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THE IMPACT OF SHANGHAI-HONG KONG STOCK CONNECT POLICY ON PRICE DIFFERENCE AND ANNOUNCEMENT EFFECTS

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ABSTRACT

This paper investigates the impact of "Shanghai-Hong Kong Stock Connect Policy" on price difference and announcement effects of A Shares and H Shares, using daily data from Aug., 2014 to Feb., 2015. Data were obtained from Bloomberg. To be comparable, we collect simultaneous trading data. We find that listed time and SSE 180 sample share variables have a significant effect on price difference. The price difference after Shanghai-Hong Kong Stock Connect Policy is bigger than the price difference before Shanghai-Hong Kong Stock Connect Policy. Moreover, we find that implementation of the Shanghai-Hong Kong Stock Connect Policy has announcement effects.

JEL: G14, G34

KEYWORDS: Price Difference, Announcement Effects, Shanghai-Hong Kong Stock Connect Policy

INTRODUCTION

Foerster and Karolyi (1999) test the Merton's cognitive hypothesis of investors by a model of stock proceeds, which shows that cross-listing can alter market risks and increase the base of shareholders. With the trends of internationalization, many enterprises take advantage of multiple channels to finance. This not only promotes the awareness of overseas enterprises, but also decreases the influence of many uncertain factors on capital cost. Through the progressively opening transcend range, investors around the world can overcome investment obstacles and participate in different investment areas and opportunities successfully.

Cross-listing is a vital channel for all companies to finance around the world. However, the cross-listing of China firms started relatively later. On July 15, 1993, the Tsingtao Brewery Co. was listed in Hong Kong, and listed in Shanghai Stock Exchange (SSE) on Aug., 27, 1993. Hong Kong is the first choice for China companies to list (Friends of the Accounting, 2011). The similarity between cultures and concepts between China and Hong Kong facilitate this popularity. Investors can easily understand and contact with each other. Besides, Hong Kong returned to China in 1997. It was also a peak for China companies to being listed in Hong Kong. In the 21st century, the time required for China companies to list in Hong Kong became be shorter. A shares and H shares became the main forms for China cross-listing. Chen (2005) analyzes 16 companies listed simultaneously in China and Hong Kong with the integration model and Granger causality. He finds that when Hong Kong investors could directly invest in the A share market, the resulting liquidity has a significant effect on the stock price.

To strengthen the exchange relationship and contact between China and Hong Kong capital markets, and construct two-way open policy, the governments of China and Hong Kong carry out the policy Shanghai-Hong Kong Stock Connect Policy (SHKSCP). SHKSCP is a cross-boundary investment channel that connects the Hong Kong Stock Exchange and the Shanghai Stock Exchange. Under the program, investors in each market are able to trade shares on the other market using their local brokers and clearing houses. The capital flow policy becomes two-way instead of one-way, and the range has been enlarged between China and Hong Kong. This process can resolve hidden issues of transitional systems such as depository

receipts, Cross-Border Investment Scheme, Qualified Foreign Institutional Investors (QFII) and Ren Min Bi Qualified Foreign Institutional Investors (RQFII). SHKSCP facilitates cross-country trading and addresses restrictions and regulations for foreign investors to enter stock market such as currency and region of a country.

In order to achieve inter-connectivity, investors from two countries can directly buy or sell the listed stocks authorized from the other market. The implementation of SHKSCP should have positive effects on China and Hong Kong stock markets. First, since the prices of A shares and H shares are not the same, the discount and premium level between two markets could change. Second, Hong Kong investors can trade with their original stock account without restriction of investing limitation and threshold. However, with the system of market inter-connectivity, capital mobility is more flexibility. It can further promote the two-way development of China and Hong Kong stock markets. It can help obtain more attention from international investors thereby raising China and Hong Kong stock market's competitiveness. The purposes of this paper are as follow. First, we investigate the changes of the discount or premium level of companies which are listed both in China and Hong Kong stock markets after SHKSCP. Second, we explore the announcement effect of SHKSCP on the prices of individual shares. The remainder of this paper is organized as follows. In literature review section, we present the related literature. Data and methodology section describes the data and defines the variables. In the results and discussion section, we show the regression results and discussions.   The conclusion section provides some closing comments.

