Is the development of the stock market a barometer of China's economy?

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Abstract. The rise of China and the five-fold increase in the expanse of its stock market over the previous decade has spurred a rising body of research in financial economics on the marketplace. The link between the development of the Chinese stock market and China's economy has always been an eternal topic. The existing literature has rarely systematically analyzed whether the stock market development is a barometric measure of China's economy. To this end, this paper examines the role of using the Chinese stock market's development as a barometer of China's economy by studying the relationship between stock price changes in the stock market and China's Industrial Development Index.

Keywords: Stock market development; Chinese economy; Exchange; Economic growth.

1. Introduction

The stock market is a critical component of the financial markets. According to (Kai & Liao, 2021), the stock market is critical for generating capital, distributing risks, maximizing resource allocation, stimulating technical advancement, and strengthening corporate governance [1]. As a result, the stock market is often referred to as the economy's barometer. Since the Shanghai Stock Exchange's inception in 1990, China's stock market has contributed to the country's economic development as the world's second largest economy. By 2020, the overall market value of equities will account for almost 80% of GDP. However, China's stock market's immaturity often climbs quickly before descending into a protracted bear market, as shown in the stock market disasters of 2007 and 2015, which had a devastating influence on economic growth (Kai & Liao, 2021).

Due of the stock market's uncertain influence on economic growth, it is critical to investigate the true link between them, including stock market size, volatility, and other influences on economic growth, to contribute to sustainable development strategies. China's economy has experienced significant growth since the 1970s. Between 1979 and 2007, China's GDP grew exponentially, making it the fourth-largest economy (Bi n, 2013). China's financial markets, especially the stock market, followed a similar path throughout the same period. China's stock market has risen to heights not seen in established mature economies for decades. China's stock market's emergency and recom mendable growth have been linked to mass production (Bin, 2013) [2].

China's macroeconomic operation has been relatively steady in recent years. Although economic growth has maintained within a respectable range, the downward pressure and risk remain high due to a lack of sustained investment growth, finance bottlenecks, company challenges, and other issues. Traditional economic cycle projections are based on economic analysis of overall economic factors; however, recent international academic research (Chu, 2018) has revealed that overall economic indicators cannot predict economic change patterns, particularly when the economy enters a recession [3].

At the same time, international researchers have discovered that the stock market's trend and the macroeconomy are intrinsically linked. The stock market is a leading factor in other economic variables, capable of determining the direction of economic changes and serving as an economic "barometer." China's stock market has evolved for more than two decades since the turn of the century, but its maturity remains low, often resulting in increasing market volatility (Jin & Guo, 2021). Since the establishment of the stock exchange and the start of trading, the stock market's operation has demonstrated a high degree of instability. This has disrupted internal connections with economic
trends to some level, causing the Chinese stock market's "barometer" function to be steadily questioned and challenged, which is not beneficial to the stock market's long-term growth [4].

Fundamentally, the stock market's trend and the macro economy's trend should be synchronized; economic operations determine the stock market's operation; the stock market's change reflects the economy's change; and, at the same time, the stock market's operation should have some forecasting and indication function. However, China's stock market has a significant uniqueness in terms of maturity and policy color as an emerging market. The functions provide more direct and important impact factors, enabling new thinking modes for China's Securities investment sector, refining the Chinese stock market's construction, and fully using the stock market's "barometer" function. Applying the Western stock market economic "barometer" function to the Chinese market is still uncertain (Jin & Guo, 2021). It remains to be seen if China can completely embody the "barometer" role of the Chinese stock market. As a result, it is necessary to research, analyze, and explore whether the Chinese stock market can truly be a "barometer" of China's economic development, as well as whether there are other Chinese stock markets "barometers" to promote China's economy's smooth development and adaptation to the new normal goal.

The stock market is now an essential aspect of the national economy, allowing the government to allocate resources better, investors to partake in economic progress, and businesses to raise capital. Thus, investigating the Chinese stock market's "barometer" function exposes the Chinese stock market's operating law and explains the "barometer" impact. Thus, promoting good stock market resource allocation and "barometer" functions increases the likelihood of market development and prosperity, allowing investors to enjoy the advantages of economic expansion better. The Shanghai Composite Index and the Shenzhen Composite Index were used to measure China's stock market development, and the industrial production index was used to measure the level of China's economic development to see if the stock market's development is a barometer of the country's economy. An ordinary least squares regression model is built on this foundation to see whether the stock market's performance is a good indicator of China's economy. A literature review, an introduction to the modeling technique, interpretation of the findings, and conclusions make up the rest of this study.

