

The Trend of Stock Price Synchronicity in China

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Abstract: The synchronicity of stock reflects the efficiency of stock market, as it measures how many stocks' price move in the same direction. The more the amount of firm-specific information is impounded into stock prices, the less synchronicity the market has. We use R^2 of capital asset price model to analyst the stock price synchronicity of Chinese stock market among 20 years (1995 to 2015). We find that stock price synchronicity doped sharply between 1995 to 2000. However, its value stayed stable after year 2000. We expect that the institution building, the transparency of finance market, nature of company ownership and structure of company management and the composition of investors can partly explain this change.

1. Introduction

Stock prices can reflect lots of information, including information about macroeconomy environment and specific firms. In some way, the changes of stock price reflect the degree of capitalization of information. In another word, the higher degree of capitalization of information means that investments are more efficient.

In theory, if markets have enough stocks for trading, the fraction of rising stock should approximately equal to the fraction of falling stocks, according to the law of large number. In practice, however, we have an intriguing finding that the stock prices move together more in poor economies than rich economies no matter how large or small stock markets are. Synchronous stock price movements have very strong correlation with per capita gross domestic production.

Many economists believe that per capita gross domestic production just proxy for other economic variables. There are other economical mechanisms behind the relation between per capita gross domestic production and synchronous stock price movements. Some economists think higher stock return co-movement with poor investor protection since inside trader can have unfair advantages due to that, while others think it with poor quality of information about specific firm. In poor country, economy is influenced greatly by politician. The politician event, even the rumor

about politician, will cause stock market fluctuate largely. The bad protection for private property also attribute to the synchronous stock price movement because poor protection for private property increase arbitrage risks a lot. In a word, many economists believe that higher synchronous stock price movement relates some essential and basic economical institutions.

China, the largest developing country in the world, has transformed from planed economy system to market economy successfully. During this process, china's government established some basic economy institution, such as the system of private property protection, a modern stock market, a modern accounting system. With improving of those system, the professional investor in china are becoming more and more active to explore related information about firms and macroeconomy. The development of china provides a perfect example to examine the theory about synchronous stock price movements and per capita gross domestic production.

This paper is organized as follows. Section 2 provides model and source of date we used. Section 3 and section 4 introduces the empirical result and do a simple analysis, respectively. Eventually, section 5 offers concluding remarks.

2. Model and Data

2.1 Model

Some economists believe stock price movements reflect how much specific firm level information and market level information are capitalized into price (Roll 1988). If synchronicity, which means stock prices move together, is higher in the stock market, it means there is less specific firm level information capitalized into price (Morck 2000). So, in order to measure the synchronicity of Chinese stock market, we will use the following model.

$$R_{i,t} = \beta_0 + \alpha_2 D_2 + \alpha_3 D_3 + \dots + \alpha_n D_n + \beta_{i1} R_{m,t} + \varepsilon_{i,t} \quad (1)$$

R_i is the return of specific firm stock, R_m is the return of market. D_j is dummy variable. N stocks trade in the market. If i equals j, D_j will be one. If i does not equal j, D_j will be zero.

2.2 data

As we all know, there are two market in china: the shanghai stock exchange and Shenzhen stock exchange. We divide all the stocks of china into two different group, and use Shanghai composite index and Shenzhen Component Index to represent stock market return separately.

In order to eliminate the daily fluctuation of stock prices, we use weekly return data of specific firm stocks and market. And to make sure that we have enough observation, we drop date of newly lists stocks and recently delisted stocks, if we cannot collect 30 weeks trading date.

All the data of return of market and stocks is download from Wind database.

3. Empirical Results

We calculate R^2 of different years, we desire to find the trends of the changing of R^2 to help us figure out that whether the ability of information capitation in Chinese stock market improved. We use data of 1995, 2000, 2005, 2010 and 2015 to depict the trend of changing of synchronicity in

Chinese stock market. The number of stocks we selected is 274 in 1995, 939 in 2000, 1295 in 2005, 1942 in 2010 and 2770 in 2015. The R^2 is 0.55, 0.32, 0.33, 0.30 and 0.34.

