was more a symbolic act for the Chinese government to convey its intention to open Chinese stock markets further. The arbitrary cutoffs created by abolishing aggregate quota and increasing daily quota are used as instrumental variables to treat endogeneity of the foreign investment inflow data later in this study.

### **Part 3: Literature Review**

The majority of the literature on the Stock Connect program focuses on the price parity between the A and H shares, the shares co-listed on SSE and HKSE. However, some studies exam the impact of the Stock Connect programs focusing on the effect of the SH – HK Stock Connect program. The study done by Rice in 2015 found a positive impact of the SH – HK Stock Connect program on eligible A shares traded in Shanghai. However, two factors plausibly limit the precision of this result. First, the number of observations is limited since the study was published within a year after the Stock Connect program was launched. Second, Rice (2015) obtained all of his data from Google and Yahoo finance, which provide imperfect information on Chinese firms—a data limitation which the author acknowledges. Our study contains more comprehensive sets of Stock Connect data from the launch of the SH – HK Stock Connect program to November 2019. By including more observations on stock returns and other variables, Our study can provide a more precise analysis of the impact of the SH – HK Stock Connect program on Chinese stock returns. Moreover, our paper also studies the impact of the SZ – HK Stock Connect program, which Rice (2015) did not include.

The Stock Connect programs provide more channels for international investors to invest in the Chinese stock market. As foreign investment accumulates to a high level, international factors can have a more significant impact on Chinese stock returns since international investors expect to react to shocks in both the Chinese and global markets. The Chinses stock market is more exposed to systematic risk (Bai, 2017), and the finding correlates with the fact of international investors’ presence in the Chinese stock market. Our paper has a opposite finding to Bai’s conclusion on increased exposure to systematic risk that the Stock Connect programs did not expose the Chinese stock market to more international stock market risk.

He's paper found that the QFII program, the first financial liberation program initiated by China, has greatly increased international stock markets interdependence in the post-WTO accession period. One significant difference between the QFII program and the Stock Connect program is the Stock Connect programs allow investment from both institutional and retail investors. In contrast, the QFII program allows only institutional investment. Our study extends the research of the Chinese stock market's integration with global stock markets by analyzing the impact of the Stock Connect programs. Our study, however, shows that the Stock Connect programs did not increase the interdependence between Chinese stock market and international stock markets. Another study shows a negative impact of the QFII program on the stocks listed on the SSE and SZSE (Chen, 2012). Chen finds negative average abnormal returns and cumulative abnormal returns for stocks listed on the SSE and SZSE twenty days after the announcement of the QFII scheme. Different from Chen's result, our study finds an increase in daily stock returns for the stocks listed on the eligible indexes of the Stock Connect programs. This difference may suggest the Stock Connect programs are a more prosperous financial liberation attempt.

Several articles that discuss the stock market impact of financial liberalization in emerging market economies provide support for the base-broadening hypothesis. India opened its financial market to international institutional investors in 1992. The subsequent foreign investment inflows into the Indian stock market increased stock market returns, and unexpected inflow has a much more significant effect on stock returns (Ananthanarayanan, 2009). In addition to the Indian stock market, the influx of foreign investment has increased Mexican stock prices that 1 percent of market capitalization surprise foreign inflow is associated with a 13 percent increase in Mexican stock prices (Clark, 1997). Although our study does not distinguish expected and unexpected foreign investment flow, the result that the Stock Connect programs increased stock returns for eligible stocks is consistent with the findings of two previous papers

and provides further support for base-broadening hypothesis. A related alternative to the base-broadening hypothesis is that granting stock market access to international investors reduces the cost of capital and thereby raises stock market returns (Stulz, 1999a). Theoretically, a reduction in the cost of capital for a firm would subsequently increase the discounted value of its future cash flows and lead to an increase in positive net present value investments undertaken by firms. Through both of these channels, stock valuation rises. The decrease in the discount rate from increased capital inflow would also foster the growth of the economy by stimulating physical capital investment (Stulz, 1999b). Foreign inflow to emerging stock markets is also associated with additional risks as the stock markets are more vulnerable from international risks. Vo's paper finds that foreign investors are positively associated with future stock price crash risk in the Vietnam stock market.

Our study on the impact of the Stock Connect programs contributes to the existing literature by providing more precise analysis on the effect of Stock Connect programs on Chinese stock return, examining how correlation between Chinese stock market and global stock market changed, and further supporting the base-broadening hypothesis.

## Part 4: Empirical Specifications and Data

### 4.1 Empirical Framework

The conventional discount model of stock prices models equity prices as equaling the present value of expected future dividends adjusted for risk. This implies that expected ex-ante stock returns equal a real required safe rate of return plus an equity risk premium. The model implies that ex-post returns equal ex-ante returns adjusted for unexpected changes in the required rate of return, unexpected changes to the outlook for dividend/profit growth, and changes in the risk premium, the last of which can reflect sentiment. In principle, financial reform could affect all three of these characteristics, as will be discussed later.

This study models stock returns on the ex-post daily index returns to the SSE 380, SSE 180, SZSE Component Index, and the SZSE Small/Mid Cap Innovation Index ( $R_t^{SSE380}$  and  $R_t^{SSE180}$ ,  $R_t^{Comt}$ , and  $R_t^{SmMid}$  respectively) as reflecting a mix of unexpected changes to conventional domestic and international factors affecting the present value of company profits. In addition, the impact of changes in regulation on the fundamental value of companies, reflected in the three corresponding vectors of variables,  $X$ ,  $Y$  and  $Z$ , which will be specified later:

$$R_t^{SSE380} = \beta_0 + \beta_x X_t + \beta_Y Y_t + \beta_Z Z_t \quad (1)$$

$$R_t^{SSE180} = \alpha_0 + \alpha_x X_t + \alpha_Y Y_t + \alpha_Z Z_t \quad (2)$$

$$R_t^{Comt} = \gamma_0 + \gamma_x X_t + \gamma_Y Y_t + \gamma_Z Z_t \quad (3)$$

$$R_t^{SmMid} = \delta_0 + \delta_x X_t + \delta_Y Y_t + \delta_Z Z_t \quad (4)$$

where subscripts on the Greek parameters the parameters corresponding to the regulatory variables in the column vectors  $X$ ,  $Y$ , and  $Z$ .

