Responses of ASEAN-5 to China Stock Market Reforms¹

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Abstract

China's influence on the financial sector of ASEAN has been more significant as a result of the recent strengthening of China's monetary and exchange rate policies, its growing financial sector, as well as the fast expansion of its corporate and financial investment around the world. This paper analyses the influence of the China stock market on its ASEAN counterparts over the period of 2002-2015. The extent of ASEAN stock market responses to three major stock market trading reforms in China are examined. These reforms include the liberalization of the A-shares to Qualified Foreign Institutional Investors (QFII reform) starting from 5th November 2002, the split share structure reform starting from 29th April 2005, and the lifting of short sale constraints and margin-trading starting from 21st March 2010. Data on 2,166 public listed firms in Indonesia, Malaysia, the Philippines, Singapore and Thailand are used to investigate if their responses, normalized to the responses of listed firms in China, are economically significant and have amplified over time with the increased influence of China's economy in the global market. Evidence shows that firms from Indonesia, Malaysia and Singapore have significant and increased relative responses to these reforms in the China market. The increase is particularly drastic in response to the short-sale reform in 2010. Listed firms from the Philippines and Thailand did not exhibit similar responses. The result is consistent with the development of bilateral trade ties between China and these ASEAN countries.

Keywords: ASEAN, China, market reform, stock market

1. Introduction

Over the two decades in the 1980s and 1990s, the ASEAN economy has been driven by its export oriented policy. The major trading partners of its member

countries were centered in the Western hemisphere, particularly the US and EU, as well as Japan. At the same time, the stock markets of the member countries of ASEAN have undergone rapid development since the opening up of its economy in the late 1980s. Spillover from the real sector to the financial sector has also taken place. Influences from the US and Japan stock markets have long dominated the trading sentiments of ASEAN investors. Starting from the new millennium, however, the Chinese economy has started to partake in a bigger share of ASEAN's trade and emerged to become one of the top five trading partners of ASEAN. The introduction of the China-ASEAN Free Trade Area (CAFTA) on 1st January 2010 has contributed to China's increased share in trade with ASEAN. In 2013, ASEAN accounted for 10.7 per cent of China's total trade, and China was the largest individual trading partner, sharing 14 per cent of trade with ASEAN (Salidianova, Koch-Weser and Klanderman, 2015). Although China's share of foreign direct investments into ASEAN stood at a low 2.3 per cent in 2013, the amount has increased from just over USD300 billion in 2003 to over USD1.5 trillion (Salidjanova, et al., 2015). While these earlier developments have been taking place in China's real economy, the increasing heft of its financial markets as well as the rising and fast expansion of China's corporate and financial investments in ASEAN is expected to make significant headways into and therefore impact the ASEAN financial sector, in particular the stock markets of its member countries.

The growing importance of China in the global stage has led to a proliferation of research to investigate the impact China has on the economy of other countries. Of particular interest is the transmission of information on China to the international financial markets, especially those of the neighbouring countries. A recent example is Huang and Kuo (2015) who investigated the transmission of information from Mainland China to Taiwan and Hong Kong stock markets, focussing on volatility spillover specifically. Through an analysis of the trilateral relationship between these three economies, Huang and Kuo (2015) found evidence that the spillover effects flowed from Mainland China to Taiwan and Hong Kong, thus supporting the international center hypothesis that Mainland China played the leading role as a big player in the global markets. However, although significant, the crossmarket influence was found to be small compared to the influence from the domestic market. Another recent study (Shu, He, Wang, & Dong, 2015, p. 179) concluded that China's influence on Asian stock markets has risen to a level comparable with that of the US although the latter had a stronger impact in times of stress. Arslanalp, Helbling, Lee and Mathai (2016) also noted some countries like Singapore have both direct links with China and indirect links through Hong Kong. Of more direct relevance for our study is that by Chien, Lee, Hu and Hu (2015) which used cointegration techniques to link China and the ASEAN-5 stock markets and came to the conclusion that these markets are becoming more integrated. While this conclusion complements similar findings with respect to Chinese foreign direct investment in ASEAN-5 (Li, Scollay, & Maani, 2016), neither study explored specific developments or events that might have contributed to greater integration.

