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Does the law of one price hold better under a flexible exchange rate system?

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ABSTRACT

Using China's recent exchange rate system reform as a special event, we investigate two issues pertinent to the change in the exchange rate system: how the documented price discounts on Chinese foreign shares (B- and H-shares) changed after China shifted to a more flexible exchange rate system; and what potential factors contributed to such changes. We find significant increases in foreign share discounts after the reform and these increases cannot be explained by the changes in stock risk, information asymmetry or market liquidity. Our results provide evidence that investor expectation on long-run RMB appreciation and investor attitude toward exchange rate risk under a more flexible exchange rate system contribute to the observed increases in foreign share discounts following the reform.

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1. Introduction

The law of one price (LOP) implies that if markets are efficient and integrated, identical goods must be sold at the same price after converting to a common currency (e.g., Shapiro, 1983; Abuaf and Jorion, 1990). Deviations from LOP may result from factors such as: a regulated fixed exchange rate system, government restrictions on currency flows and ownership, limited access to information, and/or investor attitude and irrationality (see, e.g., Eun and Janakiramanan, 1986; Alexander et al., 1987; Gultekin et al., 1989). A well-documented case where LOP is violated is the large price discounts of Chinese foreign shares relative to domestic shares. This is despite the fact that the dual-class B- and

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H-shares for foreign investors and the counterpart A-shares mainly for domestic investors are issued by the same firm and identical in all aspects except for share ownership and trading currencies.

Existing studies suggest that the large discounts on Chinese foreign shares are due to three possible factors: (1) information asymmetry between foreign and domestic investors (Chakravarty et al., 1998; Chui and Kwok, 1998; Mok and Hui, 1998; Yang, 2003); (2) different demand elasticity and risk tolerance (Stulz and Wasserfallen, 1995; Sun and Tong, 2000); and (3) different market liquidity (Chen et al., 2001; Wang and Jiang, 2004). The current literature, however, offers little evidence on the effect of a change in the exchange rate system on the price discounts of Chinese foreign shares.

This paper contributes to the empirical literature by examining two issues associated with the relationship between the exchange rate system and stock market valuation in China. First, how the documented price discounts of Chinese B- and H-shares relative to their counterpart domestic A-shares change as a reaction to the exchange rate system reform in July 2005, and second, what potential factors contribute to such changes.

Understanding these issues is crucial since exchange rate regimes in emerging markets have been a primary concern of financial economists and policy makers. Further, exchange rate system control is one of the most important components of political risk and has significant effects on capital movement and stock returns (Howell and Chaddick, 1994; Frankel and Wei, 2007). To the extent that there are no significant changes in ownership restrictions and other government regulations on capital flows concurrent with the Chinese exchange rate system reform in July 2005, the reform offers a unique opportunity to pinpoint the effect of a change in an exchange rate system on the pricing difference in the Chinese stock markets.

To investigate these issues, we propose and test three potential effects associated with the exchange rate regime change: the exchange rate control effect, the exchange rate transmission effect, and the investor expectation and attitude effect. According to Gultekin et al. (1989) and Mahajan and Furtado (1996), LOP holds better under a market-determined floating exchange rate system than under a regulated fixed exchange rate system. Thus, if the *exchange rate control effect* plays a role in the price discounts of B- and H-shares, we would expect that the foreign share discounts would decline or even disappear after China switched to the more flexible exchange rate system in July 2005. According to Eun and Jang (1997), the exchange rate transmission effect plays a role of maintaining price "parity". If the *exchange rate transmission effect* holds, we would expect that the 2.1% appreciation of the Chinese currency (reminbi, hereafter RMB) against the U.S. dollar (USD) in 2005, associated with the Chinese exchange rate system reform, would lead to a similar increase in B- and H-share stock prices (i.e., a *decrease* in price discounts) since B- and H-shares are traded in either USD or Hong Kong dollar (HKD). The *investor expectation and attitude effect* suggests that B- and H-share investors would expect further appreciations of the RMB against other currencies and require a higher risk-premium under a more flexible exchange rate system, resulting in an increase in the documented price discounts of foreign shares.

Employing 85 dual-class A- and B-shares and 30 dual-class A- and H-shares listed on the Shanghai Stock Exchange (SHSE), the Shenzhen Stock Exchange (SZSE), and the Stock exchange of Hong Kong (SEHK) around the exchange rate system reform in July 2005, we find that both B- and H-shares are traded at large price discounts both before and after the reform. This is consistent with the results of previous studies (Ma, 1996; Chakravarty et al., 1998; Chen et al., 2001; Wang and Jiang, 2004). More importantly, however, results from univariate tests show that the price discounts of foreign shares increase significantly after the adoption of the more flexible exchange rate system. These results reject the exchange rate control and exchange rate transmission effects but support the investor expectation and attitude effect.

It is possible that the significant increases in B- and H-share price discounts after the reform are due to factors other than the investor expectation and attitude effect. To investigate this possibility, we compare stock risk, information asymmetry, and market liquidity of domestic and foreign shares before and after the reform. These factors have been found to affect the price discounts of B- and H-shares in previous studies (Stulz and Wasserfallen, 1995; Chakravarty et al., 1998; Chen et al., 2001; Wang and Jiang, 2004; Ma, 1996). Our results, however, show that the changes in these factors are marginal and unlikely to contribute to the increases in foreign share discounts. Besides, we employ an out-sample approach by examining the trend of the RMB over an extended period after the reform. The results show that the RMB appreciated gradually and its volatility increased substantially from

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