## 4.2 Data Description

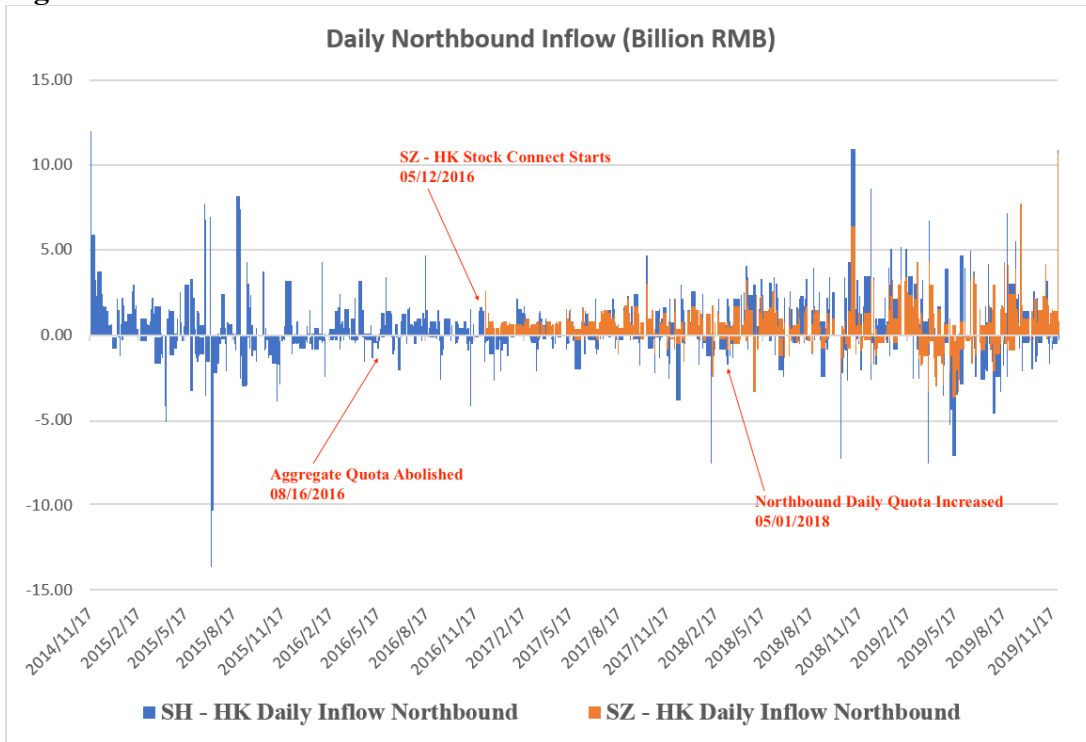
Several variables could alter the present value of Chinese stocks either for conventional reasons (i.e., conventional variables affecting the present value of future company profits) or because of changes in regulation. All the data collected is daily data between Nov 19, 2012, to Nov 30, 2019. Due to holiday differences, some dates are missing one or more observations, and this inconsistency is treated by dropping the dates with any unobserved data.

### 4.2.1 Conventional Variables Affecting Stock Returns

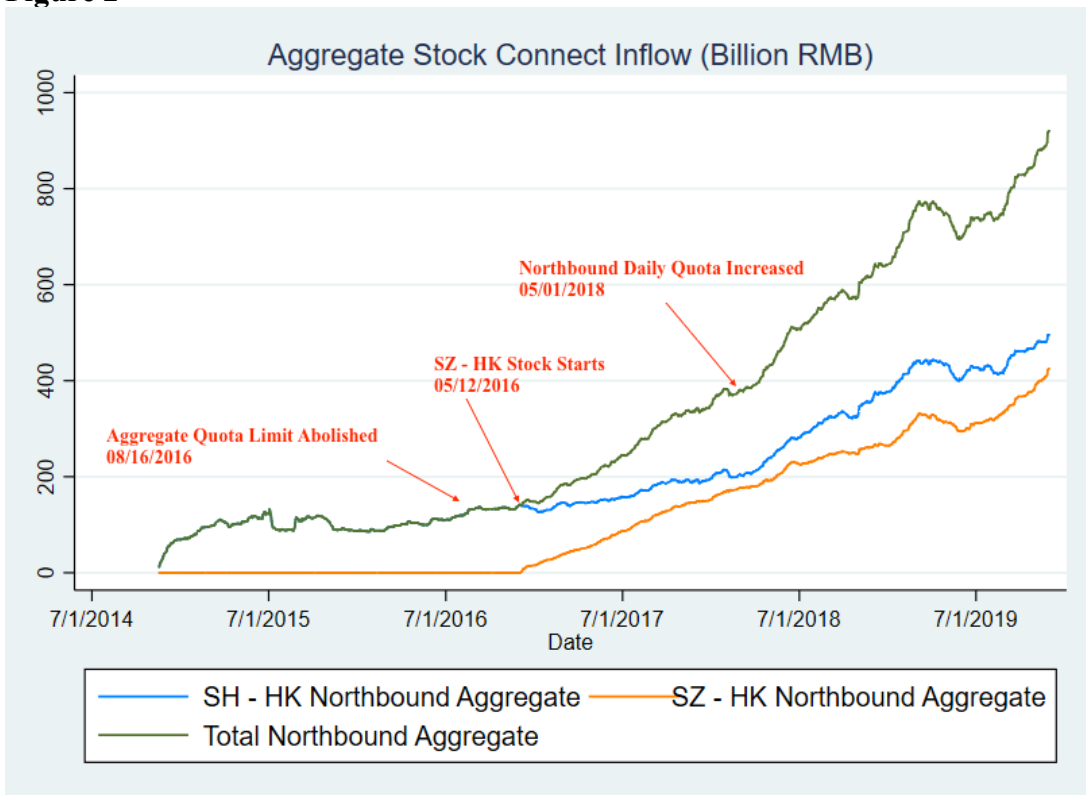
The independent variable  $Inflow_i$  in the regression stands for the daily northbound investment flow, which measures the amount of daily investment from international institutional and individual investors in the Chinese stock market. The unit of inflow is one hundred million RMB, and the data is obtained from the Wind Terminal. The international investment provides additional liquidity in the Chinese financial system, which lowers firms' cost of capital. Lowering the cost of equity capital for companies will increase the stock prices and companies' valuations. Thus, an increase in the daily northbound investment flow should have a positive correlation with Chinese stock market returns. Figure 1 and Figure 2 below show the northbound daily and aggregate inflow for the SH – HK, and SZ – HK Stock Connect programs. There is an increase in northbound daily inflow after the launch of the SZ – HK Stock Connect program as the other stock connect program extended the channel to invest in the Chinese stock market and allowed international investors to purchase stocks listed on the SZSE. Neither abolishing aggregate quota or increasing daily quota made observable increases on northbound inflow. Before the increase in daily quota, the northbound inflow exceeds 10 billion RMB for only one trading day, which was the first day after the launch of SH – HK Stock Connect with 12.08 billion RMB.