These recent evidence stood in sharp contrast to older studies by Chakravarty, Sarkar and Wu (1998), and Lin and Wu (2003) that did not find any significant links among the three markets. The three stock markets did not exhibit any long-run relationship, although short-run spillovers were reported by Johansson and Ljungwall (2009). The explanation likely lies in the much less developed Chinese markets when these earlier studies were undertaken.

Beyond the Asia-Pacific, recent evidence also suggests that the China market has a stronger link with global markets than earlier reported, especially after its accession to the WTO in 2001 that also led to substantial measures being taken to liberalize its financial sector. He, Chen, Yao and Ou (2014, 2015) devised an index that measures the impact of China's financial liberalization on its linkages with other markets in the world. Interdependence between China and other markets has been enhanced as a result of the country's financial liberalization. Stock market linkages were reported between China and other major players including Korea, Japan and US by Li (2012). Li (2012) attributed his finding of increased linkages between China and the other major global players to the reforms undertaken by the China government to liberalize its stock exchange. Li's conclusion (p. 368) that implementation of "the reform policies on the stock exchanges stage by stage under government direction is compatible with the approach of gradual liberalisation of China's economy" provides the basis to suggest that the stronger economic integration between China and ASEAN through increased trade flows could be occurring alongside with higher dependence in the financial sectors, including the stock exchanges. The evidence documented in Vithessonthi and Kumarasinghe (2016) showed that China's stock exchanges were increasingly integrated with the world market, particularly after 2006, when, under China's WTO undertaking, foreign banks were allowed to operate in China for the first time. Allen, Amran and McAleer (2013) argued that such relationships with other markets may not remain constant, especially during crisis such as the global financial crisis that changed the flow of information transmission which may have led to different patterns in volatility spillovers. These relationships will also change as China liberalizes further its financial markets, as its markets grow in size, and as the RMB internationalizes further.

The growing importance of China's stock market in the international financial sector is evident from the brief review above. Studies examining the impact of China's stock market reforms on ASEAN are generally lacking.

Much work remains to be done in examining its impact on the other markets in terms of information transmission. Recent events have made this work more urgent. Together with China's growth deceleration, its stock markets were hit by severe turbulence in the summer of 2015 and again in January, 2016 ("China's stockmarket crashes", 2016). This, together with the economic slowdown, has sparked fears of contagion.

These fears are particularly salient in ASEAN, adversely impacting ASEAN stock markets, directly through fears that the falling market could affect China's already slowing growth, and indirectly through weakening US and other advanced country markets (Hughes, 2016). In view of these developments, this study seeks to focus on information transmission between China and the stock markets of ASEAN countries, specifically the impact of fundamental market reforms in China on ASEAN stock market access to China's stock markets. Arguably, this type of impact is more lasting than those engendered by short-term fluctuations brought about by expectations or news.

The paper is organized as follows. The next section highlights a few events that brought changes to the China stock market, and elaborates on the methodology adopted to study how information related to these events were transmitted and impacted the ASEAN stock exchanges. Results and discussion are presented in Section 3, and Section 4 concludes this study.

2. Methodology and Data

2.1. The Events

We identified three trading reforms in China that were representable as major reforms that influenced capital flow into China, as well as the liquidity and stock market development of the ASEAN countries over the last one and a half decade. These reforms' importance lay in their progressive removal of barriers to entry into China's financial markets for investors, domestic as well as foreign.² The three market reforms are briefly described as follows.

2.1.1. Qualified Foreign Institutional Investors (QFII) Reform

The stocks of China companies can be listed in the A-shares and B-shares markets. A-shares can be traded only by domestic investors who are Chinese citizens living in China. On 5th November 2002, the China Securities Regulatory Commission (CSRC) relaxed this restriction. Select Qualified Foreign Institutional Investors (QFII), which consists of overseas fund management firms, insurance companies, securities companies, and other asset management institutions were allowed to buy and trade on A-shares. Once licensed, the select foreign investors are permitted to invest onshore

in the Chinese stock market, that is the Shanghai Stock Exchange and the Shenzhen Stock Exchange, but they are subject to capital controls governing the movement of assets in-and-out of the country.

