



The meltdown of the Chinese equity market in the summer of 2015



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ABSTRACT

We study the Chinese stock market crash of 2015. We find that Chinese investors overreact to the government policies that may boost the stock market. This overreaction creates the equity bubble and eventually results in the stock market crash. We also find that fiscal policies excite the equity market more than monetary policies.

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1. Introduction

China became the second largest economy in the world in 2009. Its GDP, based on purchasing power parity valuation, exceeded the US GDP and became the largest economy in 2014. Given the economy scale of China, however, global investors still lack an understanding of the Chinese equity market and Chinese investors' behavior.¹ In particular, the global financial markets are puzzled as to why China's equity market plummets in the middle of 2015. This paper examines the mispricing and crash in the Chinese equity market.

China's equity market did not draw much attention from global financial markets until the summer of 2015. The Shanghai Composite index loses 40% from late June to late August of 2015, and at the G20 summit in early September of 2015,² Zhou Xiaochuan, the governor of China's central bank, admits that the equity bubble exists in China. At a meeting of G20 finance ministers in Ankara, Mr. Zhou states that a stock-market bubble in his country has "burst." The central bank officer uses the word "burst" three times in his explanation of what is going on with the stock market. However, his comments leave no clue regarding the reasons for the bubble or the burst.

In this paper, we examine the relationship of governmental monetary and fiscal policies to the equity bubble.³ Since the global finance crisis in 2008, the Chinese government has conducted three rounds of interest rate cuts (hereafter Rate Cuts) and three rounds of reserve requirement reductions (hereafter RR Reductions). China also announces its major fiscal policy, One Belt and One Road (hereafter OBOR), intended to boost the Chinese economy for years. Table 1 lists these government policies and

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¹ The literature focusing on China's equity market is sparse. Only a handful of studies emphasize China's stock behavior. (See, for example, Chen, Demirer, & Jategaonkar, 2015; Chen, Kim, Yao, & Yu, 2010; Chen, Lu, and Zhu 2015; Liao, Liu, & Wang, 2014.)

² See <http://www.bloomberg.com/news/articles/2015-09-04/g-20-dodges-devaluation-dispute-as-china-preaches-yuan-stability>.

³ Similar to Hammoudeh and McAleer (2015) and Brzeszczyński, Gaidka, and Kutun, (2015), we focus on the governmental policies in this study.

Table 1

Event dates for the Chinese significant monetary and fiscal policies.

This table shows the announcement dates for major Chinese government monetary and fiscal policies from October 2008 through June 2015. The two major monetary policies are the interest rate cuts and the reserve requirement reductions. The major fiscal policy is the One-Belt-One-Road (OBOR).

| Interest rate cut | | Reserve requirement reduction | | Fiscal policy (OBOR) | |
|-------------------|-------------|-------------------------------|-----------|----------------------|----------------------|
| Date | Rate change | Date | Reduction | Date | Action |
| 10/09/2008 | −0.27% | 10/08/2008 | −0.50% | 09/07/2013 | Initial announcement |
| 10/30/2008 | −0.27% | 11/26/2008 | −1.00% | 10/24/2014 | AIB endorsement |
| 11/27/2008 | −1.08% | 12/22/2008 | −0.50% | | |
| 12/23/2008 | −0.27% | | | | |
| | | 11/30/2011 | −0.50% | | |
| 06/08/2012 | −0.25% | 02/18/2012 | −0.50% | | |
| 07/06/2012 | −0.25% | 05/12/2012 | −0.50% | | |
| 11/22/2014 | −0.25% | 02/04/2015 | −0.50% | | |
| 03/01/2015 | −0.25% | 04/19/2015 | −1.00% | | |
| 05/11/2015 | −0.25% | 06/27/2015 | −0.50% | | |
| 06/28/2015 | −0.25% | | | | |

their dates.⁴ There three rounds of Rate Cuts happen in October to December 2008, June to July 2012, and November to August 2014, respectively.⁵ RR reductions also has three rounds, occurring in October to December 2008, November to May 2011, and February to August 2015, respectively. The major fiscal policy OBOR is announced initially on September 07, 2013 and receives an endorsement from the Asian Infrastructure Investment Bank (AIIB) on October 24, 2014.⁶