**Figure 1**

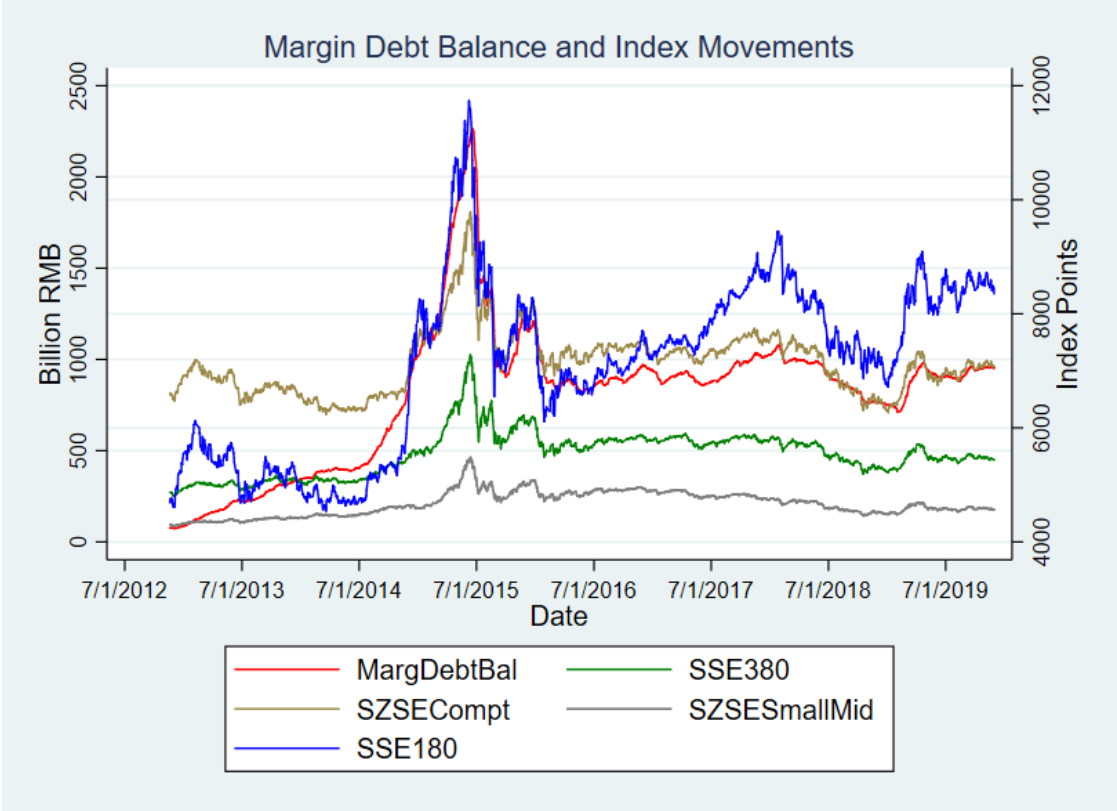


**Figure 2**



The independent variable  $MarBal_t$  in the regression represents the percentage change of domestic balance of margin debt. The daily balance of margin debt measures the amount of money borrowed by domestic investors from brokerage firms, and it is a crucial measurement of leverage investment in the stock market. An increase in the margin balance represents that the domestic investors become less risk-averse, and the rise of appetite for risk is usually associated with the short-term positive stock market return. Changes in the margin account balance affect firms' cost of capital. Thus, an increase in margin account balance should have a positive correlation with Chinese stock market returns. Figure 3 below shows the relationship between margin debt balance and the four eligible indexes' movements. There exist observable co-movements between margin debt balance and indexes' movements.

**Figure 3**



The independent variable  $R_t^{MSCIW}$  in the regression stands for the daily return on stocks in the MSCI World Index. The MSCI World Index is a broad global equity index that represents large and mid-cap equity performance across all 23 developed markets countries. It covers approximately 85% of the free float-adjusted market capitalization in each country (MSCI). The daily return of the MSCI World Index should have a weak positive correlation with Chinese stock market returns.

The independent variable  $R_t^{MSCIE}$  in the regression stands for the daily return on stocks in the MSCI Emerging Markets EX-China (Exclude China) Index. The MSCI Emerging Markets EX-China Index captures large and mid-cap representation across 25 of the 26 Emerging Markets (EM) countries, excluding China. With 700 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country (MSCI). The daily return of the MSCI Emerging Markets EX-China Index should have a substantial positive correlation with Chinese stock market returns.

The independent variable  $Exch_t$  in the regression stands for the daily exchange rate of USD to RMB (USD/CNY). As the RMB strengthens or weakens against the US dollar, the relative value of Chinese stocks in terms of US dollars or other currencies will change accordingly. The value Chinese stock dividends, which denominated in RMB, fluctuate with respect to the exchange rate. The value of all future dividends increases as RMB strengthens against the US dollar. As suggested in the dividend discount model, the value of stocks increases as the value of all future dividends increase. Thus, there should be a positive correlation between the exchange rate and the Chinese stock market returns.

The independent variable  $VIX_t$  in the regression stands for the daily value of the Chicago Board Options Exchange Volatility Index. The VIX Index is a calculation designed to produce a measure of the constant,

30-day expected volatility of the U.S. stock market, derived from real-time, mid-quote prices of the S&P 500 Index (SPXSM) call and put options. On a global basis, it is one of the most recognized measures of volatility -- widely reported by financial media and closely followed by a variety of market participants as a daily market indicator (CBOE). The CBOE Volatility Index is also known as the panic index, and an increase in the VIX index represents the investors are more risk averse. The cost of capital for firms rises when the financial market becomes more volatile. There should be a weak negative correlation between the daily CBOE Volatility Index and the Chinese stock market returns.

#### **4.2.2 Regulatory Factors Affecting Stock Returns and Sensitivity to Global Factors**

Two dummy variables are introduced to control for the start of the SH – HK Stock Connect ( $D_{SH} = 1$  since November 17, 2014) and the SZ – HK Stock Connect ( $D_{SZ} = 1$  since December 15, 2016) programs. There are two major policy adjustments on the quota after the Stock Connect program was initiated in 2014, and those policy changes are applied as instrumental variables for the inflow variable. The aggregate quota limit on SH – HK Stock Connect program for international investors was abolished on August 16, 2016. The daily quota for northbound investors was limited at 13 billion RMB initially for each Stock Connect program, and on May 1, 2018, the daily quota limit was quadrupled to 53 billion RMB. Two other dummy variables are created to represent the abolishment of the aggregate quota ( $D_{Drop} = 1$  since August 16, 2016) and the increase in daily quota ( $D_{Inc} = 1$  since May 1, 2018).  $D_{Drop}$  and  $D_{Inc}$  are used as instrumental variables to treat the endogeneity on the  $Inflow_i$  variable. These two policy shifts are proper instrumental variables because they can have a substantial, direct impact on the daily investment flow but not necessarily on stock market returns. Since abolishing aggregate quota and increasing the daily quota for both Stock Connect programs represent policy adjustments,  $D_{Drop}$  and  $D_{Inc}$  are good instruments since the covariances of both variables and the error term are 0.