2.1.2. Split-share Reform

Prior to 2005, A-shares were divided into tradable and non-tradable shares, and the non-tradable shares were about two thirds of the total number of outstanding shares. On 29th April 2005, the CSRC announced a pilot programme to transform non-tradable shares into tradable shares. Two pilot batches and 66 regular batches went through this transformation from 2005 to 2007. The reform obliged the holders of non-tradable shares to compensate the holders of tradable shares for the possibility to sell their shares in the future. This reform is regarded as value-enhancing in the long run as it implied the Chinese government's commitment on privatization. The reform is also expected to uplift corporate governance of their listed firms by creating more diffused ownership structure, boosting liquidity and reducing risk premium on non-diversifiable risk.

2.1.3. Short-sale Reform

Prior to 2010, the Chinese stock market imposed strict short-sale constraints. CSRC announced the launch of the first pilot scheme on 21st March 2010 to lift the ban on short-selling and margin-trading for stocks on a designated list, covering 90 constituent stocks of the Shanghai Stock Exchange 50 Index (SSE-50) and the Shenzhen Stock Exchange Component Index (SZSE-40). The list was revised in July 2010 following changes in the composition of SSE-50 and SZSE-40. On 25th November 2011, CSRC gave the green light to short-selling and margin-trading for a total of 190 stocks and 7 Exchange Traded Funds (ETFs). The change took effect as of 5th December 2011.

2.2. The Method (Methodology)

This study examines whether the firms listed in the stock exchanges of ASEAN countries responded to the three major market reforms in China. These reforms that happened at different points of time allow the investigation into whether the responses of the ASEAN markets have changed over time, given the increasing role of China's trade with and investment flow into the ASEAN member countries. Following Faff & Hiller (2005), we employed the dummy variable regression method to study the impact of the identified events on market responses. The standard event study methodology based on market model is not considered. The three events are not firm based announcement,

and they apply to all the firms listed on the exchange. They are regulatory reforms that affect the whole market and all the firms in one way or another, and the impact is expected to affect both the market and firm price movements systematically. In this case, the abnormal return generated from the market model using the event study approach cannot capture the impact of the regulatory reforms on an individual firm because of its co-movements with market changes due to the same reform. A dummy variable approach offers a better way to capture the responses of ASEAN firms to these events. The following firm stock return regression is estimated for all individual firms:

$$R_{ijt} = \alpha + \delta_{ij}^{1}(D_t^{AShare}) + \delta_{ij}^{2}(D_t^{Split}) + \delta_{ij}^{3}(D_t^{ShortSale}) + e_{ijt}$$
 (1)

where R_{ijt} is the stock return of firm-i listed in market-j at time-i, D_t^{AShare} , D_t^{Split} and $D_t^{ShortSale}$ are dummy variables that take a value of one for the period of 10 days prior to 10 days after the event date, and zero otherwise. The announcement date represents the event date of each market reform, i.e., 5th November 2002 for QFII reform, 29th April 2005 for the split-share reform, and 21st March 2010 for the short-sale reform. The error term is denoted as e_{ijt} . The δ^k_{ij} coefficients for k = 1, 2 and 3 provide a measure of the impact of the respective market reforms on firm-i listed in stock exchange-j.