LITERATURE REVIEW

Cross-listing can solve the investor cognitive hypothesis by Merton (1987). He argued investors will invest in the individual shares they are familiar with due to the difference of information they receive. Testing Merton's investor cognitive hypothesis, Foerster and Karolyi (1999) show that cross-listing can change market risks and increase the base of shareholders. Levine and Schmukler (2003) find that cross-listing can raise international liquidity but harm the liquidity of domestic stocks. Wu (2010) discusses the volatility and liquidity of share prices after cross-listing and finds when H shares are cross-listed to A shares, its effect of volatility and information asymmetry reduce. Huang et al. (2011) reveal that transparency degree of information has significant effects on the returns of individual stock depending upon whether the company is cross-listed.

Price differences result from a lack of market circulation of both sides. Chen (2005) finds that when investors in Hong Kong could directly invest in the A share market, liquidity risk was more violent than before reform.   Moreover, the liquidity has a significant effect on the stock price. Yan and Greco (2006) conclude that different prices on China and Hong Kong stock markets result from different risk premiums. Chen (2008) argues that China and Hong Kong stock markets have hidden problems of discounts and premiums because of market segmentation. With an increasing opening range of markets, the discount or premium level of China and Hong Kong stock markets will decrease. Yuan (2009) shows that relative liquidity, relative stock supply, information asymmetry and exchange rate changes have significant influence on the price difference of China and Hong Kong stock market.   Announcement effects are the phenomenon that future share price performance and trading volume changes as current important economic events happen. Fama et al. (1969) argued the event study is an important way of studying the effect of economic events on a company's value. Lu (2009) observes the abnormal reactions before and after the event date and finds that regardless of what kind of event occurs, most cumulative abnormal returns of the ten days before event date are significantly not equal to zero. Most abnormal returns and those in the event date have the same direction.

DATA AND METHODOLOGY

This paper selects 85 companies that were listed simultaneously in China and Hong Kong as a sample. To explore differences of the performance of enterprises listed simultaneously in China and Hong Kong before and after the announcement of SHKCP, the study period was set from Aug., 2014 to Feb., 2015. We sampled from the daily closing price of individual shares, trading volume and data of enterprises listed

simultaneously in China and Hong Kong. Totally, we have 134 days during this period so that we have 11,390 daily data points. To be more comparability, we convert Shanghai and Hong Kong's stock price to the Hong Kong currency. The price difference is calculated as follows:

$$\frac{P_{Shanghai}(HKD/RMB) - P_{Hong\ Kong}}{P_{Hong\ Kong}}. \qquad (1)$$

where $P_{Shanghai}$ is the closing price of A share, $P_{Hong\ Kong}$ is the closing price of H share and HKD/RMB is the exchange ratio.

The price on Shanghai and Hong Kong exchanges are the closing price of the same day and the exchange ratio is for the same day of Taiwan Standard Time (TST) at three o'clock p.m. from Bloomberg. The announcement date is November 10, 2014 and the implementation date is November 17, 2014. The daily closing price and trading volumes of individual shares are from Hong Kong Yahoo! Daily closing price data are from Bloomberg. If either Chinese or Hong Kong stock markets do not have closing prices on some specific dates, we delete these daily data. To discuss the determinant of price differences, the regression model is used as follow:

$$y_t = \alpha_1 + b_1 X_{1it} + c_1 X_{2it} + d_1 X_{3it} + e_1 X_{4it} + f_1 X_{5it} + \epsilon \qquad (2)$$

