



The equity mispricing: Evidence from China's stock market



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ABSTRACT

This paper examines the equity mispricing in China's stock market. We measure China's equity mispricing based on the fundamental market-to-book value ratio. As we break down the equity bubble into two components—the earnings mispricing and the required-return mispricing—we find that the Chinese stock bubble is attributed to investors' required-return mispricing. This finding is consistent with the time-varying risk preference estimated by a GARCH-M model.

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1. Introduction

This paper examines the equity mispricing in China's stock market. The overvaluation of the Chinese equity market is intriguing for two major reasons. First, China's stock market has been dominated by unsophisticated retail investors gambling their wealth, rather than looking for sound long-term investments. According to the Shanghai Security Exchange Report in 2016, 85% of trades in China's stock markets are done by retail investors, while the proportion of U.S. equities managed by institutional investors stands at 67% of market capitalization in recent years. Even more worrisome in this situation is that over two-thirds of China's newest retail investors have not even earned a high school degree. This makes stocks a roller-coaster. Second, more than half of the companies on the Chinese stock markets are state-owned or government-related enterprises. The country's economic conditions and policies play an important role in the investors' expectations about the equity market.¹

In this paper, we study if the equity bubble is attributed to China's quantitative easing, the accelerated equity margin trading and short sale activity, or to the risk-aversion change in the Chinese equity market during our sample period. The Chinese Central Bank started increasing money supply in September 2008, which is two months earlier than the quantitative easing conducted by the Federal Reserve Bank. By injecting money into the economy, the People's Bank of China (hereafter, PBOC) increases the liquidity of private-sector balance sheets. As discussed in Benford et al. (2009), Joyce et al. (2011a), and Joyce et al. (2011b), among others, when the liquidity in the financial market increases and more money flows into the equity market, the stock price can be overvalued. Thus, we examine the relationship between the increase in the Chinese money supply after 2008 and the equity mispricing.

The accelerated equity margin trading and short sale activity beginning in December 2012 may also contribute to the equity mispricing. China starts equity margin trading and short sale activity in March 2010. The margin trading and short sale amounts

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¹ See Shanghai Security Exchange Report, March 13, 2016, A02 and <http://finance.sina.com.cn/stock/y/2016-03-12/doc-ifyqhmve9120570.shtml>.

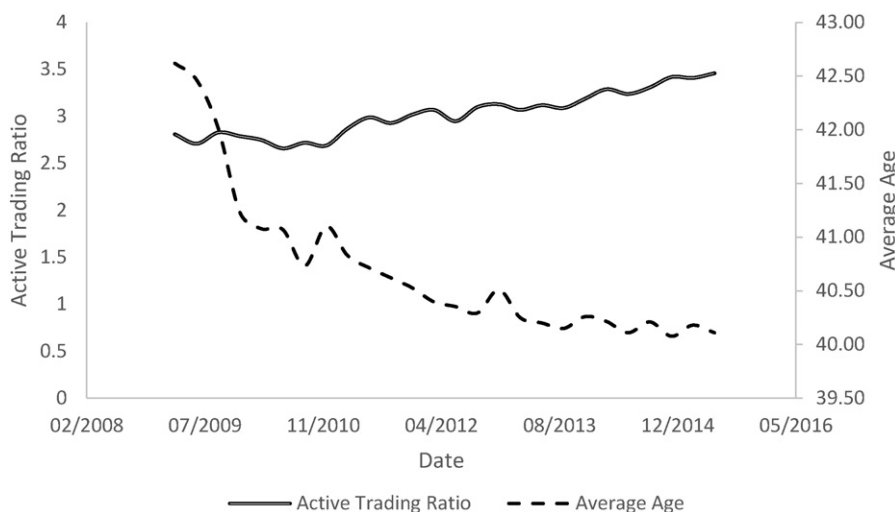


Fig. 1. Average Age of the Chinese investors from 2009 through 2015. This figure shows the average age of the Chinese investors in the equity market. We also depict the ratio of the middle-age cohort (below 50 years) to the old-age cohort (50 and above).

rise in December 2012, accelerate in June 2014, and reach the peak of Chinese Yuan 2.26 on June 18, 2015. If Chinese investors are encouraged to leverage their positions, stock prices may be driven to an irrational level. However, as savvy investors notice the equity overvaluation and heavily short stocks, the stock prices may plummet and end with a burst. Therefore, it is our interest to examine the impact of the margin trading and short sale on the equity market.

Another explanation for the overvaluation is the change in Chinese investors' risk preferences. If investors become less risk averse, they will ask for lower equity risk premium, pushing up stock prices, and this will ultimately result in equity overvaluation. According to Damodaran (2016), two of the most intriguing factors affecting investors' risk preferences are the average age of investors (relevant to risk aversion) and the variation of GDP (relevant to economic risk).

There is substantial evidence that individuals become more risk averse as they get older. The logical follow-up to this proposition is that markets with older investors, in the aggregate, should be more risk averse than markets with younger investors. Bakshi and Chen (1994), for instance, examine risk preference in the United States and note an increase in risk aversion as investors become older. Fig. 1 shows that Chinese investors' average age drops from 42.62 years in 2009 to 40.11 years in 2015, in particular, during the period from 2013 to 2015. Moreover, as we calculate the ratio of the middle-age cohort (below 50 years) to the old-age cohort (50 and above), we find that the ratio increases from 2.81 in 2009 to 3.46 in 2015. These findings suggest that Chinese investors' risk aversion may have decreased in recent years.

According to Lettau et al. (2008), the perception of macroeconomic risk can change investors' risk preferences as well. The risk in equities as a class comes from more general concerns about the health and predictability of the overall economy. Thus, the equity risk premium should be lower in an economy with predictable economic growth as opposed to one whose economic growth is volatile. Lettau et al. link the changing equity risk premiums in the United States to shifting volatility in the economy. They attribute the lower equity risk premiums of the 1990s (and higher equity values) to reduced volatility in GDP growth. In Fig. 2, we

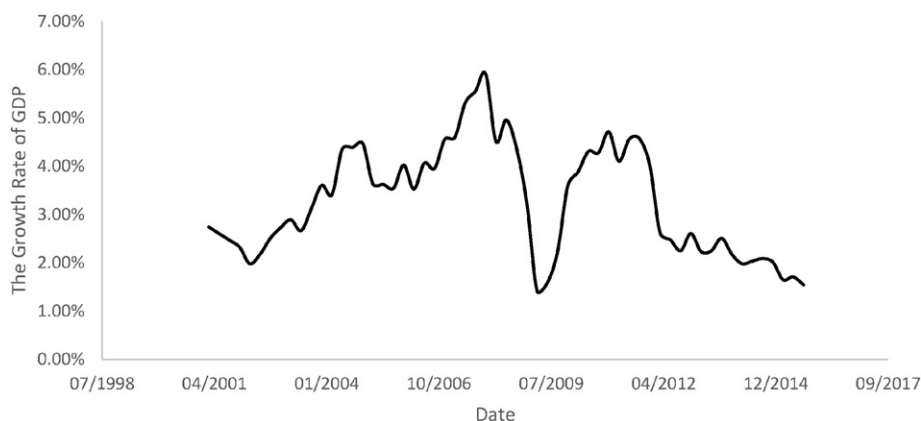


Fig. 2. Growth rate of GDP from 2000 through 2015. This figure depicts the Chinese quarterly growth rate of Gross Domestic Product (GDP) from 2000 through 2015. The growth rate is calculated as the percentage change of the moving average of four quarters' GDP. The data are from the National Bureau of Statistics of the People's Republic of China.

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