The δ_{ij}^k coefficients for the three events are different in scale. They need to be normalized so that the impacts of the different reforms are comparable. A suitable normalizing factor is the responses of the firms listed in China's stock market to the event. Given that the impact of any policy changes in China will influence the listed firms in China the most, their responses are useful to gauge the scale of the event on stock market trading. By using the response of listed firms in China as the normalizing factor, the responses of firms in the ASEAN stock exchanges can be measured without being biased by the scale of a particular reform in the China market. To obtain the normalizing factor, equation (1) is estimated for the listed firms in the China market. Let j = 1 represent the China market. The estimated firm-level coefficients δ_{i1}^k are measures of the responses of Chinese firms to market

reform-k. These estimates are then averaged to obtain $\delta_1^k = \sum_{i=1}^{n_1} \delta_{i1}^k / n_1$ for

k = 1, 2 and 3 where n_1 is the number of listed firms in the Chinese market. The normalized measure of the impact of market reform-k on firm-i listed in stock exchange-j, denoted by A_{ij}^k , is then given by:

$$A_{ii}^{k} = \delta_{ii}^{k} / \delta_{1}^{k} \tag{2}$$

The normalized coefficients are grouped according to country for each event. The normalized measure of the impact of market reform-k on stock exchange-j is computed as:

$$A_{j}^{k} = \sum_{i=1}^{n_{j}} A_{ij}^{k} / n_{j}$$
 (3)

where n_i is the number of listed firms in stock exchange-j.

2.3. The Data

The sample of this study covers all the public listed companies in the stock exchanges of the five founding members of ASEAN, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand. These are the five biggest economies in ASEAN, both in terms of economy size and development. Their stock markets are more developed compared to others in ASEAN, trading is more active, and the information required for this study are available. The daily closing stock prices over the period 2002 to 2015 are collected. These prices are used to calculate the stock returns. A total of 2,166 firms are included in the sample. The breakdown by country are 325 firms listed in the stock exchange of Indonesia, 803 in Malaysia, 243 in the Philippines, 408 in Singapore and 387 in Thailand.

3. Results and Discussion

Table 1 reports the descriptive statistics for the average normalized coefficients of the individual firms listed in the respective stock markets, or A_j^k . The normalized coefficients measure the average responses of the firms to the three market reforms. An analysis of the distribution of the normalized coefficients suggests that differences exist across the three events as well as by countries. The standard deviation shows that the variation of the normalized coefficients is the largest for the most recent short-sale reform, followed by the QFII reform, and lastly the split-share reform. This pattern is consistently observed for all the ASEAN countries. The listed firms in Indonesia have the largest variation (2.41) in normalized coefficients for the QFII reform. The split-share reform elicited the largest variation in firm response (0.79) from firms in the Philippines. Malaysia's listed firms display the largest variation (5.03) of firm normalized coefficients for the short-sale reform.

The listed firms in Malaysia and Singapore did not respond significantly to the QFII reform in 2002. The listed firms in the Philippines and Thailand responded significantly to the short-sale reform in 2010. However, all countries taken together, the three average normalized coefficients of the firms (Total) show that the firms in ASEAN have significant responses to market reform in China. More importantly, the responses are bigger in magnitudes to market reforms that are more recent. The recentness of the reform explains

