



A theoretical analysis on H-share discount

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ABSTRACT

In this paper, I investigate the determinants of price differences in the shares of cross-listed firms in domestic and foreign markets. Diverging from the literature in this field, I introduce a methodology that is independent of any specific form of utility function. My theoretical analysis indicates that investment opportunities and consumption growth cause price disparities between the domestic and foreign shares of cross-listed firms. First, I show that stocks are overpriced in the local market if and only if other domestic investment opportunities are riskier and have a lower expected return than those available in foreign markets. Second, I show that domestic shares are overpriced if and only if the aggregate consumption or consumption growth in the domestic economy is smaller than that in the foreign economy. Approaches in this paper can not only explain H-share discount but also any other cross-listed price disparity.

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1. Introduction to H-share discount

From the founding of Shanghai Stock Exchange and Shenzhen Stock Exchange in the early 1990s, because of the difficulty to procure listings on the Shanghai and Shenzhen Stock Exchanges, and seeking a “dressing-up” effect (Busaba et al., 2012) as well, many companies went abroad for public offerings. Tsingtao Brewery is the first company listed in Hong Kong Exchanges and Clearing Limited in 1993. This is the first H-share. After 1997, Chinese stocks became sought-after investments in the Hong Kong market due to their strong performance during the Asian financial crisis. At the same time, major exchanges around the world expressed their keen interest in Chinese issuers. Together, this fueled a rapid increase in the number of Chinese stocks listed in foreign markets. Besides H-share, similar cases are as follows, N-share is those listed in New York Stock Exchange, L-share is stock listed in London Stock Exchange, and S-share is those listed in Singapore Exchange. With the improving of Chinese company financing opportunity, these firms returned to Chinese mainland stock market for meeting further capital demands. This is so called cross-listing, which has been an important part of Chinese capital market now. Among those cross-listing companies, A + H share is the most principal representative. They have not only been an important part of Hong Kong capital market, but also an efficient and necessary complement to Chinese mainland security market. A + H cross-listing contributes a lot in attracting foreign investment, promoting foreign investor

understanding China, improving China mainland firms financing abroad, and progressing development of Hong Kong capital market.

By January 2013, 77 Chinese stocks had been cross-listed on the Hong Kong Stock Exchange. Each share represents the same ownership and voting right of firm no matter if it is traded in mainland or Hong Kong. A-shares are restricted to mainland Chinese investors, and H-shares are available to Hong Kong and international investors. They represent the same future cash flow. According to classical finance theory, with assumption of integrated international capital market, stock price should reflect firms' intrinsic value. A share and H share of the same company are based on identical future cash flow and shareholder right, as well as the same risk characters. Under circumstances of completed integrated capital market, financial assets that represent claims on the same cash-flow streams should be traded at the same prices in a market in which all assets can be traded freely. Otherwise, the opportunity for arbitrage will arise. Surprisingly, despite their identical cash-flow streams, A-shares and H-shares are sold at quite different prices, simply because they are traded on different stock markets. In the absence of the domestic-share discount implemented in countries with mature market economies, cross-listed share prices in the Chinese mainland market have for many years been higher than those in the Hong Kong market. This is the H-share discount puzzle. Since 2010, however, the price relationship has been reversing (Fig. 1). Chinese ownership restrictions have also prevented domestic investors from buying cross-listed stocks and international investors from buying domestic stocks. This was especially the case before 2001, and has led to a discount in B-shares relative to domestic A-shares.

H-share discount is contradictory to classical finance theory. According to the “law of one price,” financial assets that represent claims on the same cash-flow streams should be traded at the same prices in a market in which all assets can be traded freely. Otherwise, the opportunity for

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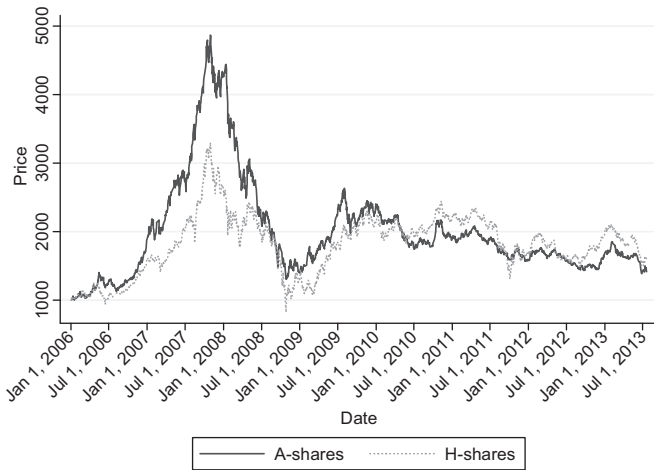


Fig. 1. Chinese cross-listed stock price spread.

arbitrage will arise. However, institutional restrictions such as capital control lead to imperfections that make classical perfect-competition market theories unsuitable. Arbitrage opportunities may last for a long time. The price disparities of cross-listed companies are a good example. Lacking the domestic-share discount implemented in developed countries, the Chinese market is a very special case. Share prices in the Chinese mainland market are higher than those cross-listed in the Hong Kong market, which leads to the H-share discount puzzle. I aim to explain this puzzle and to provide an illustration that can be applied to any other cases of this kind, including domestic share discount phenomena. Price disparity was also existent in other country or place, such as Finland, Mexico and Thailand. Differently, stocks listed abroad are inflated in these countries.

