Demand Shock, Speculative Beta, and Asset Prices:
Evidence from the Shanghai-Hong Kong Stock Connect Program

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This paper studies the Shanghai-Hong Kong stock market connect program, which "creates" the second largest stock exchange in the world. Compared to unconnected stocks with similar firm characteristics, connected stocks in Shanghai experience a value appreciation of 1.8% (13 billion USD) over the seven-day announcement window and a significant increase in turnover and volatility after the announcement. More importantly, the value appreciation, increase of turnover, and increase of volatility are all significantly larger for stocks with higher speculative beta. Our findings are consistent with the theoretical prediction that the demand elasticity of price increases with speculative trading.

Keywords: Demand Shock, Heterogeneous Beliefs, Short-Sale Constraints, Speculative Beta, Market Liberalization
JEL Classification: G11, G12, G15, G18

1. Introduction

In 2014, the Chinese government initiates the Shanghai-Hong Kong stock connect program, which allows investors in Mainland China and Hong Kong to trade and settle an eligible list of stocks listed on the other market via the exchange and clearing house in their home market. The linkage between the Shanghai and Hong Kong stock exchange "creates" the second largest stock exchange in the world. The program was viewed as a major step toward opening up China's capital markets to international investments and a part of the financial reform undergoing in China.

The Shanghai-Hong Kong stock connect program introduces a large demand shock for the connected stocks in mainland China, which has been under strict capital control for decades. Famous as a "casino", the Chinese stock market is well-known for its speculative nature (See, for example, Mei, Scheinkman, and Xiong (2009), and Xiong and Yu (2011)). This setup provides a nice opportunity to test how demand shocks affect stock prices that contain substantial speculative components.

The demand curve could be downward-sloping due to limited risk-sharing capacity of investors.[1] Hong, Scheinkman and Xiong (2006) point out that when stock prices contain speculative bubbles due to heterogeneous beliefs and short-sale constraints, the slope of the demand curve will become steeper. The bubble component of price is more sensitive to a supply (demand) shock because the strike price of the resale option increases (decreases) with stock supply (demand). A larger supply (demand) means that a larger (smaller) divergence of opinion is needed in the future for investors to

[1] A number of empirical studies have documented abnormal returns associated with index constituent changes and conclude that demand curve for these assets slopes down. Many papers documented that stocks added to (deleted from) S&P 500 index experience price appreciation (depreciation), including Goetzmann and Garry (1986), Harris and Gurel (1986), Shleifer (1986), Dhillon and Johnson (1991), Beneish and Whaley (1996), Lynch and Mendenhall (1997), and Hegde and McDermott (2003). Similar results are also documented for Russell indices (Onayev and Zdorovtsov (2008)), Toronto stock exchange 300 index (Kaul, Mehrotra, and Morck (2000)), Nikkei 225 index (Greenwood (2005)) and MSCI country indices (Chakrabarti et al. (2005)). Petajisto (2009) propose a theory of financial intermediary that is able to produce both the right sign and magnitude of the slope of demand curve. Another line of papers studying the effect of demand shocks examines institutional trades and show unusual large demand can move asset prices, for example, Goetzmann and Massa (2003) and Coval and Stafford (2007).

resell their shares, leading to a less (more) valuable resale option today. In addition, Hong and Sraer (2016) show that when investors disagree about the common factor of the market, a stock's speculative bubble increases with its market beta, which is referred to as the "speculative beta effect". Taken together, the theoretical work predicts that the price-to-demand shock sensitivity should be larger for stocks with higher market beta.

We test the demand effect and its interaction with speculative trading using the Shanghai-Hong Kong stock connect program. In expectation of a large demand shock from Hong-Kong investors, Shanghai connected stocks experience significant value appreciation (compared to unconnected stocks with similar firm characteristics) during the announcement of the program. More importantly, the value appreciation is larger for stocks with higher market beta. We further show that connected stocks also experience an increase in turnover and volatility after program announcement, which is commonly associated with speculative trading due to heterogeneous beliefs and short-sale constraints. Consistent with theoretical predictions, increases in turnover and volatility also significantly increase with market beta.

Our results confirm that during market liberalization, demand shocks play an important role in determining stock revaluation. In addition, the interaction between demand shocks and speculative trading have additional impact on stock prices, turnover and volatility. We provide further evidence that the speculative beta effect is stronger in stocks with higher degree of limits-to-arbitrage and is reversed after one month, suggesting that the beta effect is closely related to speculative trading rather than risk explanations.

We consider several alternative hypotheses in explaining our results. First, stocks can experience revaluations due to risk-sharing effect after market liberalization. We follow Chari and Henry (2004) in constructing the measure DIVCOV to proxy for the risk-sharing effect. In multivariate regressions, we provide evidence that demand effects dominates the risk-sharing effect during the announcement of the program. Second, high beta stocks may appreciate more because Hong-Kong investors demand more of high beta stocks due to either investment constraints imposed by the government or speculation on the rise of aggregate market. We find no evidence that Hong-Kong investor holdings of Shanghai connected stocks after the commencement of the program is positively associated with a stock's Shanghai market beta. Third, investors may demand more of lottery-like stocks. We show that the lottery feature has no explanatory power for the beta effects in our results either.

Our paper contributes to several strands of the literature. First, an extensive literature studies speculative bubbles generated by heterogeneous beliefs and short-sale constraints. Static models include examples such as Miller (1977) and Chen, Hong, and Stein (2002), and dynamic models such as Harrison and Kreps (1978), Morris (1996), and Scheinkman and Xiong (2003). However, few of them investigate the interaction between speculative trading with demand/supply shocks. One exception is the theory work of Hong, Scheinkman, and Xiong (2006), who introduce downward-sloping demand curve and show that speculative overvaluation steepens the slope of the demand curve. We contribute to this line of literature by empirically investigating the price effects of demand shocks introduced by an event of market liberalization in a highly speculative market.

Second, the "high beta, low return" puzzle has attracted much attention recently. Asset pricing theories with borrowing constraints such as Black (1972) and Frazzini and Pedersen (2014) suggest a flatter security market line but face difficulty in generating a downward-sloping one. Hong and Sraer (2016) propose that high beta stocks are more sensitive to speculative overpricing than low beta stocks if investors have heterogeneous beliefs about common shocks of the market and short-sales are constrained, which can potentially generate a negative return-beta relation. We provide further evidence for the speculative beta effect by showing that high beta stocks appreciate significantly more when the resale option increases due to a positive demand shock.

Third, our study also contributes to the understanding of stock revaluation during market liberalization. A number of previous studies have shown that market liberalization leads to decreases in the cost of capital and significant stock revaluation. See, for example, Bekaert and Harvey (2000), Errunza and Miller, Henry (2000), Huang and Yang (2000), and Chari and Henry (2004). Most of the papers in the literature examine stock revaluation from the perspective of risk sharing between domestic and foreign investors. While the risk-sharing effect could be important for stock revaluation in the long term, our results show that stock prices can experience large fluctuation in the short term due to the demand effect and its interaction with speculative bubbles in stock prices.

The reminder of the paper is organized as follows. Section 2 introduces the institutional background. Section 3 develops our main hypotheses. Section 4 presents the empirical results. Section 5 discusses alternative hypotheses and performs additional tests. Section 6 concludes.

2. Institutional Background

The Shanghai-Hong Kong stock connect program is a pilot program established by the Chinese government in order to link the stock markets in Shanghai and Hong Kong. The idea of the program was first proposed by the Binhai New Area in Tianjin Province of China and Bank of China in 2007. However, the program was later on postponed by the regulators for nearly seven years. On April 10, 2014, the program was formally announced by Chinese Premier Li, Keqiang at the Boao Forum in Hainan Province of China. The program was finally approved and announced on November 10, 2014 and officially launched on November 17, 2014. The Shanghai-Hong Kong stock connect program allows investors in Mainland China and Hong Kong to trade and settle an eligible list of stocks listed on the other market via the exchange and clearing house in their home market.[2]

Before the launch of the program, Chinese regulators have imposed tight restrictions on foreign investments into the country's financial markets. One potential channel to access Chinese stock market is through the B-shares (US dollar denominated shares) market. However, the B-shares market has stopped to issue new stocks since 2001 and is thinly traded. Another alternative channel is to participate in the China's Qualified Foreign Institutional Investor (QFII) program. However, the program has a limited quota and is only accessible to selected and government-approved foreign institutions. [3] Unlike QFII, Shanghai-Hong Kong stock connect program are accessible to both individual and institutional investors. Specially, all Hong Kong investors are allowed to trade eligible shares listed in Shanghai Stock Exchange. Mainland investors need to have at least 500,000 RMB in their stock market accounts to be qualified for trading eligible Hong Kong shares through the program.

[2] Investors in Hong Kong refer to investors who own security account in Hong Kong, and therefore could potentially include mainland resident, Hong Kong resident and foreign investors who trade through Hong Kong securities companies.
[3] The QFII started in 2002 and has gradually grown to a size of 66 billion USD in November 2014. RMB-QFII started in 2011 and has a size of 298 billion RMB in November 2014.