2. Literature review

The growth of the Chinese capital markets can be grouped into three stages. The first phase was between 1978 and 1992 when the markets emerged as Chinese enterprises were incorporated. The first form of Shareholding Company was a farmers' joint-stock rural township enterprise in the late 1970s. By the early 1980s, urban areas began following the same trend through small state and collectively owned enterprises. Between 1984 and 1986, Beijing, Guangzhou, and Shanghai selected a few enterprises to experiment with shareholding systems (Bin, 2013). As the number of securities and investors increased, the need for exchanges became evident. In 1986, the first brokerage service, Shenyang Trust & Investment Corporation, was established. Similarly, the "Shanghai (SSE) and Shenzhen (SZSE) stock exchanges" were established in 1990 (Allen et al., 2020) [5].

After the 1997 financial crisis, unauthorized securities and operation irregularities in the exchanges were consolidated (Allen et al., 2020). The second phase was between 1993 and 1998 when the "China Securities Regulatory Commission (CSRC)" was established (Bin, 2013). The third phase was between 1999 and 2007 when the securities law was promulgated (Bin, 2013). This strengthened the legal status of these markets, which opened them for further expansion and development.

Between 2008 and 2018, the Chinese stock market grew to be the second-largest market globally. By 2013, it had increased by 228 times in size and 1311 times in volume. By 2018, before the onset of the Covid-19 epidemic, the total market capitalization on the two exchanges, SSE and SZSE, was at $6.3 trillion (Allen et al., 2020; Carpenter et al., 2014) [6]. The Chinese stock market has two classes of stocks, A-shares, quoted in the yuan and invested in by domestic investors, and B-shares,
dominated in dollars and issued to foreign investors. Despite the decline experienced due to Covid-19, by the second quarter of 2020, the Chinese stock market's demand had increased (Wee, 2021)[7].

The interconnected relationship between China's growing economic development and the Growing stock market has faced support and opposition from various researchers and analysts (Laurenceson, 2002) [8]. Some researchers argue that “a positive relationship exists between economic growth and the stock market’s development.” According to Bin (2013), the stocks market developed due to economic growth. Additionally, as the stocks market continues to grow and more people invest in it, it encourages efficient resource allocation in the economy, integration, and business consolidation, which is continually fostering economic growth (Bin, 2013). This interrelationship makes the capital markets, specifically the stocks market, both a result and a cause of economic development. Bin's 2013 study replicated Atje and Jovanovic's (1993) investigation of 39 nations' stock markets, which found a positive correlation between a country's economic progress and the development of its stock market [9].

However, other researchers claim that the Chinese stock market does not reflect China's economy, and actually, this market might be destabilizing (Laurenceson, 2002). An analysis of stock market data between 1996 and 2011 by (Wang & Ajit, 2012) proved “that the relationship between the Chinese stock market and the country's real GDP growth is negative.”[10] These results mirror Harris' (1997) analysis, which stated “that the stock market is administratively-driven,” and therefore, it does not reflect the economic development in developing countries [11].

With the fast expansion of China's stock market, academic circles in the country have progressively begun to explore these issues. (Kai & Liao, 2021) analyses and contrasts the “barometer” characteristics of local and international stock markets. The findings suggest that price changes in developed nations (e.g., the United States) may mirror macroeconomic trends in the long or short term; however, price movements in the Chinese stock market are not synced with the economy and even vary from the phenomena. As a result, China's stock market's regular financing function is harmed, resulting in a shift in societal wealth distribution.

Consequently, the Chinese currency cannot be properly transformed into capital, preventing capital from being allocated to the true requirement for industry and firm growth. The legal system's relative backwardness has amplified the Chinese stock market's speculative nature. According to the author, we need to pay more attention to investors' returns, implement the mandatory dividend system for listed businesses, increase the amount of direct financing and governance, and change the Chinese stock market Barometer characteristic. (Kai & Liao, 2021) examines the stock market's overall link with the national economy.

It is due to this differing research sentiment that makes this analysis mandatory. This paper analyses the relationship between China's stock market and China's economy to determine if the development of the Chinese stock market can be used as a barometric measure for China's economy.