Under the SH – HK Stock Connect program, international investors are only allowed to invest in the SSE 180 index and SSE 380 index. Daily returns for each index are obtained from the Wind Terminal<sup>4</sup> to study the impact of the SH – HK Stock Connect program. The SSE 180 Index consists of the 180 largest and most liquid A – Share stocks listed on Shanghai Stock Exchange. The Index aims to reflect the performance of the blue-chip stock listed on SSE (SSE 180 Index Profile). The SSE 380 Index consists of 380 stocks with mid-size market cap, high growth, and good profitability, which are selected from the remaining Shanghai listed A-shares after deleting the constituents of the SSE 180 Index. The Index aims to comprehensively reflect the performance of the new blue-chip stocks listed on SSE (SSE 380 Profile). The index market capitalization of the SSE 180 is almost four times larger than that of the SSE 380, 9141.5 billion RMB to 2319.4 billion RMB. Because of the size difference between the SSE 180 index and the SSE 380 index, the SH – HK Stock Connect program can have a bigger effect on the SSE 180 index's return since international investors may favor large capitalization stocks which have better reputations, more resistant to risks and easier to receive state-owned banks' lending (Sapienza, 2004).

Under the SZ – HK Stock Connect program, international investors are only allowed to invest in the eligible stocks of the SZSE Component Index and SZSE Small/Mid Cap Innovation Index. The SZSE Component Index measures the performance of the 500 largest and most liquid A-share stocks listed and trading on the Shenzhen Stock Exchange. It is widely regarded as a comprehensive benchmark of the equities listed on SZSE by capturing about 60% of available market capitalization. The SZSE Small/Mid Cap Innovation Index is designed to measure the performance of the small and middle-cap segment of the Shenzhen securities and comprehensively describe the multi-tiered Shenzhen market together with the

---

<sup>4</sup> Wind Terminal is a computer software system that provides financial data especially on Chinese financial markets.

SZSE Component Index (SZSE Small/Mid Cap Innovation Key Features). Similar to the difference between the SSE 180 index and the SSE 380 index, the market capitalization difference between the SZSE Component Index and the SZSE Small/Mid Cap Innovation Index can cause the SZ – HK Stock Connect program to have a different magnitude of impact on their returns and sensitivity to global factors. The impact on the SZSE Component Index is likely to be larger because of its size advantage. However, if international investors favor the growth stocks in the SZSE Small/Mid Cap Innovation Index, this relationship could be reversed.

#### 4.2.3 Interaction Terms Measuring Change in Stock Returns' Sensitivity to Global Factors

Interaction terms between two Stock Connect dummy variables and two conventional variables ( $R_t^{MSCIW}$  and  $R_t^{MSCIE}$ ) are added to test how relationship between the Chinese stock returns and global stock market returns changed after the launches of the stock connect programs. Since the Stock Connect dummy variables are set at 0 or 1 before and after the launch days, the interaction terms will capture the change in correlation between Chinese stock market returns and global stock market returns.

#### 4.3 Complete Empirical Specification

The *Inflow* Variable is likely to be endogenous in the regression. Two-Stage Least Square (2SLS) regression analysis is adapted to treat its endogeneity, using  $D_{Drop}$  and  $D_{Inc}$  as instrumental variables.

Two Stage Least Squares (2SLS) Approach:

$$\text{First Stage: } \widehat{\text{Inflow}} = \pi_0 + \pi_1 D_{Drop} + \pi_2 D_{Inc} + \pi_3 \text{MarBal}_t + \pi_4 R_t^{MSCIW} + \pi_5 R_t^{MSCIE} + \pi_6 \text{Exch} + \pi_7 \text{VIX} + \pi_8 D_{SH} + \pi_9 D_{SZ} + \pi_{10} D_{SH\#} R_t^{MSCIW} + \pi_{11} D_{SH\#} R_t^{MSCIE}$$

Having described the conventional, regulatory variables and 2SLS method, equations (1), (2), (3) and (4) can be more completely specified as:

Second Stage Regression for Stock Connect Programs Impact on SSE 180 Daily Returns

$$R_t^{SSE180} = \alpha_0 + \alpha_1 \widehat{Inflow} + \alpha_2 MarBal + \alpha_3 R_t^{MSCIW} + \alpha_4 R_t^{MSCIE} + \alpha_5 Exch + \alpha_6 VIX + \alpha_7 D_{SH} + \alpha_8 D_{SZ} + \alpha_9 D_{SH\#}R_t^{MSCIW} + \alpha_{10} D_{SH\#}R_t^{MSCIE} + \mu \quad (1)$$

Second Stage Regression for Stock Connect Programs Impact on SSE 380 Daily Returns

$$R_t^{SSE380} = \beta_0 + \beta_1 \widehat{Inflow} + \beta_2 MarBal + \beta_3 R_t^{MSCIW} + \beta_4 R_t^{MSCIE} + \beta_5 Exch + \beta_6 VIX + \beta_7 D_{SH} + \beta_8 D_{SZ} + \beta_9 D_{SH\#}R_t^{MSCIW} + \beta_{10} D_{SH\#}R_t^{MSCIE} + \mu \quad (2)$$

Similarly, the effect of reforms on SZSE Composite Index ( $R_t^{Comt}$ ) and Small/Mid Cap Innovation Index ( $R_t^{SmMid}$ ) returns can be assessed using:

Second Stage Regression for Stock Connect Programs Impact on SZSE Component Index Daily Returns

$$R_t^{Comt} = \gamma_0 + \gamma_1 \widehat{Inflow} + \gamma_2 MarBal + \gamma_3 R_t^{MSCIW} + \gamma_4 R_t^{MSCIE} + \gamma_5 Exch + \gamma_6 VIX + \gamma_7 D_{SH} + \gamma_8 D_{SZ} + \gamma_9 D_{SH\#}R_t^{MSCIW} + \gamma_{10} D_{SH\#}R_t^{MSCIE} + \mu \quad (3)$$

Second Stage Regression for Stock Connect Programs Impact on SZSE Small/Mid Cap Innovation Index Daily Returns

$$R_t^{SmMid} = \delta_0 + \delta_1 \widehat{Inflow} + \delta_2 MarBal + \delta_3 R_t^{MSCIW} + \delta_4 R_t^{MSCIE} + \delta_5 Exch + \delta_6 VIX + \delta_7 D_{SH} + \delta_8 D_{SZ} + \delta_9 D_{SH\#}R_t^{MSCIW} + \delta_{10} D_{SH\#}R_t^{MSCIE} + \mu \quad (4)$$

Above regressions are repeated for each index with interaction terms between SZ – HK Stock Connect Dummy ( $D_{SZ}$ ) and the two conventional variables ( $R_t^{MSCIW}$  and  $R_t^{MSCIE}$ ). To testify that it is the launch of

SH – HK Stock Connect that increased Chinese stock returns, a placebo test is conducted using a dummy variable ( $D_{Pla}$ ) which switches on one year after SH – HK Stock Connect was launched. The dummy variable is not significant in any regression and the results are presented in appendix 1.