Where y_t equals the average price difference; X_1 equals a dummy variable meaning the listed time. If the listing time in Shanghai is earlier than that in Hong Kong, it is 1. Otherwise, it is 0; X_2 is the dummy variable indicating whether it is an overseas listed company. X_3 is the dummy variable meaning whether it is a SSE 180 sample share. X_4 is the dummy variable indicating the specific industrial category. If a firm belongs to financial industry, it is 1. Otherwise, it is 0; X_5 equals the outstanding shares of the company. We adopt the event study to explore whether the SHKCP has an effect on share price. We calculate the sampling companies' cumulative abnormal returns 30 days before and after the announcement date of SHKCP to investigate whether there is the announcement effect. The announcement date is November 10, 2014, which is jointly announced by China Securities Regulatory Commission (CSRC) and Securities & Futures Commissions of Hong Kong (HKSFC). Abnormal returns are calculated by the returns of each company minus the market return over the event period.

$$AR_{it} = R_{it} - R_{mt} \qquad (3)$$

where R_{it} equals the actual returns of the company i in the time t; R_{mt} equals the returns of the weighted index stock in the time t. We use "Hang Seng Index" in Hong-Kong stock market and "SSE Composite Index" in Shanghai stock market. Since Zibart (1985) points out that the AR with standardization is helpful to improve the verification ability, we estimate the cumulative value of each enterprise's stock AR after standardization. CAR is the cumulative value of daily abnormal returns during the specific period as follows:

$$SAR_{it} = \frac{AR_{it}}{\sqrt{Var(AR_{it})}} \qquad (4)$$

$$CAR_i(t_1, t_2) = \sum_{t_1}^{t_2} SAR_{it} \qquad (5)$$

where SAR_{it} is the standardized abnormal returns of company i in time t; $VAR(AR_{it})$ is the abnormal returns variance of company i in time t; $CAR_i(t_1, t_2)$ equals the CAR of of company i in time t. The study uses Brown and Warner (1985)'s t-test to verify whether CAR in the event period is significantly differently from zero, as follows:

$$H_0: \ CAR(t_1, t_2) = 0 \tag{6}$$

$$H_1: \ CAR(t_1, t_2) \neq 0$$

$$t = \frac{\overline{CAR(t_1,t_2)}}{\hat{S}(CAR(t_1,t_2))/\sqrt{N}} \tag{7}$$

RESULTS AND DISCUSSION

Hang Seng China AH Premium Index (HSCAHPI) stands for the premium or discount level while A shares and H shares list in Shanghai and Hong Kong stock market simultaneously. Figure 1 shows the AH premium index appears upward after the implementation of SHKSCP.   All the AH premium index are above 100. It indicates that A share to H share has a premium phenomena after SHKSCP. After the announcement of SHKSCP, Shanghai and Hong Kong stock markets changed drastically. The Shanghai stock market has not lifted the restrictions completely. The premium circumstance between A share and H share exist for a long period but will be within the established interval. In brief, we expect SHKSCP will affect the performance of A share and H share. Whole markets' financial events will have influence on the liquidity of capital as well. This empirical result is similar with Chen (2005), who shows the policy announcement will affect liquidity, and liquidity has significant influence on price differences.

Figure 1: Hang Seng China AH Premium Index (2015)
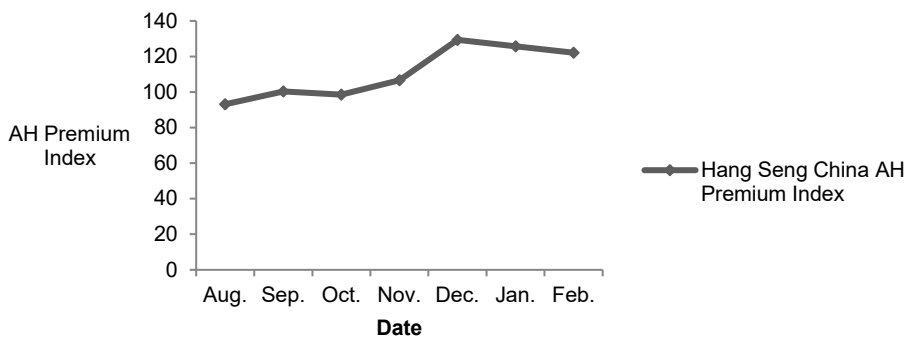
This figure indicates the Hang Seng China AH premium index. The period is from August, 2014 to February, 2015 which is the same with our sampling period. An AH premium index above 100 implies that A share to H share has premium circumstance.

