



Stock return seasonalities and investor structure: Evidence from China's B-share markets

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ABSTRACT

This paper investigates whether seasonalities in daily stock returns are related to the trading behavior of individual and institutional investors. The change in the investor structure of B-share markets in Shanghai and Shenzhen after the abolition of ownership restrictions in 2001 provides a unique testing environment. We show that day-of-the-week effects are attenuated after the market entrance of Chinese individual investors who had previously not been allowed to trade in B-shares. Our empirical results suggest that institutional rather than individual investors are a main driving force behind such anomalies. In addition, we find evidence of reduced index return autocorrelation and US spillover effects in the post-liberalization period.

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1. Introduction

One of the most prominent anomalies challenging the hypothesis of stock market efficiency in its weak form is the day-of-the-week effect in daily stock returns. Following seminal articles by Cross (1973) and French (1980) documenting significantly negative Monday returns, a large body of literature has evolved to document abnormal daily returns for many stock markets around the globe. In particular, a number of studies (Agrawal & Tandon, 1994; Barone, 1990; Solnik & Bousquet, 1990) find average Tuesday returns in major stock markets outside the US to be significantly negative. The vast body of evidence concerning daily stock return seasonalities has led to a debate on possible origins of the observed phenomenon. Proposed explanations include the settlement procedure hypothesis (Lakonishok & Levi, 1982), measurement errors (Rogalski, 1984), the timing of earnings announcements (Peterson, 1990), and the influence of institutional versus individual investor trading (Lakonishok & Maberly, 1990; Sias & Starks, 1995).

This paper adds to the debate about the role of institutional and individual investors in explaining stock return seasonalities. We study Chinese B-share markets before and after the abolition of ownership restrictions. Originally, only foreign predominantly institutional investors were allowed to trade in B-shares, while mostly private Chinese investors could only purchase and sell A-shares. In a move to foster market capitalization and liquidity of the B-share segment, Chinese authorities announced in February 2001 that domestic investors would be allowed to enter the B-share market.

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The market entrance of private investors in China's B-share markets provides a unique testing ground for studying the relationship between stock return seasonalities and different investor groups. We analyze the marginal effect of ownership liberalization on day-of-the-week effects in daily Shanghai and Shenzhen B-share index returns. There is evidence of the negative Tuesday effect commonly observed in Asian stock markets. More importantly, we find a substantial reduction in daily seasonalities in the post-liberalization period. This result holds for both the Shanghai and Shenzhen Stock Exchange and is robust to various modifications of our empirical approach. Moreover, the market entrance of domestic private investors seems to reduce return autocorrelation and spillover effects from the US. At the same time, the effect of local spillovers from A-share markets appears stronger during the post-liberalization period.

Our results are related to research providing evidence regarding the sophistication of Chinese investors. A recent study by [Fifield and Jetty \(2008\)](#) compares results from variance ratio tests before and after the deregulation of B-share markets in Shanghai and Shenzhen. The authors conclude that these market segments have become more efficient following the market entrance of domestic investors. Recent evidence on shareholder activism during the split-share structure reform suggests that domestic institutional investors have actively promoted shareholder rights. Empirical results reported by [Liao, Meijuan, and Wang \(2008\)](#) show that the compensation of tradable share owners and post-reform performance are positively related to domestic institutional ownership. [Ng and Wu \(2006\)](#) examine individual brokerage accounts in order to deduce investor preferences. Their results imply that Chinese investors base their investment decision on information about stock characteristics and thus exhibit rational behavior.

Another strand of literature dealing with price differentials between A- and B-share markets finds evidence that domestic investors have better information regarding fundamental asset values than do foreigners ([Chakravarty, Sarkar, & Wu, 1998](#); [Chan, Menkveld, & Yang, 2008](#)). [Karolyi and Li \(2003\)](#) document how domestic investors use this informational advantage to arbitrage away the B-share discount after the 2001 liberalization. By studying the influence of domestic private investor trading on day-of-the-week effects in stock returns, our paper provides indirect evidence of private investor sophistication in China.

A number of other papers study seasonalities in Chinese stock returns. For example, a recent paper by [Girardin and Liu \(2005\)](#) examines monthly and quarterly stock returns between 1993 and 2003. They find positive June and second quarter as well as negative December and fourth quarter effects, in both the Shanghai and Shenzhen markets. A comprehensive study by [Mitchell and Ong \(2006\)](#) finds evidence of holiday effects and higher returns during the 6 months after Chinese Lunar New Year (from February to June). The evidence regarding day-of-the-week effects is rather mixed as conclusions from various studies seem to depend heavily on the particular choice of sample period and estimation approach. Even so, a number of studies (e.g. [Cai, Li, & Qi, 2006](#); [Mitchell & Ong, 2006](#); [Mookerjee & Qiao, 1999](#)) find some evidence of negative Tuesday returns in B-share markets, which is consistent with results for other Asian markets.

Most closely related to our paper is the work of [Chen, Kwok, and Rui \(2001\)](#) who estimate standard dummy regressions as well as Integrated GARCH(1,1) models on Shanghai and Shenzhen A-share and B-share index returns. They consider two subsamples, 1992–1995 and 1995–1997, motivated by economic events such as the commencement of the company law and economic austerity programs implemented in 1994. The only abnormal daily return is found for Tuesday during the second sample period. However, the effect disappears once conditional heteroskedasticity, non-normal errors and spillover effects from the US are accounted for. While estimating various models for both A-share and B-share indices, none of the cited papers explicitly addresses the question to what extent the abolition of ownership restrictions has affected anomalies in stock returns in more recent years.

The remainder of the paper is structured as follows. [Section 2](#) characterizes stock markets in Mainland China, focusing on regulatory peculiarities. Our dataset and empirical approach are described in [Sections 3 and 4](#), respectively. Estimation results are discussed in [Section 3](#), while [Section 3](#) concludes.

2. Chinese stock market regulation and investor structure

Since their reopening on November 26, 1990 and April 11, 1991, respectively, Chinese stock markets in Shanghai and Shenzhen have expanded rapidly. This development is manifest in both total market capitalization and in the number of firms listed. After about 17 years of operations, the number of listed companies has risen to 904 in Shanghai and to 736 in Shenzhen. At the end of 2007, the total market capitalization had reached about 5,700 billion Renminbi (RMB) in Shenzhen and about 27,000 billion RMB for the Shanghai Stock Exchange. The development of the two exchanges has been asymmetric not only in terms of total market capitalization, but also in that larger companies generally tend to list in Shanghai ([Girardin & Liu, 2005](#); [Walter & Howie, 2006](#)).

China has been and in some respects still is a planned economy. Hence the transition to liberalized financial markets has been subject to strict regulation (see [Walter & Howie, 2006](#) for an overview). In particular, there are various regulatory details that impede arbitrage. First, there is an official ban on short-selling. Forcing investors to keep their trading accounts with the stock exchange allows authorities to effectively enforce anti-short-sale legislation. If there is a negative day-of-the-week effect and if short selling was allowed, rational arbitrageurs could sell stocks short in the morning of that day and buy them back the next day. Such trading activity would eventually result in the disappearance of the effect. In the absence of short-sales, however, such arbitrage is not possible. Second, the fact that the People's Bank of China (PBC) prohibits bank loans to be invested in stocks effectively prevents leveraged trading strategies and thus arbitrage. Third, derivatives markets have only recently begun to develop. Many studies highlight the importance of derivative markets for exploiting arbitrage opportunities (e.g. [Faff & McKenzie, 2002](#); [Kamara, 1997](#)). For example, in the absence of futures contracts, investors face considerably higher transaction costs when

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