#### **4.4 Hypothesis Testing**

The center of this research is studying the impact of the two Stock Connect programs on Chinese stock market returns and integration of Chinese stock market with international stock markets, specifically on the four indexes that became available for international investors. The expected result on the impact is positive for stock returns and sensitivity to global factors, which is consistent with the base-broaden hypothesis. For the eligible stocks in the SSE and SZSE indexes, the hypothesis test is constructed as follows:

$H_0: \alpha_{10} = 0$ , there is either negative or no impact on returns

$H_1: \alpha_{11} \neq 0$ , there is a positive impact on returns

The two-stage least square analysis is performed to address the endogeneity of the daily northbound inflow variable. All the data included in the regression are collected between Nov 14, 2012, to Nov 30, 2019.

Several assumptions are made in the regressions, and violations could lead to incorrect results or inferences. The most relevant assumption related to this research is the zero conditional mean assumption, which requires the independent variables to be uncorrelated with the error term. In our study, we try to solve this issue by using instrumental variables for the daily inflow data. However, if other variables are correlated with the error term, the result could be biased.



## Part 5: Regression Results

Each regression table in this section is presented as follows: Regression (1) includes both conventional and regulatory variables; Regression (2) includes all variables in Regression (1) and *DSH#c.RtMSCIW* interaction term; Regression (3) includes all variables in Regression (1) and *DSH#c.RtMSCIE* Interaction term.

### 5.1 2SLS Regression Results for SSE Indexes

SSE 180 Index Regression Results with D <sub>SH</sub> Interaction Terms			
Table 1	(1)	(2)	(3)
<i>VARIABLES</i>	Basic	MSCIW Int	MSCIE Int
<i>Inflow</i>	-0.00249 (0.00286)	-0.00249 (0.00286)	-0.00240 (0.00288)
<i>MarBal</i>	43.30*** (8.278)	43.01*** (8.304)	43.51*** (8.286)
<i>RtMSCIW</i>	0.246*** (0.0734)	0.141 (0.120)	0.248*** (0.0733)
<i>RtMSCIE</i>	0.426*** (0.0598)	0.427*** (0.0598)	0.502*** (0.0930)
<i>Exch</i>	-0.178 (0.186)	-0.177 (0.186)	-0.175 (0.186)
<i>VIX</i>	-0.00507 (0.0148)	-0.00490 (0.0148)	-0.00501 (0.0148)
<i>DSH</i>	0.316** (0.132)	0.306** (0.131)	0.314** (0.132)
<i>DSZ</i>	0.0273 (0.116)	0.0261 (0.116)	0.0256 (0.116)
<i>DSH#c.RtMSCIW</i>		0.130 (0.135)	
<i>DSH#c.RtMSCIE</i>			-0.100 (0.109)
<i>Constant</i>	0.995 (1.226)	0.989 (1.226)	0.970 (1.227)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.170	0.171	0.171

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SSE 180 Index Regression Results with D<sub>sz</sub> Interaction Terms

Table 2 <i>VARIABLES</i>	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	-0.00249 (0.00286)	-0.00250 (0.00286)	-0.00274 (0.00290)
<i>MarBal</i>	43.30*** (8.278)	43.52*** (8.284)	43.48*** (8.215)
<i>RtMSCIW</i>	0.246*** (0.0734)	0.199** (0.0997)	0.254*** (0.0730)
<i>RtMSCIE</i>	0.426*** (0.0598)	0.431*** (0.0600)	0.356*** (0.0744)
<i>Exch</i>	-0.178 (0.186)	-0.179 (0.187)	-0.190 (0.187)
<i>VIX</i>	-0.00507 (0.0148)	-0.00425 (0.0147)	-0.00370 (0.0146)
<i>DSH</i>	0.316** (0.132)	0.313** (0.131)	0.317** (0.131)
<i>DSZ</i>	0.0273 (0.116)	0.0253 (0.116)	0.0357 (0.116)
<i>DSZ#c.RtMSCIW</i>		0.124 (0.116)	
<i>DSZ#c.RtMSCIE</i>			0.208** (0.0944)
<i>Constant</i>	0.995 (1.226)	0.990 (1.228)	1.047 (1.228)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.170	0.171	0.172

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We are interested in the coefficients and the significances of the two dummy variables and the two interaction terms which measure the impact of the Stock Connect program on SSE indexes' returns and change in correlation between the daily returns of SSE indexes and global stock market. From the results above, the dummy variables D<sub>SH</sub> are significant at 5% confidence level in all regressions. We should conclude that after the launch of the SH – HK Stock Connect program, the daily returns of the SSE 180 index are approximately 0.31% higher on average. From the results of the interaction terms in both tables,

there is little evidence suggesting an increased in correlation between the daily returns of the SSE 180 Index and global stock markets.

SSE 380 Index Regression Results with $D_{SH}$ Interaction Terms			
Table 3 VARIABLES	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
$\widehat{Inflow}$	-0.000234 (0.00320)	-0.000232 (0.00319)	-0.000259 (0.00321)
$MarBal$	85.27*** (7.850)	84.69*** (7.883)	85.22*** (7.869)
$RtMSCIW$	0.239*** (0.0809)	0.0296 (0.129)	0.238*** (0.0808)
$RtMSCIE$	0.383*** (0.0623)	0.384*** (0.0619)	0.362*** (0.0892)
$Exch$	-0.199 (0.203)	-0.196 (0.203)	-0.200 (0.204)
$VIX$	0.0118 (0.0159)	0.0122 (0.0158)	0.0118 (0.0159)
$DSH$	0.389*** (0.142)	0.370*** (0.142)	0.389*** (0.142)
$DSZ$	0.00609 (0.133)	0.00364 (0.133)	0.00655 (0.133)
$DSH\#c.RtMSCIW$		0.260* (0.144)	
$DSH\#c.RtMSCIE$			0.0276 (0.107)
$Constant$	0.740 (1.348)	0.729 (1.347)	0.747 (1.352)
$Observations$	1,657	1,657	1,657
$R-squared$	0.256	0.258	0.256

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SSE 380 Index Regression Results with D<sub>sz</sub> Interaction Terms