Eligible shares consist of representative large-cap stocks and mid-cap stocks with high growth and established earnings records. Specifically, eligible stocks in the Shanghai Stock Exchange include all constituent stocks of the Shanghai Stock Exchange 180 Index and 380 Index, and stocks that are dual-listed in Hong Kong, excluding stocks that are either not traded in RMB or that are included in the exchange's "risk alert board" stocks in the process of delisting or at risk of being delisted. Eligible stocks in the Hong Kong Stock Exchange include the constituent stocks of the Hang Seng Composite Large Cap Index and the Hang Seng Composite Mid Cap Index and stocks that dual-listed in Shanghai, excluding stocks that are not traded in Hong Kong dollar. On the first day of trading, there are 541 and 268 eligible stocks in Shanghai and Hong Kong exchanges, respectively, which account for 58% and 69% of total market cap in each market.[4]

Trading through the Shanghai-Hong Kong stock connect program is subject to a daily and aggregate quota. The daily quota for the net buying value of cross-border trades is 13 billion RMB for Shanghai-listed shares and 10.5 billion RMB for Hong Kong-listed shares, which represents approximately one-fifth of the daily turnover in each market. The aggregate quota is 300 billion RMB for Shanghai-listed shares and 250 billion for Hong Kong-listed shares, representing 2% of total market capitalization and similar in size as the QFII program. Short selling is not allowed in the program.

[4] For the detailed list of eligible stocks, please refer to: http://www.hkex.com.hk/eng/market/sec_tradinfra/chinaconnect/Eligiblestock.htm

3. Hypothesis Development

The Shanghai-Hong Kong stock connect program allows Hong Kong investors to enter into the Shanghai stock market. The inflow of Hong Kong investors' capital will lead to a positive demand shock on the connected stocks in the Shanghai Stock Exchange. Anticipating the demand shock, investors in the Shanghai stock market react positively and connected stocks should experience value appreciation on the announcement day if the demand curve is downward sloping. We thus lay out our first hypothesis.

Hypothesis 1: Upon the announcement of the Shanghai-Hong Kong stock connect program, connected stocks will experience significant higher (abnormal) returns than unconnected stocks with similar characteristics due to the anticipation of positive demand shocks from Hong Kong investors.

Hong, Scheinkman, and Xiong (2006) show that when there exists speculative trading due to heterogeneous beliefs and short-sale constraints, the price sensitivity to supply/demand shocks become larger. The so-called multiplier effect arises because the price not only decreases due to the downward-sloping demand curve but also further declines due to the decrease in the value of the resale option when there is a positive supply shock (or a negative demand shock). A larger supply means that a larger divergence of opinion is needed in the future for investors to resell their shares, leading to a less valuable resale option today.

For a given size of positive demand shock, larger divergence of opinion is associated with larger speculative component in stock prices, and thus should lead to a larger price increase.[5] Furthermore, Hong and Sraer (2016) postulate and empirical verify that high beta assets are more sensitive to aggregate disagreement and experience greater divergence of opinions than low beta assets,

[5] This result also holds in a static setting without dynamic trading motives. For example, suppose that there is a continuum of investors whose beliefs follow a normal distribution $N(\mu,\sigma^2)$, and each investor can decide to either hold one share or sit out of the market. For a given level of share supply s, the marginal investor would hold belief Z_s such that $1-\Phi(Z_s) = s$. One can easily verify that $\partial Z_s/\partial s$ is an increasing function with respect to σ.

leading to higher speculative bubbles. Combining the arguments in Hong, Scheinkman and Xiong(2006) and Hong and Sraer (2016) , we develop our second hypothesis.

Hypothesis 2: Connected stocks with higher market beta will experience a larger positive price reaction upon the announcement of connect program.

A number of papers (see, for example, Scheinkman and Xiong (2003) and Hong, Scheinkman, and Xiong (2006)) suggest that speculative trading due to heterogeneous beliefs and short-sale constraints is not only reflected in high stock prices, but is also associated with high turnover and return volatility. We formalize the arguments in the following hypothesis.

Hypothesis 3: Connected stocks will experience an increase of turnover and volatility after the announcement of the program; and the increase will be higher for stocks with larger market beta.

4. Empirical Results

4.1 Data and Summary Statistics

We start with 541 stocks listed in the Shanghai Stock Exchange that can be traded by Hong Kong and foreign investors through the northbound trading service of Shanghai-Hong Kong stock connect program. Among the 541 stocks, only 520 stocks have valid return data in October, 2014. To alleviate the selection problem, we match the 520 connected stocks with all the rest unconnected A-share stocks using a propensity-score matched procedure. We implement this procedure by first estimating a logit regression to model the probability of being a treatment firm using five firm characteristics, including firm size (SIZE), book-to-market ratio (BM), return-on-assets (ROA), Shanghai market beta[6] ($BETA_{SH}$), and total volatility (TVOL) at the end of October 2014. We then find each treatment firm a matched control firm using the nearest neighbor matching technique without replacement and setting caliper at 0.25*standard error of propensity score. This procedure results in a final sample of 440 treatment (connected) firms with valid control (unconnected) firms. We further require that the treatment firms and their control firms have valid return data within three day window (-1,1) of the announcement event on November 10, 2014. This requirement reduces our final sample to 413 treatment firms with their propensity-score matched control firms.

Table 1 summarizes the characteristics of our sample of connected stocks. These stocks are generally large and mature. On average a sample stock has a market cap of 16.012 billion yuan, a book-to-market ratio of 0.627, a ROA of 0.048, and a leverage of 0.199. These connected stocks have much higher sensitivity with respect to Shanghai market index than Hong Kong market index. They have on average a $BETA_{SH}$ of 1.223 and a $BETA_{HK}$ of 0.490. The average total volatility (TVOL) and idiosyncratic volatility with respect to the Shanghai market ($IVOL_{SH}$) are 0.352 and 0.302, respectively.

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[6] Mainland China has two stock exchanges, namely, Shanghai stock exchange and Shenzhen stock exchange, the two markets are highly correlated and our results hold when beta is estimated with an index constructed using stocks listed in both exchanges.

Our sample stocks are liquid stocks, with an average daily turnover (TURNOVER) of 0.016 and Amihud (2002) illiquidity measure (AMIHUD) of 0.030 * 10^{-8}, i.e. a trade size of 1 million RMB moves the price by 0.03%. Connected stocks on average experience 2.7% return in October 2014 ($RET_{\{-1,0\}}$), which is the month just prior to the program announcement.

Table 2 compares the main characteristics of the connected stocks and their propensity-score-matched unconnected (control) stocks. The tests show that there are no significant differences in SIZE, BM, ROA, $BETA_{SH}$, TVOL, LEV, $IVOL_{SH}$, $BETA_{HK}$, TURNOVER, and $RET_{\{-1,0\}}$ between connected stocks and the matched stocks.

4.2 Abnormal Returns around the Program Announcement

4.2.1 The Aggregate Valuation Effect

In this section, we test the positive price effect of demand shocks upon the announcement of the Shanghai-Hong Kong stock connect program as predicted by our Hypothesis 1 by examining the abnormal returns of connected stocks and propensity-score-matched (PS-matched) unconnected stocks. Because connected stocks could be different from the universe of all unconnected stocks, the abnormal returns of connected stocks during the program announcement may not only reflect the connection effect but also reflect differences between the connected stocks and the rest of the market. In order to address the endogeneity and selection problem, we use the matched sample throughout the analysis. Later on in the regression analysis, we also control for additional firm characteristics.

In the univariate analysis, we calculate the cumulative abnormal returns (CAR) for connected stocks and PS-matched unconnected stocks during the event window. We report the average CAR for the two groups and test whether the CARs are significantly different. In Table 3 Panel A, we study the event window from day -1 to day 1. Consistent with our Hypothesis 1, we observe that the connected stocks experience 1.17% more cumulative excess returns (CR) than the matched un-connected stocks in the three-day period with a t-statistic of 3.87. The difference in cumulative abnormal returns based on the market model (CAR_{MKT}) is 1.20% with a t-statistic of 3.83. The difference in cumulative abnormal returns based on the DGTW benchmark model and the Fama-French three-factor model (CAR_{FF3}) are slightly smaller and equal to 0.78% (t-stat=2.71) and 0.70% (t-stat=2.44), respectively. In Table 3 Panel B and C, we extend the event window to (-2,+2) and (-3,+3) and find that the difference in CARs grows larger and become more significant. For instance, the difference of DGTW benchmark adjusted CAR are 1.17% and 1.31% with t-statistics of 3.38 and 3.18. The difference of Fama-French three-factor model adjusted CAR are 1.26% and 1.46% with t-statistics of 3.64 and 3.58, respectively.

Our matched sample contains 34 AH dual-listed companies. The effect of connect program on these AH dual-listed companies may be blurred since they are partly owned and their H shares are traded by Hong Kong investors before the start of connect program. Hence we repeat the analysis in the subsample excluding the AH dual-listed stocks. The results are qualitatively and quantitatively similar to the full sample and reported in Internet Appendix Table A1.

To help understand the announcement effect of the connect program on stock prices more closely, we plot the difference of CAR_{MKT} over the event-window (-15,+20) in Figure 1. The difference in CAR_{MKT} begin to diverge slightly in two weeks prior to the announcement, suggesting a possible information leakage (although the difference is statistically insignificant). The difference in CAR_{MKT} between connected and matched unconnected stocks peaks three days after the event and flattens out afterwards. The result suggests that the effect of the program announcement is incorporated into the prices in a reasonably fast speed. More importantly, no signs of return reversal at the end of (-15,+20) window are observed, suggesting that the value effect could be permanent for the connected stocks.

To rule out the possibility that differences in firm characteristics might drive the return difference between matched connected and unconnected stocks around the event window, we conduct the following regression analysis:

$$CAR_i = a_0 + a_1 CONNECT_i + \mathbf{b}\mathbf{z}_i + e_i \quad (1)$$

where the dependent variable CAR represents cumulative return (CR, in %), cumulative abnormal return based on the market model (CAR_{MKT}, in %), and cumulative abnormal return based on the Fama-French three factor model (CAR_{FF3}, in %) during the announcement window (-3,3), respectively. CONNECT is a dummy variable, which equals one for connected stocks and zero for unconnected stocks. **z** is a vector of control variables, including market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and average daily turnover (TURNOVER). SIZE is measured at the end of October 2014. $IVOL_{SH}$, AMIHUD and TURNOVER are measured in the 12 months prior the announcement, namely, from November 2013 to October 2014. BM, ROA and LEV are calculated based on the financial data in the year end of 2013. All Chinese firms have fiscal year end at December and required to file financial reports by the end of April, hence 2013 financial data are all public available before the announcement of the connect program.