3. Data and methodology

3.1 The change of the index

An ordinary least squares regression model was established to test whether the stock market's development is a barometer of the Chinese economy. To test whether the development of the stock market can be used as a Chinese economy barometer, the Shanghai Composite Index and the Shenzhen Composite Index were used to measure the Chinese stock market’s development, and the industrial production index was used to measure the level of China's economic development. The figure below shows changes experienced by these three indices within the allocated period. The time length of the variables is from January 2011 to November 2018. The data comes from the WIND database.
3.2 The establishment of the model

The Ordinary Least Square model (abbreviated as OLS) is the most commonly used and primary estimation method for the single equation linear regression model. The basic idea of this OLS model is to make the estimation possible by minimizing the sum of the squares of the residuals. This paper establishes an ordinary least squares model to test the relationship between the two further. The specific model form is as follows:

\[ \log IP_t = \alpha_0 + \alpha_1 \log Stockindex_t + \epsilon_t \]  

(1)

\( \log Stockindex_t \) is the core explanatory variable of this article: the Shanghai Composite Index or the Shenzhen Composite Index of China’s stock market, which measures changes in China’s stock index. \( \log IP_t \) is the explained variable of this article. \( \alpha_0 \) is a constant term. \( \alpha_1 \) is the coefficient that this paper focuses on, which measures China’s industrial production index change caused by the change of a unit of stock index. \( \epsilon_t \) is the random error term.

4. Results

According to the above empirical model, this paper’s OLS regression results are shown in Table 1.
According to Table 1, every one percentage point change in the Shanghai Composite Index can lead to a 0.7 percentage point decrease in the China Industrial Production Index, while a one percentage point change in the Shenzhen Composite Index can lead to a 0.5 percentage point decrease in the China Industrial Production Index. It is evident that the more unstable the stock market’s development is, the greater the rise in stock prices and the decline in the industrially added value. The Chinese stock market development and the level of economic development are not one-to-one correspondence in one direction. The Chinese stock market’s prosperity does not mean the prosperity of the economy of China. This may be due to China's current stock market not being mature or other certain defects in various aspects.

The first reason why the Chinese stock market is not an economic barometer is that the market is still very young (Johnson, 2019) [12]. This is seen in several differences in features between the NYSE in the USA and the SSE and SZSE in China. First, the total market capitalization of the New York exchange is $29 trillion, while that of the Shanghai stock exchange, for instance, is only capitalized at $4.7 trillion (Johnson, 2019). Secondly, compared to the USA stock market, whose New York Exchange dates back centuries, the SSE and the SZSE only date back to a few decades ago, 1990. Finally, the Hong Kong stock exchange only began listing Chinese enterprises in the mid-1990s (Johnson, 2019). Therefore, as the Chinese stocks market is not mature and well developed, it cannot be used as an economic barometer.

The stock market does not reflect China's economy because the wealth allocated to stocks per household is only 4 percent (Pisani, 2018) [13]. This small percentage renders the welfare of the stock market futile when looking at China's economy. According to Pisani (2018), 4 percent of households in China hold their wealth in cash, and 65 percent hold their wealth in real estate. On the other hand, the rich category holds their wealth in private equity and venture capital instead of stocks. Therefore, based on this reasoning, the Chinese stock market represents only 4 percent of China's economy, which is a tiny percentage, and, therefore, cannot be used as an economy barometer (Rapoza, 2015) [14].

The final reason why the Chinese stock market cannot be used as an economic barometer is that it functions on a herd mentality, which does not reflect the general market's economic fundamentals. According to Girardin and Liu (2003) [15], since the mid-1990s, when the Chinese stocks market began expanding, it was viewed as a casino, gaining less momentum than other international markets. Despite this market's advances, today's equity market in China is still considered a gambling den dominated by retail investors instead of institutional investors like other foreign markets. These retail investors make their decisions based on published newsletters, thus creating a herd mentality, which does not reflect economic fundamentals, and has few linkages to the economy (Rapoza, 2015).
5. Conclusion

According to the research results of this paper, China's stock market development is not a barometer of China's economy. Every one percentage point change in the Shanghai Composite Index can lead to a 0.7 percentage point decrease in the China Industrial Production Index, while a one percentage point change in the Shenzhen Composite Index can lead to a 0.5 percentage point decrease in China Industrial Production Index percent. Therefore, the current development of the Chinese stock market is immature, and changes in stock prices do not correspond one-to-one with China's industrial development. This paper puts forward the following suggestions to improve the Chinese stock market development and the ability of price information to reflect. First, there is a need for more wealth in the economy to be reflected in the stock market. More people need to be encouraged to invest in stocks. Second, institutional investors need to venture into this market with strategies that do not follow the current herd mentality. Finally, The CSRC needs to encourage more privately owned firms to enter the stocks market.

Additionally, according to the empirical findings, as an essential financial instrument, the stock market has made vital contributions to the growth of China's real economy in recent years. However, the association between China's stock market and economic development is weak, and it is particularly important to optimize the mechanism of volatility and liquidity of the stock market on economic growth. Possible explanations include the fact that China's stock market and financial market are exposed to many human manipulations and that the market's structure, operating mechanism, and system are still in their infancy. Therefore, the Chinese government must optimize the market to serve the economy better.

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