Table 1 Descriptive Statistics of the Normalized Coefficients by Country³

Country		Indonesia	ia	2	Malaysia	_	Pŀ	Philippines	Se	S	Singapore	စ		Thailand			Total	
Event	AShare	Split	Short- sale	AShare Split Short- AShare sale	Split	Short-	Short- AShare sale	Split	Short- sale	Short- AShare sale	Split	Short- sale	Short- AShare sale	Split	Short- sale	Short- AShare sale	Split	Short- sale
Mean	0.26*	0.38*	0.26* 0.38*** 0.93*** 0.08 (0.06) (0.00) (0.00) (0.29)	** 0.08 (0.29)	0.32***	** 2.23*** (0.00)	0.32*** 2.23*** 0.51*** 0.48*** 0.45 (0.00) (0.00) (0.00) (0.15)	0.48**	* 0.45 (0.15)	0.22***	0.19**	* 1.66** (0.00)	* 2.23*** 0.51*** 0.48*** 0.45 0.22*** 0.19*** 1.66*** -0.20** (0.00) (0.00) (0.00) (0.15) (0.00) (0.00) (0.00)		0.19*** 0.16 (0.00) (0.37)	0.13***	0.30***	* 1.36*** (0.00)
Standard deviation	2.41	0.75	4.59	2.08	0.77	5.03	2.32	0.79	4.85	1.49	0.65	3.47	1.51	0.57	3.49	1.98	0.72	4.50
Maximum	14.75	2.57	2.57 41.58	40.05	7.62	33.51	9.97	3.09	39.28	12.72	6.04	18.91	6.17	3.31	31.87	40.05	7.62	41.58
Minimum	-9.42	-5.66	-5.66 -26.99	-9.34	-3.62	-37.56	-8.95	-2.72	-14.12	-5.43	-2.39	-10.59	-10.35	-4.02	-13.97	-10.35	-5.66	-37.56
Range	24.17	8.23	68.57	49.38	11.25	71.07	18.91	5.81	53.40	18.16	8.43	29.49	16.52	7.33	45.84	50.39	13.28	79.14
p25	-0.39	0.01	-0.47	-0.45	-0.03	-0.03	-0.04	0.01	-1.21	-0.28	-0.06	-0.09	-0.70	-0.02	-1.23	-0.43	-0.01	-0.33
p50	90.0	0.27	0.00	0.02	0.17	1.01	0.10	0.18	-0.14	90.0	0.05	0.65	-0.01	0.13	-0.15	0.05	0.15	0.29
p75	0.83	0.75	1.59	0.54	0.52	3.36	0.70	0.84	98.0	0.72	0.36	2.84	0.30	0.44	0.75	0.59	0.53	2.41
No. of firms	325	325	325	803	803	803	243	243	243	408	408	408	387	387	387	2,166	2,166	2,166
Note: Eigenree in norentheese are 4	1 2000	nthococ	4 644 640	resolves * ** and in the statistical contribution of the 10, 50, and 100, large accordance of	**	***	to otocit.	1:04:00	J		, 01	,67	1,001					

Note: Figures in parentheses are the p-values. *, ** and *** indicate statistical significance at the 1%, 5% and 10% levels respectively.

partly the smaller event coefficients for the split share and QFII reforms that are all less than 0.5, compared to those for the short-sale reform. This finding is consistent with the fact that prior to 2005, the influence of China's market on ASEAN countries has been low, despite the increasing trade flows with ASEAN. The capital markets in the region were still primarily driven by the influence of the US market. It is also argued that with the growth of China's stock markets, its impact on ASEAN would have increased both directly and indirectly through its greater impact on the US and other markets in more recent years. The findings of a larger impact of the short-sale reform, could also reflect the possibility of speculators taking position in response to increased opportunities for speculation, of which are less possible with the other two reforms.

The country results, however, display slightly different patterns, in particular for the Philippines and Thailand. For easy comparison, the event coefficients are plotted in Figure 1. The coefficients are on the increase for three of the ASEAN countries, but not for the Philippines and Thailand. For the listed firms in Indonesia, Malaysia and Singapore, the responses are larger for more recent market reforms. Firms in Malaysia obviously have the biggest responses to the most recent event. Its average normalized coefficient is above 2 for the response to the changes in regulation on short selling. This is followed by Singapore firms, with an average coefficient value slightly above 1.5. The magnitude of response of Indonesian firms to the reform on short selling is close to 1. Prior to that, the average coefficients for Malaysian and Singapore firms are well below 0.5 for the first two market reforms in China, even lower than the Indonesian firms. This is probably due to the

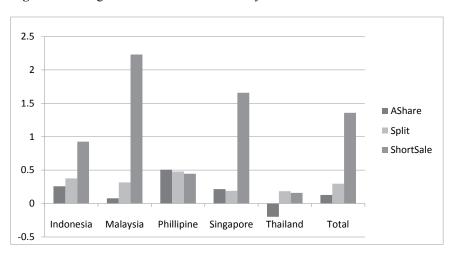


Figure 1 Average Normalized Coefficients by Countries

relatively fast increasing bilateral trade and investment flow between China with Malaysia and Singapore over the last one decade, which led to higher stock market sensitivity with respect to market changes in China.