The results are reported in Table 4. We first conduct the regression of CAR on the connected dummy without any controls. The result is essentially the same as that in the portfolio analysis. Next, we include a set of control variables into the regression, including firm size, B/M ratio, ROA, leverage, $BETA_{SH}$, $IVOL_{SH}$, Amihud illiquidity and share turnover. The coefficient on the connect dummy are 1.623, 1.641, and 1.367 for CR, CAR_{MKT}, and CAR_{FF3}, respectively, and remains statistically significant at 1% level. The results suggests that connected stocks experience about 1.6% more in cumulative abnormal returns than the PS-matched unconnected stocks, after controlling for the effect of possible sample heterogeneity.

In sum, we document in both univariate and regression analysis that connected stocks experience a significant price appreciation compared with their PS-matched unconnected stocks around the announcement of the connect program. The price appreciation is about 1.6% during the seven-day announcement window, which translates to more than 13 billion USD in market value. The results supports our Hypothesis 1 that there exists a positive demand effect on the prices of connected stocks around the announcement of connect program.

4.2.2 Revaluation in the Cross Section and the Speculative Beta Effect

In this section, we test our Hypothesis 2 that connected stocks with higher market beta will experience a larger positive price appreciation upon the announcement of connect program. The rationale behind the hypothesis follows from Hong, Scheinkman and Xiong (2006), which suggest that the demand elasticity of price increases with the size of speculative bubble, and Hong and Sraer (2016), which show that a stock's speculative overpricing increases with its market beta. We calculate a stock's market beta with respect to the Shanghai Compasite Index ($BETA_{SH}$) and extend model (1) by adding an interaction term between the CONNECT dummy and $BETA_{SH}$

$$CAR_i=a_0+a_1CONNECT_i+a_2CONNECT_i*BETA_{SH,i}+a_3BETA_{SH,i}+\mathbf{bz_i}+e_i \qquad (2)$$

where CAR, CONNECT and the control variables (as represented by the vector **z)** are defined in the same way as in the regression model (1). The key variable of interest is the coefficient on the interaction term (a_2), which is predicted to be significantly positive by Hypothesis 2.

We report the results in Table 5. Consistent with our Hypothesis 2, we find a positive and statistically significant coefficient on the interaction term, suggesting that the positive announcement effect on stock prices is more pronounced for stocks with high $BETA_{SH}$ than those with low $BETA_{SH}$. The coefficient on the interaction term ranges from 3.6 to 4.9 across different regression specifications, which indicates that one unit increase in a connected stock's Shanghai beta will lead to a 3.6 ~ 4.9% increase in its cumulative abnormal return during the seven-day announcement window. The magnitude is economically large and statistically significant at the 5% level for all specifications.

Overall, the evidence supports the prediction in Hong, Scheinkman and Xiong (2006) that the demand elasticity of price is higher for stocks with more speculative overpricing.

4.3 Change in Turnover and Volatility after the Announcement Program

Speculative bubbles generated by heterogeneous beliefs and shor-sale constraints are often associated with high turnover and high stock volatility (see, for example, Scheinkman and Xiong (2003)). In particular, Hong, Scheinkman, and Xiong (2006) predict that a positive demand shock will also lead to, in addition to price appreciation, an increase in turnover and return volatility. More importantly, their model predicts that the increase in turnover and return volatility should be larger for stocks with larger speculative overpricing in price. We have formalized these arguments in our hypothesis 3 that we will test in this section.

4.3.1 Change in Turnover

First, we perform the following regression analysis for the change in turnovers of connected stocked and their PS-matched unconnected stocks:

$$\Delta TURNOVER_i = a_0 + a_1 CONNECT_i + \mathbf{b}\mathbf{z}_i + e_i \quad (3)$$

where we construct the change in standardized turnover measure (ΔTURNOVER) as average daily turnover of a firm in the window (0,10) after the program announcement divided by average daily turnover in the most recent month, then minus one. All the other variables in the regression are defined in the same way as regression model (1).

We present the results in Table 6. When we regress change in turnover on the CONNECT dummy alone without any controls. The regression gives a coefficient estimate of 0.118 with t-statistics of 2.71, which implies that connected stocks experience 11.8% increase in turnover compared with matched unconnected stocks on average. We then add a bunch of control variables and find the coefficient on CONNECT dummy to be quantitatively similar and remain significant at 1% level. For robustness, we also consider windows of (0,20) and find similar results.

After establishing the results that connected stock on average experience an increase of turnover relative to matched unconnected stock, we next turn to examine the interaction between CONNECT dummy and $BETA_{SH}$ in regression model (3).

$$\Delta TURNOVER_i=a_0+a_1CONNECT_i+a_2CONNECT_i*BETA_{SH,i}+a_3BETA_{SH,i}+\mathbf{bz_i}+e_i \quad (4)$$

In the last two columns of Table 6, we find that the interaction term is significantly positive, suggesting that change in turnover is significantly higher for high $BETA_{SH}$ stocks than low $BETA_{SH}$ stocks. The coefficient is 0.355 with t-statistics of 2.28 when excluding any controls, which means that one unit increase in a stock's Shanghai beta will lead to a 35.5% increase in a connected stock's average daily turnover (compared with unconnected stocks) over the (0,10) window after the announcement of the connect program. The effect increase slightly to 0.402 after including a bunch of controls and remain significant at 1% level. The economic magnitude of beta effect on change in turnover is three ~ four times as large as the average connect effect of 11.8%.

4.3.2 Change in Volatility

Similar to the above analysis on change in turnover, we conduct regression analysis of the change in volatilities on the CONNECT dummy and its interaction terms with $BETA_{SH}$

$$\Delta VOLATILITY_i=a_0+a_1CONNECT_i+\mathbf{bz_i}+e_i \quad (5)$$

$$\Delta VOLATILITY_i=a_0+a_1CONNECT_i+a_2CONNECT_i*BETA_{SH,i}+a_3BETA_{SH,i}+\mathbf{bz_i}+e_i \quad (6)$$

We construct the change in volatility measure (ΔVOLATILITY) as average daily volatility of a firm in the window (0,10) after the program announcement divided by average daily volatility in the most recent month, then minus one. Daily volatility is calculated as standard deviation of 5-min intraday log change in price.

We report the regression results in Table 7. The first two columns report results for regression model (5) and one can see the coefficient on CONNECT dummy are 0.059 (with t-stat of 2.51) for the specification without controls and 0.049 (with t-stat of 2.17) with controls, suggesting connected stocks on average experience 5% more increase in volatility compared with unconnected counterparts. The next two columns present results for regression model (6) and one can observe the coefficients on the interaction term are 0.160 (with t-stat of 1.85) and 0.187 (with t-stat of 2.20) in the two specifications., indicating that connected stocks with one more $BETA_{SH}$ will experience 16% and 18.7% more increase in volatility than matched unconnected stocks.

Taken results on turnover and volatility together, we provide supporting evidence for our Hypothesis 3. After the announcement of the Shanghai-Hong Kong stock connect program, connected stocks experience increase in the turnover and volatility than matched unconnected stocks with similar characteristics. More importantly, high $BETA_{SH}$ stocks experience significantly larger increase in turnover and volatility than low $BETA_{SH}$ stocks, which confirm the theoretical prediction in Hong, Scheinkman and Xiong (2006) that turnover and volatility increase more in response to a demand/supply shockfor stocks with a higher degree of speculative overpricing.

4.4 Limits to arbitrage and the Long-term Effect

While market beta could be positively related to speculative trading and overpricing due to heterogeneous beliefs about the aggregate market and short-sale constraints as suggested by Hong and Sraer (2016), it is also a measure of risk. Connected stocks with high beta may appreciate more if they experience a larger decline in firm risk after the connect program. In order to distinguish a speculation-based explanation and a risk-based explanation for the beta effect in our results, we investigate how limits to arbitrage moderate the beta effect. If the beta effect is due to speculative trading, it should become stronger when limits to arbitrage are more severe.

An extensive literature suggests that idiosyncratic risk closely measures the degree of limits to arbitrage.[7] We classify connected stocks and their PS-matched unconnected stocks into high (low) idiosyncratic risk subsample if their idiosyncratic volatility with respect to the shanghai market return is above (below) the median of the sample. We report the regression results of model (2) in high and low idiosyncratic risk subsamples in Table 8. It is evident that the interaction between the CONNECT dummy and $BETA_{SH}$ is only significantly positive when idiosyncratic risk is high, but become insignificant when idiosyncratic risk is low. The fact that the beta effect is more prevalent in stocks with a higher degree of limits-to-arbitrage suggest that the beta effect is associated with speculative trading rather than change in firm risk.

Furthermore, if the beta effect originates from speculative trading behavior, it is likely to be reversed back over time through arbitrage activities. In contrast, if the beta effect is explained by change in firm risk, it should be persistent in the long run. In internet appendix table A2, we report the coefficient on the interaction term, CONNECT*$BETA_{SH}$, over the next 60 days after the announcement of the connect program. We find that the coefficient become insignificant after 20 days, which suggests that the beta effect is relatively short-lived. Our results therefore provide further evidence supporting the speculative beta effect rather than risk explanations.