Table 1 presents the descriptive statistics of the variables. It shows the mean of price difference after SHKSCP is larger than that before SHKSCP, which is consistent with the result that the AH premium index increases after SHKSCP. The mean and median values are above 0. This indicates that before or after SHKSCP, both indicate a premium phenomenon. The price difference is similar with Chen (2008), which argues that Shanghai and Hong Kong stock markets hide the problem of the price difference because of market segmentation. Moreover, it is similar with Gregory and Hansen (1996), which shows the range of price difference between Shanghai and Hong Kong stock markets will be smaller along with the increasing market opening extent. The mean listing time equals 26.74%. It indicates that the percentage whose listing time in Hong Kong is earlier is about three times than that in Shanghai. The mean of the overseas listed company variable is 80.23%. It shows that a majority of the sample firms are overseas listed. X_3, a dummy variable represents SSE 180 sample share. All of SSE 180 sample shares are typical sampling stocks in the stock market. The market value, scale and liquidity of the sampling companies in SSE 180 sample shares are higher than other companies in the same industry. As a result, we take SSE 180 sample share as our one of variables. The mean of SSE 180 sample share is 50%. X_4 is a dummy variable representing Specific industrial category. There are 15 companies (about 17.44%) in the financial industry in our sample. We apply the financial industry as our basis of classification since the capital will enter in financial industry,

whose EPS is less than that in other industries before SHKSCP. X_5 is the Outstanding shares variable. We argue that the more outstanding shares, the more liquidity of the stock. This phenomenon will affect the change of stock price. The mean of outstanding shares is 25,929.99 million.

Table 1: Summary Statistics

	Mean	Median	S.D.	Max.	Min.
Price difference number before implementation	30.68%	23.74%	0.439	205.13%	-19.80%
Price difference number after implementation	72.71%	57.34%	0.661	337.67%	-9.81%
Listed time	26.74%	0	0.443	1	0
Overseas listed company	80.23%	1	0.398	1	0
SSE 180 sample share	50%	0.5	0.5	1	0
Specific industrial category	17.44%	0	0.379	1	0
Outstanding shares(million)	25,929.99	5,649.65	66,174.197	351,406	277.66

This table summarizes descriptive statistic of the main variables. "Average price difference" is the ratio of the difference between the closing price of A share and the closing price of H share to the closing price of H share If the listing time in Shanghai is earlier than Hong Kong, Listed time is 1, otherwise 0. If the company is overseas listed company, Overseas listed company is 1, otherwise 0. If the company is included in SSE 180 sample share, SSE 180 sample share is 1, otherwise 0. If the company is financial industry, Specific industrial category is 1, otherwise 0. The unit of Outstanding shares is in millions.

Table 2 represents the coefficient of listed time variable is significantly negative before (after) the implementation of SHKSCP at the 1% (5%) level. This implies that when the company is listed in the Shanghai market earlier than in Hong Kong, the premium range is smaller. Currency circulation between Shanghai and Hong Kong is more unrestricted after SHKSCP and capital can be more mutually invested. Therefore, the listed time variable is not significant after SHKSCP. The coefficients of SSE 180 sample share variable are negative and significant before and after SHKSCP at the 1% level. Moreover, overseas listed company, specific industrial category and outstanding shares variables are not significant.

Table 2: Analysis of the Factor of Price Difference

	Price Difference Number Before Implementation	Price Difference Number After Implementation
Intercept	0.646***	1.083***
	(0)	(0)
Listed time	-0.272***	-0.32967**
	(0.008)	(0.029)
Overseas listed company	-0.108	-0.023
	(0.381)	(0.898)
SSE 180 sample share	-0.425***	-0.288***
	(0.008)	(0.008)
Specific industrial category	-0.086	-0.180
	(0.242)	(0.371)
Outstanding shares	-0.085	-1.040
	(0.242)	(0.329)
Adjusted R-squared	0.295	0.254

This table provides and analysis of factor price differences. Dependent variable is Average price difference. There are five independent variables. If the listing time in Shanghai is earlier than Hong Kong, Listed time is 1, otherwise 0. If the company is overseas listed company, Overseas listed company is 1, otherwise 0. If the company is included in SSE 180 sample share, SSE 180 sample share is 1, otherwise 0. If the company is financial industry, Specific industrial category is 1, otherwise 0. The unit of Outstanding shares is million. *, **, *** indicate significance at the 10, 5 and 1 percent levels respectively.