This pattern could be explained in the context of trade statistics. The trade statistics released by the World Bank suggested that China has become the largest trade partner of Malaysia since 2009, which overtook trade with Singapore and the US. For Indonesia and Thailand, China only replaced Japan to become their largest trading partners after 2013. Similarly for Singapore, China has become its largest trading partner after 2013 replacing Malaysia. However, the largest trade partner for the Philippines has always been Japan, while China emerged as their third largest trading partner in 2011, after Japan and the US. In short, the results reflected that the three countries with increased trade ties with China also exhibit higher market sensitivity to China market reform announcements. It seems plausible to conjecture that the responses of stock markets in ASEAN countries to China events are driven by trade linkages with China. This represents an important link between China's financial sector – its stock markets – and the real economies of ASEAN.

4. Conclusion

This study employs the dummy variable regression approach to estimate the changes in returns in the five biggest stock exchanges in ASEAN as a measure of their responses to three major market reforms in China. The evidence suggests that reforms in the Chinese market have significantly influenced the returns of stock exchanges in Indonesia, Malaysia, the Philippines, Singapore and Thailand. The results clearly show that governance reforms in China's financial markets, while domestically directed, have consequences for the ASEAN stock markets as well. As China continues its reforms, they will continue to impact the latter. The more recent reforms have caused larger responses, particularly from firms listed in the stock markets of Indonesia, Malaysia and Singapore. It is conjectured that these results were closely related to the increasing bilateral trades between these three countries with China. Thus, even as the real sectors between China and ASEAN become more integrated, so also will their financial sectors.

It should finally be noted that the links explored in this study represent just one of several avenues through which the financial sectors of China and ASEAN become increasingly intertwined. Another is Chinese companies listing on ASEAN stock exchanges. Singapore, with 140 Chinese companies listed on the SGX as of September 2015, is the leader in ASEAN, while Malaysia's Bursa Malaysia has 10 (Liu, 2015). With Chinese entities involved in the Belt and Road Initiative, and in infrastructural construction connected

with the Asian Infrastructure Investment Bank, joint ventures with local ASEAN entities represent yet another avenue. A third avenue would likely consist of Chinese multinationals like Huawei establishing subsidiaries in ASEAN countries as part of their localization initiatives.

Overall, then, despite the contagion risks inherent in closer integration, that ASEAN and China have forged and continue to forge links in both the real and financial sectors suggest that the cost of strategic and geopolitical contests between China and ASEAN member countries, exemplified most recently by the South China Sea dispute, will hopefully not be allowed to jeopardize the gains from financial integration.

Notes

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- An earlier version of this paper was presented at the Joint International Seminar 2016 of China-ASEAN Research Institute of Guangxi University and Institute of China Studies, University of Malaya, Nanning, China, 10-11 September 2016.
- These were not the only financial reforms China enacted. For instance, China's
 Qualified Domestic Institutional Investor (QDII) Scheme announced in 2006 was
 a counterpart to the QFII Scheme. However, this scheme did not grant foreign
 investors greater access to Chinese financial markets; rather, it enabled Chinese
 enterprises to invest overseas.
- 3. The figures reported are statistics for the average normalized coefficients, A_j^k . The t-test is used for assessing the statistical significance of the coefficients (p-values reported in parentheses). The values p25, p50 and p75 are the 25th,

50th and 75th percentile, respectively. The normalized coefficients are computed from the estimates of the baseline model for each firm: $R_{ijt} = \alpha + \delta^1_{ij}(D_t^{AShare}) + \delta^2_{ij}(D_t^{Split}) + \delta^3_{ij}(D_t^{ShortSale}) + e_{ijt}$, where R_{ijt} is the stock return of the firm, D_t^{AShare} , D_t^{Split} and $D_t^{ShortSale}$ are dummy variables that take a value of one for the period of 10 days prior to 10 days after the event date, and zero otherwise.

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