5. Alternative Hypothesis and Robustness Tests

5.1 Revaluation and Risk-Sharing

An alternative explanation for the revaluation around the announcement of program is the risk-sharing effect. When Hong Kong investors are allowed to trade and hold the stocks in the Shanghai market, they will participate in the risk sharing on these stocks, which will lead to changes in expected stock returns. Chari and Henry (2004) show that, under scenarios from complete

[7] For example, See Treynor and Black (1973), Shleifer and Vishney (1997) and Pontiff (2006).

liberalization to partial liberalization with strong segmentation, the change in expected return of a stock upon market integration should be proportional to the change in covariance of this stock's return with the return of a representative investor's portfolio before and after the integration[8]. If the change in covariance increases with $BETA_{SH}$, the price appreciation we document around connect program announcement may reflect the change in expected return through the risk sharing channel rather than the demand effect.

We follow Chari and Henry (2004) and construct two measures of difference in covariance (DIFCOV) and test the risk-sharing hypothesis by introducing an interaction term between the CONNECT dummy and DIFCOV into the regression of cumulative abnormal return.

$$CAR_i=a_0+a_1CONNECT_i+a_2CONNECT_i*BETA_{SH,i}+a_3BETA_{SH,i}$$
$$+a_4CONNECT_i*DIFCOV_i+a_5DIFCOV_i+\mathbf{bz_i}+e_i \quad (7)$$

We consider two versions of DIFCOV. The first difference in covariance measure ($DIFCOV_{SH}$) is defined as the return covariance of an individual stock with the Shanghai market minus the return covariance of the stock with the Hong Kong market. We use the returns of Shanghai Composite Index and Hang Seng Index to proxy for the returns of Shanghai and Hong Kong market. The second difference in covariance measure ($DIFCOV_{MSCI}$) equals the difference between a stock's return covariance with the Shanghai market and its return covariance with the MSCI global market index. $DIFCOV_{HK}$ is appropriate for Hong Kong investors whose investment concentrate in the Hong Kong stock market whereas $DIFCOV_{MSCI}$ is most suitable for Hong Kong investors who invest globally.

We report the results in Table 9. The first two columns report for the first measure ($DIFCOV_{HK}$). The coefficient on the interaction term between the CONNECT dummy and

[8] Under complete liberalization, domestic stocks will be revaluated based its covariance with the new integrated market. Under market segmentation, for example, foreign (local) investors are only allowed to invest in limited number of connected local (foreign) stocks, the domestic connected stocks will be revaluated based on its covariance with the post-liberalization portfolio held by foreign investors and the domestic unconnected stocks will be revaluated based on its covariance with the post-liberalization portfolio held by domestic investors.

$DIVCOV_{HK}$ is insignificant irrespective whether we control for the interaction between the CONNECT dummy and $BETA_{SH}$. The next two columns are for $DIVCOV_{MSCI}$. One can observe that the coefficient on the interaction between CONNECT dummy and $DIVCOV_{MSCI}$ is positive in the two specifications and marginally significant when we control for the interaction between the CONNECT dummy and $BETA_{SH}$. Most importantly, across the regressions with either measures of DIFCOV, the coefficient on the interaction between CONNECT and $BETA_{SH}$ remain positive and significant.

It is worth mentioning that the risk-sharing explanation does not have any direct prediction on the change in turnover or volatility of connected stocks. Nevertheless, in order to rule out the possibility that the beta effect on change in turnover and volatility is due to the change in covariance, we also include an interaction term between CONNECT and two DIFCOVs into the regression of change in turnover and volatility, but find none of interaction terms are significant.

Overall, our evidence suggests that the speculative beta effect is robust after we control for the risk-sharing effect. While risk sharing may impact the cost of capital in the long run, a substaintial proportion of the stock market fluctuation in response to the program announcement is driven by the demand effect and its intraction with speculative bubble component in the Shanghai stock market.

5.2 Does Beta Proxy for Lottery Characteristics?

Bali, Brown, Murry and Tang (2016) show that beta can also proxy for a stock's lottery characteristics. A high beta stock resembles a lottery, which could attract more investor attention and demand during the event of connect program announcement and thus leads to large price appreciation. To rule out this alternative, we construct the measure MAX following Bali, Brown, Murry and Tang (2015) as the average of the five highest daily returns (in %) in October 2014, the month prior to the announcement of Connect Program. To test the lottery hypothesis, we include the interaction between CONNECT and MAX into the regression model (2).

$$CAR_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i}$$
$$+ a_4 CONNECT_i * MAX_i + a_5 MAX_i + \mathbf{b} \mathbf{z_i} + e_i \quad (8)$$

We report the results in Table 10. The coefficient on the interaction term between the CONNECT dummy and MAX is insignificant irrespective whether we control for the interaction between the CONNECT dummy and $BETA_{SH}$. Whereas the coefficient on the interaction between CONNECT and $BETA_{SH}$ is statistically significant and of similar magnitude as earlier regressions. The results suggest $BETA_{SH}$ is unlikely to proxy for the lottery characteristics.

5.3 Does Beta Proxy for the Size of Demand Shock?

Beta could also proxy for size of demand shocks. Theories, such as Black (1972) and Frazzini and Pedersen (2014), suggest that when investors face portfolio constraints so that they cannot gain optimal exposure to certain risk factors, they would overweigh stocks with high sensitivity (or beta) with respect to that factor (commonly referred to as the 'betting against beta' effect). The logic naturally extends to the case of market integration under restrictive capital control. Foreign investors are constrained in the capital they are allowed to invest in local stocks and therefore overweight high beta stocks with respect to the local market factor in order to increase their exposure. Under the Shanghai-Hong Kong stock connect program, Hong Kong investors do face aggregate and daily quota that limit their holdings on the Shanghai stocks and hence they may demand more of high beta Shanghai stocks. Alternatively, investors may demand more of high beta stocks simply because they speculate that the Chinese stock market will rise in the future. Either the betting against beta hypothesis or speculating on the rise of Chinese market hypothesis could explain our empirical findings that high beta connected stocks experience larger price appreciation because high beta stocks induce a larger demand shock rather than have a larger demand elasticity of price.

To examine these alternatives, we first look at the usage of quota after program commencement. We find that on average, only 13%(30%) of aggregate quota is used in the end of first (three) months after the connect program becomes effective. The existence of unused-up quota suggests the constraint for the "betting against beta" effect is unlikely to be binding.

To more formally examine these two alternatives, we collect aggregate quarterly stock holding under the connect program from firm's quarterly financial reports[9] and conduct regressions of stock's quarterly holdings on beta and a number of firm characteristics, including SIZE, BM, ROA, LEV, $IVOL_{SH}$, AMIHUD and TURNOVER. The results (reported in internet appendix Table A3) suggest that investors who trade under the connect program prefer to hold stocks with smaller BM ratio and higher ROA. Beta insignificantly and negatively predict investors' holding. The evidence from the holding data indicates that beta is not a proxy for the size of demand shock but rather measures the demand elasticity of price.

5.4 Placebo Tests

In all our previous tests, we match connected stocks with unconnected stocks based on their major firm characteristics. However, differences in returns around program announcement and changes in turnover and return volatility after program announcement might be driven by differences in unobserved stock characteristics among these two groups of stocks. In that case, such differences could be persistent and do not depend on the specific event time *per se*.

[9] We obtain Hong Kong investors' holding of Shanghai stocks under the connect program from "the ten largest sharehold info." section in firms' quarterly financial reports. The holding of investors under the connect program will be aggregated and reported as one number. Since firms only disclose holdings of their ten largest shareholders so the data is missing for stocks that Hong Kong investors in aggregate hold vey little. Nearly half of the firms have non-missing holding data in at least one quarter. To deal with missing observation, we conduct two versions of regressions that one is restricted to the sample that have non-missing holding data and the other use full sample but replacing missing holdings with zero.

In order to rule out the explanation that unobserved differences between connected and unconnected stocks drive the pattern of returns, turnover and volatility observed, we implement a placebo test. Specifically, we consider two pseudo announcement dates October 10, 2014 and September 10, 2014, which are one and two months before the announcement date and repeat the analysis of Table 4-7 on these dates. If there are certain unobserved factors other than the connect program that drive the relation we document, we would expect to observe similar relations in those pseudo dates as well.

We report the results of our placebo tests in Table 11. We find that the effects of the CONNECT dummy and the interaction between the CONNECT dummy and $BETA_{SH}$ completely disappear on those randomly chosen dates for both return (Panel A), turnover (Panel B) and volatility (Panel C). On either pseudo date, none of the coefficients on the CONNECT dummy are significant, which suggests that the connected stocks and matched unconnected stocks have indistinguishable returns, change in turnover and volatility during any time outside the event window. Moreover, none of the coefficients on the interaction between the CONNECT dummy and $BETA_{SH}$ are significant for returns, change in turnover and change in volatility, confirming that the speculative beta effect only magnifies itself during stock revaluation after the announcement of the connect program. This placebo test assures us that the relation we document is not driven by fixed heterogeneities between connected and unconnected stocks.

5.5 Additional Robustness Tests

In order to rule out the possibility that the speculative beta effect is not due to the interaction between the CONNECT dummy and other firm characteristics, we add a number of additional interaction terms into the regression model (2), (4) and (6), including the interaction between the CONNECT dummy and SIZE, BM, ROA, LEV, $IVOL_{SH}$, AMIHUD, TURNOVER, and a stock's beta with respect to the Hong Kong stock market ($BETA_{HK}$). We report the results for return, change in turnover, and change in volatility in Panel A to C of Table 12. It is evident that the interaction effect between CONNECT and $BETA_{SH}$ remains strong and significant after we add the interaction terms between the CONNECT dummy and any other firm characteristics.