Table 4 <i>VARIABLES</i>	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	-0.000234 (0.00320)	-0.000238 (0.00320)	-0.000363 (0.00323)
<i>MarBal</i>	85.27*** (7.850)	85.32*** (7.840)	85.37*** (7.799)
<i>RtMSCIW</i>	0.239*** (0.0809)	0.228** (0.110)	0.243*** (0.0806)
<i>RtMSCIE</i>	0.383*** (0.0623)	0.384*** (0.0629)	0.347*** (0.0762)
<i>Exch</i>	-0.199 (0.203)	-0.200 (0.203)	-0.205 (0.203)
<i>VIX</i>	0.0118 (0.0159)	0.0120 (0.0157)	0.0125 (0.0157)
<i>DSH</i>	0.389*** (0.142)	0.388*** (0.142)	0.389*** (0.142)
<i>DSZ</i>	0.00609 (0.133)	0.00566 (0.133)	0.0104 (0.133)
<i>DSZ#c.RtMSCIW</i>		0.0272 (0.128)	
<i>DSZ#c.RtMSCIE</i>			0.107 (0.102)
<i>Constant</i>	0.740 (1.348)	0.739 (1.348)	0.767 (1.348)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.256	0.256	0.257

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Similar to the findings discovered in the SSE 180 Index regression results, the SH – HK Stock Connect program also increased the daily returns of the SSE 380 index. From the results above, the dummy variables D<sub>SH</sub> are significant at 1% confidence level in all regressions. In column 2 of Table 3, the interaction term *DSH#c.RtMSCIW* is significant at 10% confidence level, while the *RtMSCIW* variable isn't significant. This finding suggests the daily returns of the MSCI World Index start to have a significant impact on the daily returns of the SSE 380 index only after the launch of the SH – HK Stock Connect program.

## 5.2 2SLS Regression Results for SZSE Indexes

SZSE Component Index Regression Results with $D_{SH}$ Interaction Terms			
Table 5	(1)	(2)	(3)
VARIABLES	Basic	MSCIW Int	MSCIE Int
$\widehat{Inflow}$	-0.000986 (0.00323)	-0.000985 (0.00323)	-0.000930 (0.00325)
$MarBal$	71.01*** (8.282)	70.65*** (8.315)	71.15*** (8.283)
$RtMSCIW$	0.270*** (0.0799)	0.140 (0.130)	0.272*** (0.0798)
$RtMSCIE$	0.393*** (0.0632)	0.394*** (0.0631)	0.446*** (0.0936)
$Exch$	-0.194 (0.196)	-0.191 (0.196)	-0.191 (0.196)
$VIX$	0.00571 (0.0150)	0.00592 (0.0150)	0.00574 (0.0150)
$DSH$	0.438*** (0.136)	0.426*** (0.136)	0.437*** (0.136)
$DSZ$	0.0140 (0.134)	0.0125 (0.134)	0.0129 (0.135)
$DSH\#c.RtMSCIW$		0.162 (0.144)	
$DSH\#c.RtMSCIE$			-0.0692 (0.110)
$Constant$	0.769 (1.298)	0.762 (1.297)	0.752 (1.300)
$Observations$	1,657	1,657	1,657
$R-squared$	0.222	0.223	0.222

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SZSE Component Index Regression Results with D <sub>SZ</sub> Interaction Terms			
Table 6	(1)	(2)	(3)
<i>VARIABLES</i>	Basic	MSCIW Int	MSCIE Int
<i>Inflow</i>	-0.000986 (0.00323)	-0.00100 (0.00323)	-0.00122 (0.00326)
<i>MarBal</i>	71.01*** (8.282)	71.25*** (8.247)	71.18*** (8.177)
<i>RtMSCIW</i>	0.270*** (0.0799)	0.218** (0.108)	0.277*** (0.0796)
<i>RtMSCIE</i>	0.393*** (0.0632)	0.399*** (0.0640)	0.328*** (0.0763)
<i>Exch</i>	-0.194 (0.196)	-0.195 (0.196)	-0.205 (0.196)
<i>VIX</i>	0.00571 (0.0150)	0.00661 (0.0149)	0.00699 (0.0148)
<i>DSH</i>	0.438*** (0.136)	0.435*** (0.136)	0.439*** (0.136)
<i>DSZ</i>	0.0140 (0.134)	0.0118 (0.134)	0.0218 (0.134)
<i>DSZ#c.RtMSCIW</i>		0.137 (0.128)	
<i>DSZ#c.RtMSCIE</i>			0.194* (0.102)
<i>Constant</i>	0.769 (1.298)	0.764 (1.298)	0.817 (1.298)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.222	0.223	0.223

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

From the regression results above, the launch of the SH – HK Stock Connect program increases daily returns of the SZSE Component Index, which is not an eligible index for the SH – HK Stock Connect. A possible explanation for this finding is that the launch of the SH – HK Stock Connect program, the first Stock Connect program, drew attention from both international and local investors who subsequently increases Chinese stock returns even for the stocks that are not eligible to trade through the SH – HK Stock Connect program. From the interaction term results, we do not observe a change in correlation between the daily returns of SZSE Component Index and the daily returns of global stock markets.

SZSE Small/Mid Innovation Index Regression Results with D<sub>SH</sub> Interaction Terms

Table 7 VARIABLES	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	-0.000714 (0.00344)	-0.000712 (0.00344)	-0.000757 (0.00346)
<i>MarBal</i>	88.10*** (10.03)	87.64*** (10.06)	88.01*** (10.04)
<i>RtMSCIW</i>	0.206** (0.0824)	0.0416 (0.138)	0.205** (0.0823)
<i>RtMSCIE</i>	0.361*** (0.0646)	0.362*** (0.0644)	0.325*** (0.0977)
<i>Exch</i>	-0.158 (0.208)	-0.155 (0.207)	-0.160 (0.208)
<i>VIX</i>	0.0148 (0.0159)	0.0150 (0.0159)	0.0147 (0.0159)
<i>DSH</i>	0.370*** (0.142)	0.355** (0.142)	0.370*** (0.142)
<i>DSZ</i>	-0.0440 (0.144)	-0.0460 (0.144)	-0.0432 (0.145)
<i>DSH#c.RtMSCIW</i>		0.205 (0.152)	
<i>DSH#c.RtMSCIE</i>			0.0479 (0.115)
<i>Constant</i>	0.473 (1.390)	0.464 (1.390)	0.485 (1.395)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.238	0.239	0.238

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SZSE Small/Mid Innovation Index Regression Results with  $D_{SZ}$  Interaction Terms

Table 8 <i>VARIABLES</i>	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	-0.000714 (0.00344)	-0.000725 (0.00345)	-0.000876 (0.00347)
<i>MarBal</i>	88.10*** (10.03)	88.27*** (9.993)	88.22*** (9.955)
<i>RtMSCIW</i>	0.206** (0.0824)	0.169 (0.112)	0.211** (0.0823)
<i>RtMSCIE</i>	0.361*** (0.0646)	0.365*** (0.0654)	0.315*** (0.0794)
<i>Exch</i>	-0.158 (0.208)	-0.159 (0.208)	-0.166 (0.208)
<i>VIX</i>	0.0148 (0.0159)	0.0154 (0.0158)	0.0157 (0.0157)
<i>DSH</i>	0.370*** (0.142)	0.367*** (0.142)	0.370*** (0.142)
<i>DSZ</i>	-0.0440 (0.144)	-0.0456 (0.144)	-0.0386 (0.144)
<i>DSZ#c.RtMSCIW</i>		0.0990 (0.135)	
<i>DSZ#c.RtMSCIE</i>			0.136 (0.109)
<i>Constant</i>	0.473 (1.390)	0.469 (1.390)	0.507 (1.392)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.238	0.239	0.239

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Similar to the findings discovered in the SZSE Component Index regression results, the SH – HK Stock Connect program also increased the daily returns of the SZSE Small/Mid Innovation Index. From the results above, the dummy variables  $D_{SH}$  are significant at 1% or 5% confidence levels in all regressions. Again, we do not observe a change in correlation between the daily returns of SZSE Small/Mid Innovation Index and the daily returns of global stock markets.