These monetary and fiscal policies may affect investors' expectations and risk-taking behavior through a signal channel.⁷ According to Roache and Rousset (2013) and Joyce, Lasaoa, Stevens and Tong (2011), as investors learn from the government announcements regarding interest rate cuts, reserve requirement reductions, and fiscal plans, they expect to see these policies leading to an improved economic outlook. This general improvement in confidence is reflected in higher asset prices, because it reduces the equity risk premium. This paper documents that Chinese investors are overly enthusiastic about the positive monetary and fiscal policies from the People's Bank of China (hereafter PBOC) and government. As such, they enter into a regime of frenzy investment and create the equity bubble during our sample period. When we decompose the overvaluation into the earnings mispricing and the required-return mispricing, we find the overvaluation is mainly driven by the required-return mispricing.

2. Methodology

This study employs all the stocks on the Shanghai and Shenzhen stock exchanges from 2008 through 2015. The data is from the China Stock Market & Accounting Research Database (CSMAR). Fig. 1 exhibits the graphs for the value-weighted equity returns. In Fig. 1.a, we show the cumulative quarter return. During this period, the equity market experiences a return of 207%. The market soars from 2014 Q2 to 2015 Q2, yielding a return of 106% within a year.

Fig. 1.b breaks down the entire value-weighted return according to size. It shows that the large caps have the highest return and the small caps have the lowest return during our sample period. This pattern differs from the return patterns in mature markets such as the US equity market. As we divided the stocks into six major sectors in China, we find that the Properties sector has the highest return and the Conglomerates sector shows the lowest return during our sample period. In sum, it is noticeable that the equity market after 2013 experiences a big jump that may not be sustainable if there is no fundamental support.

Fig. 2 reports three firms' fundamental characteristics, price-to-earnings ratio (PE), return on equity (ROE), and total asset-to-common equity ratio (TA/CE). The value-weighted average of PE serves as an ad hoc valuation for equity, the value-weighted ROE measures the earnings ability, and the value-weighted TA/CE gauges financial leverage. In Fig. 2.a, the small caps tend to have the highest PE, while the large caps have the lowest. The PE jumps from 2013 and reaches above 55 in 2015, showing a warning sign for equity valuation.

Fig. 2.b shows the ROE has a clear seasonal pattern with a low ROE in Q1 and high ROE in Q4. Big caps have the highest earnings ability and Small caps the lowest. In general, the earnings ability decreases gradually after 2010. Fig. 2.c indicates that firms' financial leverage decreases between year 2008 and 2011 and rises from 2012. Although all firms raise their financial leverage, the big caps have higher financial leverage than other stocks.

⁴ In addition to Chinese government's monetary policies, we also consider the spillover effect to the U.S. of three rounds of quantitative easing. Because QE 1 happens at the same time of Chinese Central Bank actions and QE 2 and QE 3 have limited impacts on the financial markets, this paper does not single out US QE in the analysis. (See Roache & Rousset, 2013; Rogers, Chiara, & Wright, 2014.)

⁵ An announcement of interest rate cuts and reserve requirement rate cuts is usually made after the market closing time. Thus, in our event studies, we use the following trading day as Day 0.

⁶ "One Belt, One Road"—the name comes from abbreviating the two planks of the scheme, the "Silk Road Economic Belt" and the "21st Century Maritime Silk Road"—aims to carve out new markets for goods that China overproduces. Stretching from Hungary to Indonesia, Beijing estimates its much-hyped "One Belt, One Road" initiative will add \$2.5 trillion to China's trade in the next decade, more than the value of its exports in 2013, when it was the world's top exporter.

⁷ Most of the related literature on QE refers to the signaling and portfolio balance channels. See, for example, Clouse, Henderson, Orphanides, Small, and Tinsley (2003); Ugai (2007); and Borio and Disyatat (2009).

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