5.6 Revaluation and Turnover in the Hong Kong Market

So far, our studies mainly focus on the valuation of Shanghai stocks during the Shanghai-Hong Kong stock connect program. As we have argued earlier, this is due to two major reasons. First, while the Hong Kong stock market is a relatively open market to foreign investors, Shanghai stock market is largely a closed market before the connect program. Therefore, we would expect the connection between the two markets to have a stronger impact on Shanghai stocks than Hong Kong stocks. Second, Hong Kong stock market is generally considered as more developed and subject to less speculative trading. Therefore, the effect of speculative overpricing on the demand elasticity of price is expected to be stronger for Shanghai stocks.

Nonetheless, we perform similar analysis for Hong Kong stocks (See internet appendix). There are two major results. First, connected Hong Kong stocks experience more value appreciation during program announcement, more increase in turnover and more increase in volatility during program commencement than PS-matched unconnected stocks. However, the magnitude of the value appreciation is smaller and less significant than that of the Shanghai stocks. Second, the interaction between the CONNECT dummy and a stock's Hong Kong beta is insignificant in both the regressions of cumulative abnormal return and change in turnover and volatility. Our results suggest that for an open market such as Hong Kong stock market, the demand effect due to market integration is less magnificent. Moreover, since the Hong Kong stock market is more developed with more sophisticated investors and less market frictions, speculative trading is less prevalent and therefore the speculative beta effect is much weaker.

6. Conclusion

In this paper, we show that the demand effect and its interaction with speculative trading play an important role in determining asset prices during a large market liberalization event, the Shanghai-Hong Kong stock connect program. Anticipating Hong Kong investors' demand, mainland investors react positively to the announcement of the connect program. Connected stocks in the Shanghai stock exchange experience significant value appreciation compared to unconnected stocks with similar characteristics. More importantly, the announcement returns of connected stocks increases with Shanghai market beta.

Chinese stock market has long been recognized as a "casino" with substantial speculative trading activities. Due to heterogeneous beliefs about the aggregate market and short-sale constraints, stocks with high market beta are more prone to speculation as suggested by Hong and Sraer (2016). The interaction between the demand shock and the speculative beta effect in our results confirm the theoretical prediction by Hong, Scheinkman and Xiong (2006) that the demand curve is steeper for stocks with high degree of speculative components.

Speculative trading is usually associated with high turnover and return volatility. We further show that connected stocks also experience increase in turnover and return volatility after the announcement, and both the increase in turnover and volatility are larger for stocks with higher Shanghai market beta. In addition, we present evidence that the beta effect is stronger for stocks with high limits to arbitrage as measured by idiosyncratic volatility and are relatively short-lived. All our evidence suggest that the beta effect is closely related to speculative trading activities of mainland investors.

Stock revaluation during market liberalization is often understood from the risk-sharing perspective in the long run. We point out that in the short term, the demand effect and its interaction with stock market speculation could have substantial impact on asset price fluctuation. One potential interesting direction for future work is to test the theoretical prediction on the interaction between demand shocks and speculative trading in other settings, such as constitutional changes of stock index and institutional block trades in speculative markets.

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Table 1. Summary Statistics

This table reports the mean, standard deviation, minimum, 25th percentile, median, 75th percentile, and maximum of a set of firm characteristics, including natural log of market capitalization in thousand yuan (SIZE) as of October 2014, book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), beta with respect to the Shanghai stock market index ($BETA_{SH}$), total return volatility (TVOL), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), beta with respect to the Hong Kong market index ($BETA_{HK}$), average daily turnover in the past one year (TURNOVER), Amihud illiquidity measure in the past one year (AMIHUD), past one-month return ($RET_{\{-1,0\}}$). Accounting variables are all measured at the most recent fiscal year end, unless specified. Stock trading variables are constructed using data from the 12-month prior to announcement of Shanghai-Hong Kong stock connect program, namely, from November-2013 to October-2014. The sample includes all Shanghai-listed firms that are in the connect program and have a valid propensity-score-matched firm. All variables are winsorized at the 1% and 99% levels.

Variables	N	MEAN	STD.	MIN	P25	P50	P75	MAX
SIZE	413	16.012	0.783	14.400	15.469	15.896	16.450	18.271
BM	413	0.627	0.408	0.094	0.347	0.523	0.790	2.163
ROA	413	0.048	0.038	-0.058	0.022	0.040	0.068	0.200
$BETA_{SH}$	413	1.223	0.257	0.585	1.068	1.206	1.391	1.831
TVOL	413	0.352	0.079	0.200	0.295	0.342	0.403	0.562
LEV	413	0.199	0.153	0.000	0.055	0.196	0.307	0.689
$IVOL_{SH}$	413	0.302	0.082	0.154	0.241	0.295	0.357	0.528
$BETA_{HK}$	413	0.490	0.189	0.031	0.382	0.480	0.594	1.065
TURNOVER	413	0.016	0.011	0.002	0.009	0.014	0.021	0.057
$AMIHUD*10^8$	413	0.030	0.023	0.003	0.014	0.023	0.039	0.121
$RET_{\{-1,0\}}$	413	0.027	0.087	-0.110	-0.028	0.008	0.060	0.518

Table 2. Firm Characteristics for Connected Firms and Propensity-Score-Matched Unconnected Firms

This table presents the main firm characteristics for connected (treatment) firms and their propensity-score-matched unconnected (control) firms. We start with all Shanghai-listed firms that are in the connect program as treatment firms and use all the rest as control firms. We implement the propensity-score-matching procedure by first estimating a logit regression to model the probability of being a treatment firm using firm size (SIZE), book-to-market ratio (BM), return-on-assets (ROA), total volatility (TVOL), and Shanghai market beta ($BETA_{SH}$) at the end of October 2014. We then match each treatment firm to the control firms using the nearest neighbor matching technique (with replacement, and caliper set at 0.25*standard error of propensity score). Our final sample include 413 connected firms and their corresponding propensity-score-matched unconnected firms, which also have valid return data within seven day window (-3,3) of the announcement event on November 10, 2014.

Variables	Connected	Unconnected	Dif.	t-statistics
SIZE	16.012	15.939	0.073	1.39
BM	0.627	0.601	0.026	0.90
ROA	0.048	0.047	0.001	0.36
$BETA_{SH}$	1.223	1.231	-0.009	-0.48
TVOL	0.352	0.358	-0.006	-1.19
LEV	0.199	0.193	0.005	0.50
$IVOL_{SH}$	0.302	0.309	-0.007	-1.19
$BETA_{HK}$	0.490	0.476	0.014	1.03
TURNOVER	0.016	0.016	0.001	0.69
$RET_{\{-1,0\}}$	0.027	0.024	0.002	0.36

Table 3. Portfolio Analysis for Announcement Returns of Connected Stocks and Propensity-Score-Matched Unconnected Stocks

This table reports the average cumulative return in excess of risk-free rate (CR, in %), cumulative abnormal return based on the market model (CAR_{MKT}, in %), DGTW benchmark-adjusted return (CAR_{DGTW}, in %), and cumulative abnormal return based on the Fama-French three factor model (CAR_{FF3}, in %) of connected stocks and their propensity-score-matched unconnected stocks during the announcement of the Shanghai-Hong Kong stock connect program. Panel A, Panel B, and Panel C report the returns for the event windows (-1,1), (-2,2), and (-3,3), respectively. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	Matched sample (N=413)		
	Conn.	Non-Conn.	Diff.
Panel A. Event Window (-1,1)			
CR(-1,1)	-1.939	-3.110	1.171
	(-8.77)	(-15.02)	(3.87)
CAR_{MKT}(-1,1)	-3.267	-4.464	1.197
	(-14.43)	(-20.76)	(3.83)
CAR_{DGTW}(-1,1)	-0.320	-1.096	0.776
	(-1.51)	(-5.66)	(2.71)
CAR_{FF3}(-1,1)	-0.767	-1.462	0.695
	(-3.62)	(-7.71)	(2.44)
Panel B. Event Window (-2,2)			
CR(-2,2)	0.710	-0.908	1.618
	(2.68)	(-3.63)	(4.44)
CAR_{MKT}(-2,2)	-2.290	-3.941	1.651
	(-8.45)	(-14.97)	(4.37)
CAR_{DGTW}(-2,2)	0.136	-1.031	1.167
	(0.54)	(-4.36)	(3.38)
CAR_{FF3}(-2,2)	-0.334	-1.592	1.258
	(-1.32)	(-6.76)	(3.64)
Panel C. Event Window (-3,3)			
CR(-3,3)	-0.223	-2.054	1.831
	(-0.74)	(-6.51)	(4.19)
CAR_{MKT}(-3,3)	-2.039	-3.949	1.910
	(-6.52)	(-11.93)	(4.19)
CAR_{DGTW}(-3,3)	0.270	-1.035	1.305
	(0.93)	(-3.58)	(3.18)
CAR_{FF3}(-3,3)	0.230	-1.227	1.457
	(0.80)	(-4.28)	(3.58)

Table 4. Regression Analysis for Announcement Returns of Connected Stocks and Propensity-Score-Matched Unconnected Stocks