## **Part 5: Conclusion**

As a major step for the Chinese financial market to broaden its accessibility to international investors, the Stock Connect programs have proven to be successful in attracting substantial foreign investment. From the regression results, the launch of SH – HK Stock Connect positively affects the daily returns of all four eligible indexes. Depending on different assumptions, the daily returns of the SSE 180 index, SSE 380 Index, SZSE Component Index and the SZSE Small/Mid Cap Innovation Index increased approximately by 0.31%, 0.38%, 0.43% and 0.37% after the launch of the SH – HK Stock Connect program. This suggests that so far, the initial stock connect program has tended to boost returns on all eligible indexes, including the two SZSE indexes which are not eligible index for SH – HK Stock Connect program. This finding is consistent with the base-broadening hypothesis that stock returns tend to increase when a country opens its financial market to international investors. However, the launch of the second Stock Connect program, the SZ – HK Stock Connect, doesn't show an impact in increasing the daily returns of eligible indexes, suggesting that the second-round liberalization had a limited effect that is not significant from a statistical standpoint. That said, the impact of later rounds of financial liberalization on stock returns in general and on small cap stocks could be delayed. Although foreign holdings on Chinese equity accumulates, this study does not find a significant increase between the correlation of Chinese stock returns and global stock market returns. This finding suggests the Chinese stock market did not integrate more with global stock markets after the launch of Stock Connect programs.

## References

- Ananthanarayanan, Sandhya and Krishnamurti, Chandrasekhar and Sen, Nilanjan (2009) *Foreign institutional investors and security returns: evidence from Indian stock exchanges*. In: 7th INFINITI Conference on International Finance 2009 - Credit Markets, Credit Institutions and Macroeconomic Volatility, 8-9 Jun 2009, Dublin, Ireland.
- Bai, Ye, and Darien Yan Pang Chow. “Shanghai-Hong Kong Stock Connect: An Analysis of Chinese Partial Stock Market Liberalization Impact on the Local and Foreign Markets.” *Journal of International Financial Markets, Institutions and Money*, vol. 50, 2017, pp. 182–203., doi:10.1016/j.intfin.2017.09.006.
- Chen, Chun-Da, et al. “Impacts of the Stock Market Liberalization in China: Evidence from the Foreign Institutional Investor Scheme.” *SSRN Electronic Journal*, 2012, doi:10.2139/ssrn.2147021.
- “China Connect - Disclosure Obligation and Foreign Shareholding Restriction: Staging.” *China Connect - Disclosure Obligation and Foreign Shareholding Restriction | Staging*, ibkr.info/article/3197.
- “China Connect - Disclosure Obligation and Foreign Shareholding Restriction: Staging.” *China Connect - Disclosure Obligation and Foreign Shareholding Restriction | Staging*, InteractiveBrokers , ibkr.info/article/3197.
- Clark, John, and Elizabeth Berko. “Foreign Investment Fluctuations and Emerging Market Stock Returns: The Case of Mexico.” *SSRN Electronic Journal*, 1997, doi:10.2139/ssrn.993813.
- “CSRC Solicits Public Comments on the Measures for the Administration of Domestic Securities and Futures Investment by Qualified Foreign Institutional Investors and RMB Qualified Foreign Institutional Investors (Consultation Paper) and the Supporting Rules.” *CHINA SECURITIES REGULATORY COMMISSION*, www.csrc.gov.cn/wcm/englishSearch/en\_simp\_search.jsp.

- Detragiache, Enrica, and Asli Demirgüç-Kunt. “Financial Liberalization and Financial Fragility.” *IMF Working Papers*, vol. 98, no. 83, 1998, p. 1., doi:10.5089/9781451850512.001.
- He, Hongbo, et al. “Financial Liberalisation and International Market Interdependence: Evidence from China’s Stock Market in the Post-WTO Accession Period.” *Journal of International Financial Markets, Institutions and Money*, vol. 33, 2014, pp. 434–444., doi:10.1016/j.intfin.2014.09.005.
- “Information Book for Investors .” 25 Oct. 2019, pp. 6–6., [https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Getting-Started/Information-Booklet-and-FAQ?sc\\_lang=en](https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Getting-Started/Information-Booklet-and-FAQ?sc_lang=en).
- Lee, Cheng F. “Chapter 15: Chinese A and B Shares.” *Encyclopedia of Finance*, Springer, 2013, pp. 435–436.
- “MSCI Deletes Shenzhen Stock from Indexes Due to Foreign Ownership Limits.” *Reuters*, Thomson Reuters, 7 Mar. 2019, [www.reuters.com/article/china-stocks-msci/msci-deletes-shenzhen-stock-from-indexes-due-to-foreign-ownership-limits-idUSL3N20U0Q0](http://www.reuters.com/article/china-stocks-msci/msci-deletes-shenzhen-stock-from-indexes-due-to-foreign-ownership-limits-idUSL3N20U0Q0).
- “MSCI Developed Markets Indexes.” MSCI, [www.msci.com/developed-markets](http://www.msci.com/developed-markets).
- “Q&A By CSRC Spokesperson GAO Li on Significantly Increasing the Daily Quotas of the Stock Connect Schemes.” *CHINA SECURITIES REGULATORY COMMISSION*, 11 Apr. 2018, [www.csrc.gov.cn/pub/csrc\\_en/newsfacts/PressConference/201804/t20180411\\_336505.html](http://www.csrc.gov.cn/pub/csrc_en/newsfacts/PressConference/201804/t20180411_336505.html).
- Rice, Sonya Nicole. “Patrick Power Library, Saint Mary's University.” *Patrick Power Library, Saint Mary's University*, Saint Mary's University, 2015, [library2.smu.ca/handle/01/26447#.XkcGAGhKiUk](http://library2.smu.ca/handle/01/26447#.XkcGAGhKiUk).
- Sapienza, Paola. “The Effects of Government Ownership on Bank Lending.” *Journal of Financial Economics*, vol. 72, no. 2, 2004, pp. 357–384., doi:10.1016/j.jfineco.2002.10.002.
- “SSE 180 Index Profile.” *Index Detail - China Securities Index Co.,Ltd*, [www.csindex.com.cn/en/indices/index-detail/000010](http://www.csindex.com.cn/en/indices/index-detail/000010).