H-share is not only an important part of Chinese capital market, but also a significant overture of China capital market internalization. With the deepening progress of QDII and QFII, international capital flowing will be an inevitable trend that international capital flowing. Therefore, it will be of significant worth for the further opening and developing of China capital market to understand the reason of H-share discount. H-share discount is not only an empirical issue, but also a problem being full of theoretical meanings. We must be faced with this challenge. We manage to deal with this problem in this paper. Despite the behavior finance, we hope that we can illustrate this issue in classical theory framework, such as portfolio theory of Markowitz and CCAPM of Lucas (1978) and Breeden (1979). We will consider what constrain on earth that A–H price disparity exerts on pricing kernel and capital market structure, other than heading forward to irrational models.

We will put forward some theoretical statement and empirical analysis framework from the modern finance theory perspective. What make us excited in our following analysis that we can perceive the essence of asset pricing mechanism difference in a different market by studying cross-listing price disparity, is that, the price disparity reflects a different economic fundamental between Chinese mainland economy and Hong Kong economy.

2. Literatures and motivation

Market segmentation and price spread are common and important accompaniments to economic cooperation and international capital market integration. The cross-listing phenomenon has attracted many researchers seeking to investigate the underlying reasons for the price spread between domestic and overseas stock markets. Their approaches can be summarized as follows.

Some researchers highlight the effect of information, especially with regard to the so-called information asymmetry hypothesis. Chakravarty et al. (1998), Sjöo and Zhang (2000), and Chan et al. (2008) believe that foreign-share discounting is driven by the difference between domestic and foreign investors' familiarity with firms. However, there has been no real consensus thus far. Similarly, Long et al. (1999) claim that institutional investment makes the transmission of information more fluid, and that foreign investors are thus better informed than domestic investors. However, Sjöo and Zhang (2000) show that the direction of information transmission is related to stock-exchange selection. Information is transmitted from the overseas market to the local market at the Shanghai Security Exchange, but in the opposite direction at the Shenzhen Security Exchange. In short, Sjöo and Zhang (2000) find the direction of information diffusion to be determined by the choice of stock exchange rather than the size of a firm or other factors. They argue that local investors have more advantages than foreign investors. Chakravarty et al. (1998) also believe that local investors have information advantages. Chan et al. (2008) use a spread-decomposition model to explore the effects on price of both information and liquidity. They reject the liquidity-based explanation and present considerable evidence for the claim that domestic investors are better informed than their overseas counterparts. Bergstrom and Tang (2001) think that information asymmetries, the liquidity effect, the diversification effect, client bias, risk-free interest deviation and exchange risk are all driving forces in B-share discounting.

The second approach relates to the elasticity of demand and risk-preference differences. Proponents hold that local and foreign investors have different attitudes to risk, due to price disparities. Scheinkman and Xiong (2003) consider Chinese stock markets to be highly speculative. Speculators are more inclined to take risks. This phenomenon pushes up stock prices in the mainland market. Eun et al. (2001) use the Morgan Stanley world-market index to show that foreign-share discounting is positively related to the covariance risk of foreign shares; however, they fail to find a negative relationship with the covariance risk of A-shares in the Chinese market index. Sun and Tong (2000) also identify a positive relationship between B-share discounting and risk levels. Chen et al. (2001) apply the same proxy to the ratio of A- to B-share return variances, but find no significant results. Sun and Tong (2000) also argue for a positive correlation between B-share discounts and risk premiums. They believe that H-shares and red chips substitute very well for B-shares, and that B-share discounting increases when the number of H-shares and red chips increases. This supports the claim made by Stulz and Wasserfallen (1995).

The third approach relates to liquidity and investor sentiment. Chen et al. (2001) and Chen and Xiong (2001) present similar results. Jiang and Wang (2004) also support the liquidity hypothesis, confirming that H-share discounting is highly correlated with relative market illiquidity. In recent years, some researchers in this area have taken investors' sentiments into consideration. Arquette et al. (2008), for example, show that the H-share discounts on Chinese securities between 1998 and 2006 were significantly influenced by both changing exchange-rate expectations and differences in investor sentiment. Cai et al. (2011) use a non-linear Markov error correction method to examine the general co-integration relation between the H- and A-price of cross-listed firms. They study how differential market sentiment effects, capital restrictions and information asymmetries explain comovements across segmented markets. They consider both macro factors, such as liberalization of China's capital account regime, and macro factors, such as market sentiment and transaction cost. Guo et al. (2010) find the cost of capital for the dual-listed firms to be lower, and the liquidity of their shares (as measured by the bid–ask spread and share turnover) to be higher, in mainland China relative to Hong Kong. In addition, the HKSE has significantly more stringent listing requirements relative to the SSE.

Despite the abundance of empirical studies on this topic, it has, to the best of my knowledge, received little strict theoretical attention.

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