This table reports the regression analysis for the announcement returns of connected stocks and propensity-score-matched unconnected stocks:

$$CAR_i = a_0 + a_1 CONNECT_i + \boldsymbol{b}\boldsymbol{z_i} + \varepsilon_i$$

where CAR represents cumulative return in excess of risk-free rate (CR, in %), cumulative abnormal return based on the market model (CAR_{MKT}, in %), and cumulative abnormal return based on the Fama-French three factor model (CAR_{FF3}, in %) during the announcement window (-3,3), respectively. CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. Control variables **z** include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), Shanghai market beta ($BETA_{SH}$), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Hong Kong market beta ($BETA_{HK}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	CR(-3,3)		CAR_{MKT}(-3,3)		CAR_{FF3}(-3,3)	
CONNECT	1.831	1.623	1.910	1.641	1.457	1.367
	(4.20)	(3.91)	(4.20)	(3.91)	(3.59)	(3.41)
$BETA_{SH}$		1.993		1.530		1.644
		(2.09)		(1.58)		(1.83)
SIZE		1.306		1.261		0.117
		(3.31)		(3.18)		(0.33)
BM		-0.319		-0.496		-2.393
		(-0.58)		(-0.89)		(-4.55)
ROA		-7.698		-7.473		-5.583
		(-1.41)		(-1.34)		(-1.09)
LEV		1.615		1.840		0.168
		(1.16)		(1.31)		(0.12)
$IVOL_{SH}$		-23.328		-29.902		-15.169
		(-6.08)		(-7.76)		(-4.08)
AMIHUD		0.683		-5.584		-18.152
		(0.06)		(-0.50)		(-1.66)
TURNOVER		-25.908		-37.481		-27.441
		(-0.90)		(-1.29)		(-1.02)
CONSTANT	-2.054	-17.501	-3.949	-15.636	-1.227	2.283
	(-6.52)	(-2.74)	(-11.94)	(-2.44)	(-4.28)	(0.39)
Adj.R2	0.020	0.134	0.020	0.188	0.014	0.062
Obs.	826	826	826	826	826	826

Table 5. Announcement Returns, Connection, and the Speculative Beta Effect

This table reports the regression analysis for the announcement returns of connected stocks and propensity-score-matched unconnected stocks:

$$CAR_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + \boldsymbol{bz_i} + \varepsilon_i$$

where CAR represents cumulative return in excess of risk-free rate (CR, in %), cumulative abnormal return based on the market model (CAR_{MKT}, in %), and cumulative abnormal return based on the Fama-French three factor model (CAR_{FF3}, in %) during the announcement window (-3,3), respectively. CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. $BETA_{SH}$ is beta with respect to the Shanghai market index. Control variables **z** include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). The sample include connected stocked and their propensity-score-matched unconnected stocks. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	CR(-3,3)		CAR_{MKT}(-3,3)		CAR_{FF3}(-3,3)	
CONNECT	-3.051	-4.208	-2.923	-4.383	-2.950	-3.995
	(-1.38)	(-2.00)	(-1.26)	(-2.06)	(-1.44)	(-2.02)
CONNECT*$BETA_{SH}$	3.974	4.750	3.925	4.907	3.595	4.368
	(2.20)	(2.78)	(2.08)	(2.84)	(2.19)	(2.75)
$BETA_{SH}$	-2.804	-0.470	-3.926	-1.015	-1.344	-0.621
	(-2.07)	(-0.37)	(-2.78)	(-0.78)	(-1.11)	(-0.51)
SIZE		1.320		1.276		0.130
		(3.36)		(3.24)		(0.37)
BM		-0.434		-0.615		-2.498
		(-0.79)		(-1.10)		(-4.74)
ROA		-8.757		-8.567		-6.556
		(-1.60)		(-1.54)		(-1.28)
LEV		1.577		1.801		0.134
		(1.14)		(1.29)		(0.10)
$IVOL_{SH}$		-24.025		-30.621		-15.809
		(-6.28)		(-7.97)		(-4.25)
AMIHUD		0.569		-5.702		-18.257
		(0.05)		(-0.52)		(-1.69)
TURNOVER		-23.807		-35.311		-25.509
		(-0.83)		(-1.21)		(-0.95)
CONSTANT	1.399	-14.382	0.884	-12.414	0.427	5.151
	(0.82)	(-2.25)	(0.50)	(-1.94)	(0.28)	(0.88)
Adj.R2	0.025	0.142	0.028	0.195	0.018	0.069
Obs.	826	826	826	826	826	826

Table 6. Change of Turnover, Connection, and the Speculative Beta Effect
This table reports the regression analysis of the change in turnover of connected stocks and propensity-score-matched unconnected stocks:

$$\Delta TURNOVER_i = a_0 + a_1 CONNECT_i + \boldsymbol{bz_i} + \varepsilon_i$$

$$\Delta TURNOVER_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + \boldsymbol{bz_i} + \varepsilon_i$$

where standardized change in turnover (ΔTURNOVER(0,10)) is defined as the average daily turnover of firm i in the window (0,10) after the connection divided by average daily turnover in the most recent month, then minus one. CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. $BETA_{SH}$ is beta with respect to the Shanghai market index. Control variables **z** include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). The sample include connected stocked and their propensity-score-matched unconnected stocks. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	ΔTURNOVER*(0,10)			
CONNECT	0.118	0.099	-0.317	-0.394
	(2.71)	(2.35)	(-1.61)	(-2.08)
$CONNECT*BETA_{SH}$			0.355	0.402
			(2.28)	(2.71)
$BETA_{SH}$		0.210	-0.169	0.001
		(2.62)	(-1.47)	(0.01)
SIZE		0.108		0.108
		(2.49)		(2.53)
BM		0.043		0.035
		(0.69)		(0.56)
ROA		-0.879		-0.940
		(-1.58)		(-1.64)
LEV		-0.027		-0.028
		(-0.16)		(-0.17)
$IVOL_{SH}$		-1.539		-1.581
		(-4.26)		(-4.34)
AMIHUD		-1.145		-1.192
		(-0.85)		(-0.90)
TURNOVER		-3.894		-3.793
		(-1.28)		(-1.27)
CONSTANT	0.055	-1.324	0.264	-1.050
	(1.92)	(-1.86)	(1.72)	(-1.52)
Adj.R2	0.008	0.092	0.011	0.098
Obs.	826	826	826	826

Table 7. Change of Volatility, Connection, and the Speculative Beta Effect

This table reports the regression analysis of the change in volatility of connected stocks and propensity-score-matched unconnected stocks:

$$\Delta VOLATILITY_i = a_0 + a_1 CONNECT_i + \boldsymbol{bz_i} + \varepsilon_i$$

$$\Delta VOLATILITY_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + \boldsymbol{bz_i} + \varepsilon_i$$

where standardized change in volatility (ΔVOLATILITY(0,10)) is defined as the average daily volatility of firm i in the window (0,10) after the connection divided by average daily volatility in the most recent month, then minus one. Daily volatility is calculated as standard deviation of intraday 5-min returns. CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. $BETA_{SH}$ is beta with respect to the Shanghai market index. Control variables $\mathbf{z}$ include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). The sample include connected stocked and their propensity-score-matched unconnected stocks. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	ΔVOLATILITY*(0,10)			
CONNECT	0.059	0.049	-0.137	-0.181
	(2.51)	(2.17)	(-1.31)	(-1.73)
CONNECT*$BETA_{SH}$			0.160	0.187
			(1.85)	(2.20)
$BETA_{SH}$		0.169	0.009	0.071
		(3.52)	(0.15)	(1.19)
SIZE		0.052		0.052
		(2.27)		(2.30)
BM		-0.008		-0.011
		(-0.23)		(-0.33)
ROA		-0.419		-0.447
		(-1.35)		(-1.40)
LEV		0.004		0.004
		(0.05)		(0.04)
$IVOL_{SH}$		-0.775		-0.795
		(-3.69)		(-3.79)
AMIHUD		-0.748		-0.770
		(-1.29)		(-1.33)
TURNOVER		-0.920		-0.873
		(-0.53)		(-0.50)
CONSTANT	0.046	-0.687	0.035	-0.560
	(3.04)	(-1.83)	(0.49)	(-1.51)
Adj.R2	0.006	0.067	0.013	0.071
Obs.	826	826	826	826

Table 8. Limits to arbitrage: Connection, Speculative Beta, and Idiosyncratic Risk

This table reports regression analysis of announcement returns on the connect dummy and its interactions with Shanghai market beta in high and low idiosyncratic risk subsamples.

$$CAR_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + \boldsymbol{b z_i} + \varepsilon_i$$

CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. $BETA_{SH}$ is beta with respect to the Shanghai market index. $IVOL_{SH}$ is idiosyncratic volatility with respect to a Shanghai market model. Control variables **z** include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). The subsample of Low (High) $IVOL_{SH}$ includes firms with $IVOL_{SH}$ below (above) sample median. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	Low $IVOL_{SH}$		High $IVOL_{SH}$	
CONNECT	-0.390	-1.998	-3.594	-4.330
	(-0.14)	(-0.78)	(-1.35)	(-1.73)
CONNECT*$BETA_{SH}$	0.967	2.238	4.361	4.921
	(0.42)	(1.02)	(2.17)	(2.59)
$BETA_{SH}$	1.098	1.498	-1.399	-1.484
	(0.60)	(0.87)	(-1.08)	(-1.12)
SIZE		0.512		-0.583
		(1.02)		(-0.98)
BM		-2.099		-4.085
		(-3.17)		(-4.88)
ROA		-2.364		-9.925
		(-0.35)		(-1.42)
LEV		2.446		-2.114
		(1.44)		(-1.05)
$IVOL_{SH}$		-24.250		-10.528
		(-3.60)		(-1.58)
AMIHUD		-7.456		-26.366
		(-0.43)		(-1.84)
TURNOVER		-22.639		-43.688
		(-0.41)		(-1.37)
CONSTANT	-1.543	-2.631	-0.342	17.529
	(-0.72)	(-0.29)	(-0.20)	(1.80)
Adj.R2	0.002	0.045	0.034	0.086
Obs.	413	413	413	413