“SSE 380 Index Profile.” *Index Detail - China Securities Index Co.,Ltd*,

[www.csindex.com.cn/en/indices/index-detail/000009](http://www.csindex.com.cn/en/indices/index-detail/000009).

Stulz, René M. “Globalization of Equity Markets and the Cost of Capital.” *SSRN Electronic Journal*, 1999,

doi:10.2139/ssrn.153669.

“SZSE Small/Mid Cap Innovation Key Features.” *Cnindex*,

[www.cnindex.com.cn/sgt/sgt\\_en/zxcx\\_en/zxcx\\_zstz\\_en/](http://www.cnindex.com.cn/sgt/sgt_en/zxcx_en/zxcx_zstz_en/).

Vo, Xuan Vinh. “Foreign Investors and Stock Price Crash Risk: Evidence from Vietnam.” *International*

*Review of Finance*, 2018, doi:10.1111/irfi.12248.

Vix-Index, [www.cboe.com/vix](http://www.cboe.com/vix).

## Appendix 1

SSE 180 Placebo Test Index Regression Results with D <sub>SH</sub> Interaction Terms			
Table 9 <i>VARIABLES</i>	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	-0.000550 (0.00261)	-0.000568 (0.00261)	-0.000475 (0.00262)
<i>MarBal</i>	42.16*** (8.767)	41.83*** (8.789)	42.41*** (8.773)
<i>RtMSCIW</i>	0.252*** (0.0728)	0.132 (0.122)	0.255*** (0.0727)
<i>RtMSCIE</i>	0.415*** (0.0593)	0.416*** (0.0593)	0.503*** (0.0926)
<i>Exch</i>	0.0718 (0.165)	0.0733 (0.165)	0.0711 (0.165)
<i>VIX</i>	0.00264 (0.0143)	0.00266 (0.0142)	0.00265 (0.0143)
<i>Dpla</i>	0.00679 (0.146)	-0.00129 (0.147)	0.0105 (0.146)
<i>DSZ</i>	0.0169 (0.116)	0.0168 (0.116)	0.0144 (0.116)
<i>DSH#c.RtMSCIW</i>		0.149 (0.137)	
<i>DSH#c.RtMSCIE</i>			-0.115 (0.108)
<i>Constant</i>	-0.543 (1.055)	-0.546 (1.055)	-0.541 (1.054)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.174	0.174	0.175

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SSE 380 Index Placebo Test Regression Results with D<sub>SH</sub> Interaction Terms

Table 10 VARIABLES	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	0.00143 (0.00294)	0.00139 (0.00294)	0.00142 (0.00294)
<i>MarBal</i>	84.32*** (8.298)	83.70*** (8.324)	84.29*** (8.317)
<i>RtMSCIW</i>	0.247*** (0.0813)	0.0196 (0.132)	0.247*** (0.0812)
<i>RtMSCIE</i>	0.371*** (0.0618)	0.373*** (0.0615)	0.362*** (0.0894)
<i>Exch</i>	-0.0165 (0.188)	-0.0137 (0.188)	-0.0164 (0.188)
<i>VIX</i>	0.0200 (0.0152)	0.0200 (0.0152)	0.0200 (0.0152)
<i>Dpla</i>	0.133 (0.163)	0.118 (0.164)	0.133 (0.164)
<i>DSZ</i>	-0.0233 (0.136)	-0.0233 (0.136)	-0.0232 (0.136)
<i>DSH#c.RtMSCIW</i>		0.282* (0.147)	
<i>DSH#c.RtMSCIE</i>			0.0120 (0.107)
<i>Constant</i>	-0.375 (1.202)	-0.380 (1.201)	-0.376 (1.202)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.254	0.256	0.254

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SZSE Component Index Placebo Test Regression Results with  $D_{SH}$  Interaction Terms

Table 11 VARIABLES	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	0.000980 (0.00296)	0.000955 (0.00296)	0.00103 (0.00297)
<i>MarBal</i>	69.86*** (8.755)	69.45*** (8.783)	70.06*** (8.755)
<i>RtMSCIW</i>	0.279*** (0.0801)	0.128 (0.132)	0.281*** (0.0800)
<i>RtMSCIE</i>	0.380*** (0.0629)	0.381*** (0.0627)	0.446*** (0.0933)
<i>Exch</i>	0.0312 (0.185)	0.0331 (0.185)	0.0307 (0.185)
<i>VIX</i>	0.0151 (0.0143)	0.0151 (0.0143)	0.0150 (0.0143)
<i>Dpla</i>	0.131 (0.158)	0.121 (0.159)	0.134 (0.159)
<i>DSZ</i>	-0.0163 (0.137)	-0.0163 (0.137)	-0.0180 (0.137)
<i>DSH#c.RtMSCIW</i>		0.187 (0.146)	
<i>DSH#c.RtMSCIE</i>			-0.0869 (0.109)
<i>Constant</i>	-0.605 (1.175)	-0.609 (1.175)	-0.603 (1.175)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.221	0.222	0.222

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

SZSE Small/Mid Innovation Index Placebo Test Regression Results with  $D_{SH}$  Interaction Terms

Table 12 VARIABLES	(1) Basic	(2) MSCIW Int	(3) MSCIE Int
<i>Inflow</i>	0.000704 (0.00317)	0.000673 (0.00317)	0.000684 (0.00318)
<i>MarBal</i>	87.29*** (10.46)	86.80*** (10.48)	87.22*** (10.47)
<i>RtMSCIW</i>	0.214*** (0.0829)	0.0322 (0.141)	0.213*** (0.0828)
<i>RtMSCIE</i>	0.350*** (0.0645)	0.351*** (0.0642)	0.324*** (0.0983)
<i>Exch</i>	-0.0117 (0.199)	-0.00946 (0.199)	-0.0115 (0.199)
<i>VIX</i>	0.0222 (0.0152)	0.0222 (0.0151)	0.0222 (0.0152)
<i>Dpla</i>	0.154 (0.172)	0.141 (0.173)	0.152 (0.173)
<i>DSZ</i>	-0.0755 (0.149)	-0.0755 (0.149)	-0.0748 (0.149)
<i>DSH#c.RtMSCIW</i>		0.226 (0.154)	
<i>DSH#c.RtMSCIE</i>			0.0336 (0.115)
<i>Constant</i>	-0.418 (1.273)	-0.422 (1.273)	-0.419 (1.273)
<i>Observations</i>	1,657	1,657	1,657
<i>R-squared</i>	0.237	0.238	0.237

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1