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# Effects of the open policy on the dependence between the Chinese 'A' stock market and other equity markets: An industry sector perspective

Weiwei Luo<sup>a</sup>, Robert D. Brooks<sup>b,\*</sup>, Param Silvapulle<sup>b</sup>

<sup>a</sup> Department of Planning and Statistics, School of Economics, Xiamen University, Xiamen 361005, PR China

<sup>b</sup> Department of Econometrics and Business Statistics, Monash University, Caulfield Campus, 26 Sir John Monash Drive, Caulfield East, Victoria 3145, Australia

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### ABSTRACT

This paper investigates the effect of the open policy introduced in 2002 to allow foreigners to invest in the Chinese 'A' share market on the Chinese domestic capital market, especially on the dependence between the financial index returns of the 'A' shares and those of some emerging markets, specifically Hong Kong, Singapore, Thailand, Korea and Taiwan as well as the developed markets US, Japan and Australia. The results of nonparametric plots and copula model estimates of these dependence structures provide evidence of weak dependence in these markets before the introduction of the open policy, except for the US and Japan, and the tail dependence is found to be insignificant for all country pairs. These dependence structures are adequately captured by Clayton and normal copula models. On the other hand, in the period 2002–2009, there is significant dependence in all but the Korean market, as indicated by Symmetric Joe–Clayton, Clayton and rotated Gumbel copula models. Further, the significant lower tail dependence of the 'A' shares with other markets was found, except for the US, Japan and Korea, which indicates that the financial sectors returns in these five pair markets move downwards together. These findings have implications for international portfolio diversification and financial market participants.

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\* Corresponding author. Tel.: +61 399031423.

E-mail address: [robert.brooks@buseco.monash.edu.au](mailto:robert.brooks@buseco.monash.edu.au) (R.D. Brooks).

## 1. Introduction

Due to the reforms of the economic system and the open policies introduced in the last two decades, China is experiencing a speedy growth in stock markets and trading activities. The market capitalization of the Shanghai and Shenzhen stock markets has expanded tremendously to 34,000 billion RMB in 2007, while the value in 2005 was only 3000 billion RMB. China's stock market has unique features in the segmentation of the 'A' and 'B' share markets in the way of being open to the outside world: until December 2002, the 'A' share market was restricted to domestic investors only, while the 'B' share market was traded only by foreign investors until February 2001. The apparent segmentation in 'A' and 'B' shares markets is established to protect domestic financial stability. However, since 2002, some important stock market liberalization policies are implemented in mainland China according to the commitment of being a member in the WTO. Foreign investors have been allowed to invest in the 'A' shares, which was exclusively available for domestic investors previously. There are two main policies to allow foreign investors to invest in the 'A' shares.

The first policy allows foreign investors to buy 'non-traded' shares from domestic companies in the financial industry such as securities companies and fund management companies. There are several regulations announced in 2002. The regulation on setting-up of foreign-shared securities companies and the regulation on establishment of foreign-shared fund management companies were carried out on July 1, 2002. In addition, foreign investors could combine domestic listed companies legally as well after 2002. The policy on acquisition of listed companies was announced in September 2002 and carried out on December 1, 2002.

The second one is the QFII (Qualified Foreign Institution Investment) scheme. It allows QFII to invest in local currency and use the specific accounts investing in the 'A' share markets. The return on the investments, including dividend, capital gain from investments, can be legally exchanged into foreign currency and be repatriated. This scheme was announced on November 7, 2002 and made effective on December 1, 2002. This policy attracts quality foreign institutions to participate into domestic securities markets and introduce concepts of sensible investment which improves the stability of capital markets. Impacted both by the open market policies and globalization of economy, Chinese capital markets are expected to strengthen their association with other capital markets in the world.

The primary objective of this paper is to investigate the dependence between the Chinese 'A' share market and some selected developed and emerging equity markets before and after the open stock markets policy was implemented. Some existing empirical work on China's financial integration has focused on the whole Chinese mainland stock market, which has used the composite index of Shanghai and Shenzhen combining 'A' with 'B' shares, while some other studies separate the two classes of shares and mainly focus on the 'A' shares. Some of these studies are briefly discussed below. In this paper, we will analyse daily returns of financial sectors in the 'A' share market to examine the effect of the open 'A' share market policies on the dependence of the 'A' shares and some emerging and developed markets. Since the Asian financial crisis an extensive body of literature has explored the interrelationships between financial markets, and as such as we focus on the Chinese financial sectors whose development level and linkage with other markets is strongly related to the development of regional financial markets. Thus, we explore China's financial openness policies in the context of the integration of regional financial markets and the dependence of their financial sectors.

Then we employ copula models to capture these dependence structures. It is an essential part of financial research in taking co-movement or dependence of financial markets into account since it is the foundation of portfolio selection. Further, it is helpful for risk management. This is important for two reasons: one is to see if there is an increase in dependence when both market returns are large and negative, diversification fails when needed most. Further, the left tail dependence of stock markets indicates that when one market collapses, the other one happens in unison.

Hatemi-J and Roca (2004) study the interdependence between China, Hong Kong, Singapore and Taiwan over the period January 1993 to September 2001 using the causality test based on Toda and Yamamoto (1995). They utilise the causality test with leveraged adjustments using the bootstrap to get more reliable results, and find that Hong Kong has no influence on other markets in the periods neither before nor after the Asian crisis. They also find a causal influence of the US market on the Chinese market after the Asian crisis. Girardin and Liu (2007) examine the integration of the 'A' shares

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