Table 9. Alternative Explanation: Risk Sharing

This table reports regression analysis of announcement return (CAR_{FF3} (-3,3)) on the connect dummy and its interaction with stock beta, $DIVCOV_{HK}$ and $DIVCOV_{MSCI}$.

$$CAR_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + a_4 CONNECT_i * DIFCOV_i + a_5 DIFCOV_i + \boldsymbol{bz_i} + \varepsilon_i$$

CONNECT is a dummy variable, which equals one if the firm is in the connect program and zero otherwise. $BETA_{SH}$ is beta with respect to the Shanghai market index. $DIVCOV_{HK}$ is constructed as the difference between a stock's return covariance with the Shanghai market and its return covariance with the Hong Kong market. $DIVCOV_{MSCI}$ is between a stock's covariance with the Shanghai market and its covariance with the MSCI Global index. Control variables $\mathbf{z}$ include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). The sample include connected stocked and their propensity-score-matched unconnected stocks. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	CAR_{FF3} (-3,3)			
CONNECT	-0.058	-3.667	1.557	-3.753
	(-0.06)	(-2.08)	(3.72)	(-2.14)
$CONNECT*DIFCOV_{HK}$	3.890	-0.994		
	(1.40)	(-0.29)		
$DIFCOV_{HK}$	0.364	1.320		
	(0.18)	(0.54)		
$CONNECT*DIFCOV_{MSCI}$			8.388	10.130
			(1.47)	(1.77)
$DIFCOV_{MSCI}$			-6.112	-6.510
			(-1.82)	(-1.96)
$CONNECT*BETA_{SH}$		4.359		4.377
		(2.46)		(3.08)
$BETA_{SH}$		-1.035		-0.834
		(-0.80)		(-0.80)
SIZE	0.004	0.108	0.127	0.164
	(0.01)	(0.31)	(0.36)	(0.47)
BM	-2.519	-2.568	-2.347	-2.485
	(-4.84)	(-4.89)	(-4.55)	(-4.79)
ROA	-5.668	-6.157	-6.122	-5.665
	(-1.15)	(-1.24)	(-1.27)	(-1.15)
LEV	-0.056	0.072	-0.262	0.067
	(-0.04)	(0.05)	(-0.20)	(0.05)
$IVOL_{SH}$	-13.538	-15.043	-13.939	-15.188
	(-4.02)	(-4.50)	(-4.19)	(-4.62)
AMIHUD	-19.923	-18.147	-18.192	-16.360
	(-1.85)	(-1.70)	(-1.69)	(-1.54)
TURNOVER	-21.859	-21.035	-12.436	-19.014
	(-0.86)	(-0.82)	(-0.50)	(-0.74)
CONSTANT	5.570	5.259	3.439	4.288
	(0.99)	(0.92)	(0.61)	(0.75)
Adj.R2	0.067	0.072	0.065	0.076
Obs.	826	826	826	826

Table 10. Alternative Explanation: Lottery Demand

This table reports regression analysis of announcement return (CAR_{FF3} (-3,3)) on the connect dummy and its interaction with $BETA_{SH}$ and MAX.

$$CAR_i = a_0 + a_1 CONNECT_i + a_2 CONNECT_i * BETA_{SH,i} + a_3 BETA_{SH,i} + a_4 CONNECT_i * MAX_i + a_5 MAX_i + \boldsymbol{bz_i} + \varepsilon_i$$

MAX is constructed as the average of the five highest daily returns (in %) in October, 2014, the month prior to the announcement of connect program. Control variables include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), beta with respect to the Shanghai market index ($BETA_{SH}$), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), and turnover (TURNOVER). Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

	CAR_{FF3} (-3,3)	
CONNECT	0.692	-4.189
	(0.77)	(-1.92)
CONNECT*MAX	0.233	0.184
	(0.75)	(0.60)
MAX	-0.435	-0.396
	(-2.04)	(-1.89)
CONNECT*$BETA_{SH}$		4.104
		(2.61)
$BETA_{SH}$		-0.438
		(-0.36)
SIZE	0.186	0.221
	(0.51)	(0.62)
BM	-2.131	-2.266
	(-3.83)	(-4.06)
ROA	-8.025	-7.266
	(-1.59)	(-1.39)
LEV	-0.390	0.019
	(-0.29)	(0.01)
IVOL_SH	-13.062	-14.453
	(-3.44)	(-3.84)
AMIHUD	-17.037	-15.140
	(-1.52)	(-1.38)
TURNOVER	-13.924	-22.152
	(-0.54)	(-0.82)
CONSTANT	3.606	3.941
	(0.62)	(0.68)
Adj.R2	0.062	0.072
Obs.	826	826

Table 11. Placebo Tests

This table reports the placebo tests for the cumulative announcement return, change of turnover, and change of volatility analysis. We choose two pseudo trading dates, 10 October 2014 and 10 September 2014, which are one and two months before the program announcement date, and repeat the analysis above in Tables 4 ~ 7. Panel A, B, and C report the regression analysis for cumulative announcement return (CAR_{FF3}(-3,3)), change of turnover (ΔTURNOVER(0,10)) and change of volatility (ΔVOLATILITY(0,10)), respectively. Control variables include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), beta with respect to the Shanghai market index ($BETA_{SH}$), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), turnover (TURNOVER), and beta with respect to the Hong Kong market index ($BETA_{HK}$). Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

Panel A. Abnormal Return (Dependent Variable = CAR_{FF3} (-3,3))

	10/10/2014		09/10/2014	
CONNECT	-0.249	-2.658	0.395	-0.709
	(-0.62)	(-1.36)	(1.09)	(-0.40)
CONNECT*$BETA_{SH}$		1.928		0.913
		(1.27)		(0.63)
$BETA_{SH}$	-2.588	-3.560	-2.555	-3.053
	(-3.08)	(-2.97)	(-3.08)	(-2.88)
SIZE	-0.498	-0.489	-0.899	-0.896
	(-1.49)	(-1.46)	(-2.34)	(-2.34)
BM	0.461	0.429	0.009	-0.020
	(0.77)	(0.71)	(0.02)	(-0.04)
ROA	-19.201	-19.453	-5.567	-5.868
	(-3.02)	(-3.05)	(-1.23)	(-1.31)
LEV	-2.566	-2.616	0.573	0.512
	(-1.68)	(-1.72)	(0.43)	(0.38)
$IVOL_{SH}$	-14.210	-14.388	-9.059	-9.142
	(-4.52)	(-4.58)	(-3.18)	(-3.20)
AMIHUD	-11.829	-11.356	-4.082	-4.025
	(-1.06)	(-1.01)	(-0.32)	(-0.32)
TURNOVER	-52.414	-52.624	-51.110	-51.274
	(-1.97)	(-1.99)	(-1.71)	(-1.72)
CONSTANT	17.997	19.156	21.194	21.826
	(3.11)	(3.34)	(3.18)	(3.31)
Adj.R2	0.106	0.106	0.090	0.089
Obs.	796	796	800	800

Panel B. Change of Turnover (Dependent Variable = ΔTURNOVER(0,10))

	10/10/2014		09/10/2014	
CONNECT	0.139	-1.583	0.054	0.344
	(0.34)	(-0.61)	(1.22)	(1.70)
CONNECT*$BETA_{SH}$		1.377		-0.240
		(0.75)		(-1.48)
$BETA_{SH}$	-1.076	-1.769	0.016	0.147
	(-1.39)	(-1.16)	(0.19)	(1.29)
SIZE	0.717	0.721	-0.147	-0.148
	(0.92)	(0.92)	(-2.97)	(-2.98)
BM	-0.536	-0.552	0.185	0.193
	(-0.44)	(-0.44)	(2.66)	(2.76)
ROA	-6.289	-6.343	0.398	0.477
	(-0.95)	(-0.95)	(0.72)	(0.86)
LEV	-0.535	-0.556	-0.092	-0.075
	(-0.34)	(-0.35)	(-0.51)	(-0.42)
$IVOL_{SH}$	-6.032	-6.130	-0.786	-0.764
	(-1.33)	(-1.35)	(-2.28)	(-2.22)
AMIHUD	39.019	39.199	-0.577	-0.592
	(0.83)	(0.83)	(-0.34)	(-0.35)
TURNOVER	40.444	40.089	-9.423	-9.379
	(1.08)	(1.07)	(-2.48)	(-2.45)
CONSTANT	-9.102	-8.248	2.913	2.747
	(-0.75)	(-0.72)	(3.45)	(3.27)
Adj.R2	0.006	0.005	0.076	0.077
Obs.	796	796	800	800

Panel C. Change of Volatility (Dependent Variable = ΔVOLATILITY(0,10))

	10/10/2014		09/10/2014	
CONNECT	-0.015	-0.011	0.036	0.049
	(-0.65)	(-0.10)	(1.61)	(0.49)
CONNECT*$BETA_{SH}$		-0.003		-0.011
		(-0.04)		(-0.13)
$BETA_{SH}$	-0.038	-0.037	0.034	0.040
	(-0.84)	(-0.59)	(0.70)	(0.61)
SIZE	-0.052	-0.052	-0.114	-0.114
	(-2.88)	(-2.88)	(-5.16)	(-5.16)
BM	-0.086	-0.086	0.035	0.035
	(-2.89)	(-2.89)	(1.15)	(1.16)
ROA	-0.150	-0.150	-0.151	-0.147
	(-0.62)	(-0.62)	(-0.52)	(-0.51)
LEV	-0.090	-0.090	-0.132	-0.131
	(-1.17)	(-1.17)	(-1.49)	(-1.48)
$IVOL_{SH}$	-0.618	-0.618	-0.376	-0.375
	(-3.54)	(-3.55)	(-2.17)	(-2.17)
AMIHUD	-1.763	-1.764	-0.553	-0.553
	(-3.25)	(-3.24)	(-0.75)	(-0.75)
TURNOVER	-3.301	-3.301	-3.356	-3.354
	(-2.51)	(-2.51)	(-1.86)	(-1.86)
CONSTANT	1.356	1.354	2.082	2.074
	(4.35)	(4.37)	(5.49)	(5.51)
Adj.R2	0.050	0.048	0.071	0.069
Obs.	793	793	800	800