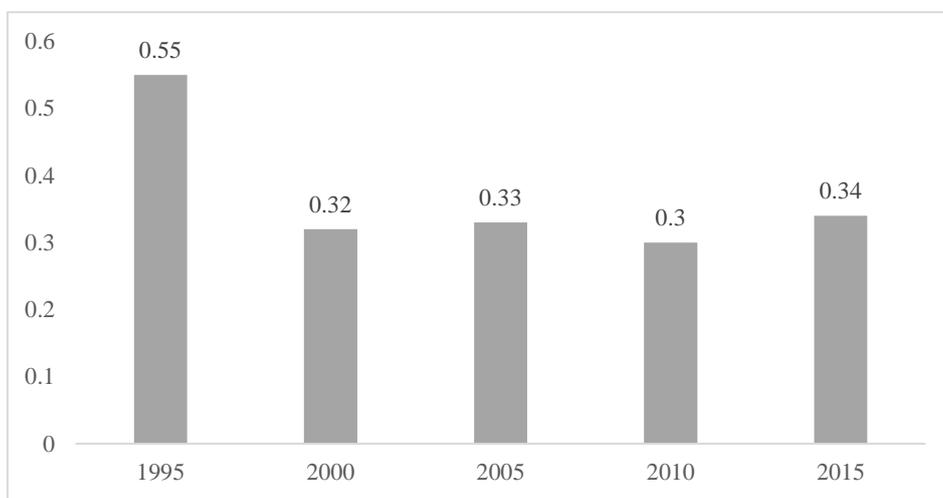


Figure 1: the synchronicity of Chinese stock market

The R^2 dropped dramatically from 0.55 to 0.32 during the period of 1995 to 2000. Then the R^2 is relatively stable at 0.30. Comparing to the synchronicity of stock markets in developed countries, the synchronicity of Chinese stock market is still relatively high, although we have made a large improvement.

We wonder that whether the changing of synchronicity of Chinese stock market was caused by the increasing of number of listing stocks or other factors. We will study this question in the next sector.

4. Analysis of the Results

We use CAPM (Capital Asset Price Model) to measure the synchronicity of stock market. The lower R^2 is, the less part we can explain for the fluctuation of stocks' price with the return of whole market, which means the lower synchronicity is. Many scholars think there are two main theories related to the synchronicity of the stock market. One theory is that lower synchronicity means more information, which relates specific firms, capitalize into the price of the stock. The other theory thinks that the lower synchronicity reflects the more noise trading happening in the market. The existence of noise trade amplifies the fluctuation of stocks' price. Many researches start from above theories.

The institution building has huge impact on the synchronicity. Mock (2000) thinks that governments' protection of private property is an essential element. If government provides weak protection to private property, investors will not have enough motivation to arbitrage through analyzing specific information. Arbitrage, an exchange activity based on private information, can push price to move closely to practical value, which enhance the amount of information included in the fluctuation of stocks' price. If the institution has weak protection over the private property, arbitrages will not be active, which means stocks' price reflect less information of specific firms. As a result, the synchronicity will enhance. Stigler (1964), Jarrell (1981) and Simon (1980) found that

enforcement of security laws would reduce the stock price synchronicity in America.

The transparency of finance market also influences the synchronicity. When transparency is relatively low and the cost of obtaining relative information is relatively high, investors have to do adversely selection. Rather than select information they prefer to regard all firms as the same, which means investors regard finance market as the lemon market. The best way to improve transparency is completing institution of insider dealing, information disclosure and accounting standard. The less sound the institution is, the worse information the companies will disclose. Consequently, investors cannot gain relative information in time.

Nature of company ownership and structure of company management influence the synchronicity. As for China, most of listed companies are state-owned enterprises. Some scholars think state-owned enterprises' information disclosure cannot tell investor companies' finance status precisely because some state-owned enterprises have social obligation and most of state-owned enterprises have soft budget restriction, which means they can acquire loans from banks much easier. In this case price cannot reflect information of state-owned enterprises precisely. You Jiaying thinks the more complex the structure of company management is, the more likely corporate insiders will control earning, declining the quality of disclosure and improving the synchronicity. Some scholars think management stock ownership can grapple with problem of separating of ownership and administration authority partly by motivating management to disclose information precisely, declining synchronicity.