Tables 3 shows that except the period (-30, -10), all cumulative abnormal returns are significantly positive. Specifically, the cumulative abnormal returns of sample stocks in the Hong Kong stock market are larger than those in the Shanghai stock market. The reason might be that the stock price of Hong Kong stock market is cheaper than the stock price of Shanghai stock market before SHKSCP. Therefore, the announcement effect in the Hong Kong stock market is larger than the Shanghai stock market. Moreover, the influence of SHKSCP on stock prices has happened before SHKSCP. This empirical result is similar with Lu (2009), which mentions that no matter what the specific event is, cumulative abnormal returns 10 days before the event date are significantly different from zero.

Table 3: Abnormal Returns and Cumulative Abnormal Returns in Shanghai Stock Market and Hong Kong Stock Market of a Share and H Share Round the Announcement Date of SHKSCP

Event window	Hong Kong		Shanghai	
	AR	CAR	AR	CAR
(-30,-20)	0.011	0.161**	0.009	0.008*
	(0.140)	(0.003)	(0.22)	(0.085)
(-30,-10)	-0.009	0.143	0.028***	0.027***
	(0.212)	(0.268)	(0.008)	(0.006)
(-30,0)	0.078***	0.533***	0.017**	0.016*
	(0.007)	(0.005)	(0.025)	(0.098)
(0,10)	-0.026**	0.519***	0.018***	0.252**
	(0.013)	(0.001)	(0.002)	(0.021)
(0,20)	0.008***	1.122***	0.034	0.566***
	(0.005)	(0)	(0.357)	(0.009)
(0,30)	0.009**	2.040***	0.054	1.303**
	(0.059)	(0.001)	(0.119)	(0.007)

*This table presents the empirical results of the abnormal returns (AR) and cumulative abnormal returns (CAR) in Shanghai and Hong Kong stock markets of A share and H share. The time series is from prior 30 days to the announcement date of Shanghai-Hong Kong Stock Connect Policy to the announcement date of SHKSCP. *, **, *** indicate significance at the 10, 5 and 1 percent levels respectively.*

CONCLUDING COMMENTS

In this paper, we investigate the related issues of Shanghai A share and Hong Kong H share around the implementation of SHKSCP. Investigating the price difference and running regression models to examine the factor of price difference, we find that both listed time and SSE 180 sample share variables reveal premium phenomena. Due to the highly premium circumstance of H share, the price differences between A share and H share becomes larger after the implementation of SHKSCP. Moreover, almost all cumulative abnormal returns are significantly positive. At the 10% significant level, there are cumulative abnormal returns in Shanghai and Hong Kong, which implies there exists an announcement effect before and after the 5 days of the announcement date of SHKSCP.

This paper has the following limitations. The sample period is relatively short possible resulting in a lack of confidence in the results. In SHKSCP, the number of investable stocks in A share is 568 and the investable stocks in H share is 266. To investigate cross listing, our sampling companies are defined as listed in the Shanghai stock market and Hong Kong stock market simultaneously. As a result, the number of sampling companies falls to 85. The small sample size might lead to a lack of confidence. Future researchers might lengthen the sample period. Moreover, since stock prices are influenced by many factors, future researchers can use the matching method to do a robustness check. Lastly, the Taiwan stock market is also affected by SHKSCP. Only professional investors in Taiwan can buy the stocks of SHKSCP. The professional investors' tax is very high for investing in Taiwan stock. To decrease tax expense, professional investors in Taiwan might turn to other investments. Further researchers could explore the impact of SHKSCP on the Taiwan stock market.

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