Table 12. Speculative Beta Effect: Additional Robustness Check

This table reports the robustness checks for the interactive effect between connection and market beta on the announcement returns, change in turnover and change in volatility after announcement in the regression analysis. The dependent variable is the cumulative abnormal return based on the Fama-French three factor model (CAR_{FF3}, in %) during the announcement window (-3,3) for panel A, change in turnover for the window of (0,10) for panel B, and change in volatility for the window of (0,10) for panel C. Control variables include market capitalization (SIZE), book-to-market equity ratio (BM), return-on-assets (ROA), leverage (LEV), beta with respect to the Shanghai market index ($BETA_{SH}$), idiosyncratic volatility with respect to a Shanghai market model ($IVOL_{SH}$), Amihud illiquidity measure (AMIHUD), turnover (TURNOVER), and beta with respect to the Hong Kong market index ($BETA_{HK}$). The sample include connected stocked and their propensity-score-matched unconnected stocks. Corresponding t-statistics based on White's robust standard errors are reported in parentheses.

Panel A. Cumulative Abnormal Return

	$CAR_{FF3}(-3,3)$							
CONNECT	-8.888	-3.271	-4.269	-3.914	-6.466	-3.462	-4.063	-4.040
	(-1.05)	(-1.60)	(-1.94)	(-1.94)	(-2.80)	(-1.67)	(-2.03)	(-2.04)
CONNECT*$BETA_{SH}$	4.427	4.209	4.432	4.340	3.215	4.224	4.769	4.698
	(2.76)	(2.68)	(2.72)	(2.75)	(1.98)	(2.66)	(2.73)	(2.42)
CONNECT*SIZE	0.302							
	(0.60)							
CONNECT*BM		-0.869						
		(-0.89)						
CONNECT*ROA			4.050					
			(0.48)					
CONNECT*LEV				-0.251				
				(-0.11)				
CONNECT*$IVOL_{SH}$					12.705			
					(2.22)			
CONNECT*AMIHUD						-11.305		
						(-0.73)		
CONNECT*TURNOVER							-26.813	
							(-0.67)	
CONNECT*$BETA_{HK}$								-0.749
								(-0.29)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R2	0.067	0.068	0.067	0.067	0.074	0.067	0.067	0.067
Obs.	826	826	826	826	826	826	826	826

Panel B. Change of Turnover

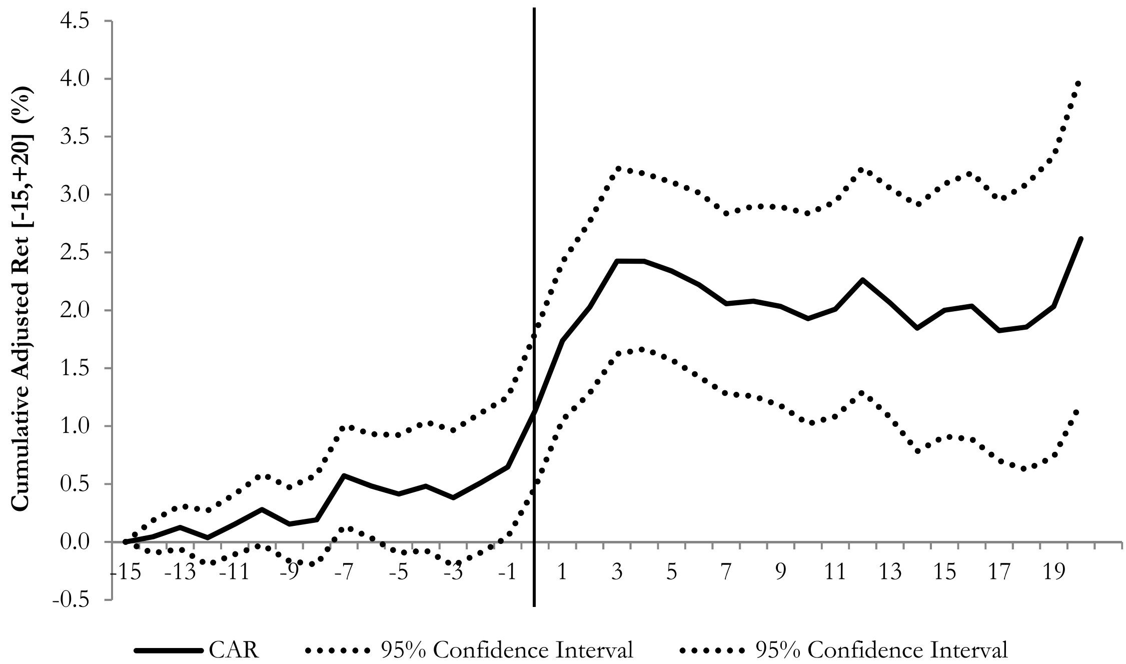
	ΔTURNOVER(0,10)							
CONNECT	-1.617	-0.321	-0.345	-0.285	-0.534	-0.254	-0.378	-0.399
	(-1.92)	(-1.65)	(-1.71)	(-1.46)	(-2.50)	(-1.36)	(-2.03)	(-2.12)
CONNECT*$BETA_{SH}$	0.402	0.373	0.376	0.360	0.318	0.351	0.379	0.502
	(2.74)	(2.56)	(2.53)	(2.47)	(2.12)	(2.44)	(2.41)	(2.54)
CONNECT*SIZE	0.076							
	(1.51)							
CONNECT*BM		-0.071						
		(-0.72)						
CONNECT*ROA			-0.495					
			(-0.55)					
CONNECT*LEV				-0.330				
				(-1.23)				
CONNECT*$IVOL_{SH}$					0.773			
					(1.57)			
CONNECT*AMIHUD						-2.660		
						(-1.64)		
CONNECT*TURNOVER							(0.34)	
							(0.08)	
CONNECT*$BETA_{HK}$								-0.259
								(-0.90)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R2	0.118	0.116	0.116	0.118	0.118	0.119	0.116	0.117
Obs.	826	826	826	826	826	826	826	826

Panel C. Change of Volatility

	ΔVOLATILITY(0,10)							
CONNECT	-0.871	-0.150	-0.152	-0.179	-0.262	-0.096	-0.169	-0.182
	(-1.68)	(-1.36)	(-1.37)	(-1.62)	(-2.23)	(-0.88)	(-1.63)	(-1.78)
CONNECT*$BETA_{SH}$	0.187	0.172	0.171	0.178	0.137	0.156	0.164	0.245
	(2.19)	(2.03)	(2.01)	(2.09)	(1.77)	(1.85)	(1.78)	(2.32)
CONNECT*SIZE	0.043							
	(1.40)							
CONNECT*BM		-0.026						
		(-0.49)						
CONNECT*ROA			-0.282					
			(-0.59)					
CONNECT*LEV				0.029				
				(0.20)				
CONNECT*$IVOL_{SH}$					0.454			
					(1.63)			
CONNECT*AMIHUD						-1.604		
						(-1.93)		
CONNECT*TURNOVER							(0.77)	
							(0.33)	
CONNECT*$BETA_{HK}$								-0.151
								(-0.89)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R2	0.098	0.096	0.097	0.096	0.099	0.100	0.096	0.097
Obs.	826	826	826	826	826	826	826	826

Fig I. Difference of Cumulative Abnormal Returns between Connected and Propensity-Score-Matched Unconnected Stocks Around the Announcement of Shanghai-Hong Kong Stock Connect Program

This figure plots the difference of cumulative abnormal returns based on the market model (CAR_{mkt}, %) between connected and matched unconnected stocks in the (-15,20) window around the announcement of Shanghai-Hong Kong stock connect program. The 95% confidence intervals are also plotted. A vertical bar is placed for day 0.



Appendix Definition of Variables

SIZE	Natural logarithm of the market capitalization as of October, 2014 (in thousand yuan).
BM	Book-to-market equity ratio in the most recent fiscal year end, defined as the book value of equity divided by the market value of equity
ROA	Return-on-Assets in the most recent fiscal year end, defined as net income divided by total assets.
LEV	Leverage in the most recent fiscal year end, defined as the sum of short-term debt and long-term debt divided by total assets.
$\mathbf{BETA_{SH}}$	Shanghai market beta, which is estimated from a market model using the return of Shanghai composite index as the market return. The model is estimated on a daily frequency over the past 12 months.
TVOL	Total volatility, defined as (annualized) standard deviation of daily stock returns in the past 12 months.
$\mathbf{IVOL_{SH}}$	Idiosyncratic volatility, defined as (annualized) standard deviation of the daily return residual from a Shanghai market model in the past 12 months.
$\mathbf{BETA_{HK}}$	Hong Kong Market Beta, which is estimated from a market model using the return of Hang Seng index as the market return. The model is estimated on a daily frequency over the past 12 months.
TURNOVER	Average daily turnover over the past 12 months. Turnover is defined as trading volume (in shares) divided by total free-float shares outstanding.
AMIHUD	Amihud illiquidity measure calculated from daily return and trading volume in the past 12 months.
$\mathbf{RET_{\{-1,0\}}}$	Stock return in month $t-1$.