The composition of investors is also an important element. Grossman and Stiglitz think the more information investors, who analysis relative information, finance market has, the more information stocks' price will reflect. However, most of retail investors, the majority of investors of Chinese stock market, are noise investors because of lacking of knowledge and mood swings. Many retail investors prefer to follow the winners in the stock market rather than analysis accounting reports. Institutional investors can analysis accounting reports better and they tend to do long-term investments. The more institutional investors the market has, the more information can be capitalized into the price. Consequently, the synchronicity would decline.

In the early 1990s, with lack of basic institute, the fluctuate of China's stock price was so large that many people made great fortune overnight or lost everything overnight, which attracted millions of individual investors into the market. On January 1st in 1994, the law of certified public account came into effect, which improved the quality of firms' information a lot. On December 12th, the measures for the administration of stock exchange came into effect, which clarified the responsibilities of stock exchange. On July 1st in 1999, the law of security came into effect. During 1990s, China's government built a basic institute for China's stock market, while the stock price synchronicity dropped sharply.

After 2000, China spared no efforts to improve the proportion of institute investors in Chinese stock market. In July 9th in 2003, China Securities Regulatory Commission allowed Qualified Domestic Institutional Investors (QFII) invested in China's stock market. In 2010, China Insurance Regulatory Commission allowed insurance funds invested in stock market. With such efforts, Chinese institute investors have made huge improvement. The proportion of market value held by individual investors dropped from 18% during the period from 2006 to 2015. In 2014, the institute investors held 14.65% market value of stocks listed in Shanghai stock exchange. Meanwhile, in order to help local market growing healthy and eliminating some fluctuation, Chinese government

also want to encourage more and more foreign institute investors to buy Chinese stocks. On December 17th in 2004, China allow individual investors in Hong Kong invest China's stock market through Shanghai-Hong Kong Stock Connect program. By the late of September in 2017, the market value held by foreign institute investors worth more than one trillion yuan. Although we have made such efforts, the institute investors in China still has a huge gap with their American peers. In second season of 2015, institutes investors held 7% market value of Chinese stock market, comparing with 45.83% in United States.

The problem of ownership of companies threaten the development of Chinese stock market. In 2014, the proportion of assets of listed state-owned enterprises was 88% and the proportion of market value of listed state-owned enterprises was 69.8%. Meanwhile the Chinese stock market did not provide enough resource to the private enterprises comparing with attribution private enterprises made to Chinese economy. This market structure improves stock price synchronicity in China, which has negative influence on development of Chinese stock market.

5. Conclusion

The stock price synchronicity is a common-used tool to measure the efficiency of stock market. In our research, we use R^2 of capital asset price model to analysis it. According to our research, we find that the synchronicity dropped sharply during the period from 1995 to 2000, and it did not change a lot after 2000.

The following reasons can account for this phenomenon. Some basic institutes for stock market have built during past decades such as the institute of certified public account and the institute of banning internal transactions. With the growth of Chinese professional accountant and regulation authorities, the quality of financial reports revealed by companies has improved a lot. However, nature of company ownership and structure of company management are still complicated in china, which takes a toll on decreasing of synchronicity. Although the professional investment institutes have gained plenty of achievements in china, the proportion of institute investment is not high enough comparing to some developed countries.

According to our research, we think following suggestion enable regulation authorities to decrease synchronicity and to improve the efficiency of Chinese stock market. 1) The regulation authorities are bound to make some policies to encourage the development of local investment institutes. Meanwhile, regulation authorities also should educate individual investors about risk. 2) China should open the capital market to foreign professional investors to enlarge the proportion of institute investors. 3) The regulation authorities should encourage more private enterprises' stocks listed in the market. 4) We should perfect our institute, especially accounting institute and regulation institute.

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