Stock market development and economic growth: Empirical evidence from China

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ARTICLE INFO

ABSTRACT

The interplay between the stock market and the real economy is crucial in the various channels through which financial markets drive economic growth. In the current study, we investigate the effects of this relationship on the Chinese economy, which is the fastest growing and largest emerging economy in the world. The methodology incudes unit root testing in the presence of structural breaks and the Autoregressive distributed lag (ARDL) model. The results of the analysis showed that the global financial crisis from 2007 to 2012 had a significant impact on both the real sector and the financial sector in China. Our findings also suggest that the Shanghai A share market has had a long-run negative association with the real sector of the economy; however, the magnitude of impact has been miniscule. These findings indicate that this negative relationship is proof of the so-called existence of irrational prosperity in the stock market and the economic bubble in China's financial sector. The findings did not show any evidence of a relationship between the stock market and the real economy in the short run. Toda Yamamoto causality test showed that economic growth has spurred the development of the Shenzhen B share market. Furthermore, the equally weighted index showed that stock market liquidity and stock market sectoral indices were alternative measures of stock market activities. The results were robust to the alternative measures of stock market activities. The results also indicate that state-owned monopolies play an important role in China's economic performance because they stimulate the economy in the short run.

1. Introduction

Beginning with the pioneering work of Schumpeter (1911) and the works of McKinnon (1973) and Shaw (1973), a large body of literature has attempted to identify the causal relationship between the development of the financial sector and economic growth. It is well recognised that the financial market is vital for economic growth because it promotes the mobilisation of otherwise idle savings in the economy and converts them into useful and productive capital. However, when an economy grows, it generates a surplus, which fuels the growth of financial sector. Hence, the direction of causality between financial market development and economic growth remains ambiguous and open to empirical scrutiny. Furthermore, the direction of this causal relationship has significant implications for policy. For instance, Olwenyand and Kimani (2011) investigated this relationship in Kenya and found that causality was uni-directional from financial markets to economic performance. Consequently, their study recommended that governments should eliminate any impediments to the

growth of the financial market (regulatory barriers etc.) and safeguard the interests of shareholders.

Because the financial sector is very broad, and its growth cannot be measured by single indicator, many economists have focused on the nature of the relationship between one sub-sector of the financial market and the growth in the real economy. The sub-sector that has attracted the most interest from researchers is the stock market. A large strand in the literature examines the relationship between the stock market and the real sector of the economy. For example, empirical studies by Atjeand and Jovanovich (1993), Korajczyk (1996), and Levine and Zervos (1998) found a strong positive relationship between the stock market and economic growth.

As argued in Levine (1991), liquidity created by the stock markets make investment less risky as it allows investors to buy or sell equity without locking in their savings for a long investment horizon, while, at the same time provide long term capital to companies raised through equity. However, it can be argued that the liquidity created by stock market may also have negative impact on the long run economic

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growth in the real economy. Demirgüç-Kunt and Levine (1996) identified three possible channels through which this effect may propagate. First, a higher rate of return on stock market will encourage investment as more investors will engage with stock market, however on the other hand it can be argued that a higher rate of return may decrease savings rate, as investors will consume a higher proportion of their income (income effet) and prepone future consumption with today's consumption (substitution effect), thereby reducing the overall amount of money invested in the economy and consequently reducing the level of capital accumulation. Second, a highly liquid stock market, reduces the level of uncertainty associated with investing in stock market, which makes investment more attractive for investors, but at the same time it also discourages precautionary savings {The component of saving that is achieved by postponing the consumption, due to the uncertainty regarding the future.}, thereby causing an ambiguous impact on the overall saving rate and overall investment in the economy. A third channel would be the creation of investor myopia (focus only on short terms gains and losses and the cost of long run returns) due to very liquid stock market. A very liquid stock market allows investor to quickly and without much cost, sell their portfolio of ill managed company stocks, thereby reducing incentives for demanding greater accountability from mangers running the firm, which in turn may lead to weakning of corporate governance in the economy and hurt economic growth in the long run.

An important reason that the existing literature is ambiguous regarding the nature of this relationship is the variation in the measures used to proxy the size of the stock market and the size of the real economy. Most previous studies used the stock market index as a proxy in measuring the growth and development of the stock market in a country. In the current study, we argue that the stock market index is not a good measure of stock market size with regard to its association with economic growth. Because stock market indices are usually weighted by market capitalisation, the index is mainly driven by the stock prices of large multinational firms, which is the case in the Chinese stock markets examined in the present study. The stocks prices of large multinationals could be influenced by a variety of reasons that may not reflect the financial markets of the country in question.

Specifically, in the context of Chinese economy, it has been argued that small and medium enterprises (SME) are the source of its impressive economic growth. In the last decade or so, SMEs have played an increasingly important role in easing the pressure on employment and optimising the economic structure in China. Li (2002) found that SMEs accounted for around 80 percent of China's manufacturing employment and contributed more than 60 percent to China's GDP. Hence, using the market index as a proxy of the size of Chinese stock market may be an inappropriate and misleading indictor.

Another reason that the stock market index is not the best proxy for capturing the size of stock market is the way in which constituent stocks are selected for the index. In most cases, committees decide which stocks are included in the index, which changes over time to reflect market conditions. In this approach, the committee might not choose the stocks that are the most representative of the stocks market in general. Moreover, because of the changing structure and composition of such committees, it is possible that untimely or lagging decisions could be made in the process of selecting stocks for inclusion in the index. Hence, one contribution of the current study is that it uses stock market capitalisation as an objective measure of the size of the stock market. We use an equally weighted index to proxy the performance of China's stock market as a check for the robustness of the relationship between China's financial sector and its real sector. The term equally weighted refers to a type of weighting scheme in which every stock in the index has the same weight regardless of the size of the company. We use the equally weighted index as our proxy for two reasons: First, in contrast to the market capitalisation weighting index, the equally weighted index does not overweight overpriced stocks and underweight under-priced stocks. Therefore, pricing errors

are random. Second, the equally weighted index places more weight on small firms, which is especially suitable in the case of China's economy.

Although there is no consensus in the empirical literature regarding the existence and nature of the relationship between the stock market and the real economy, the extant literature indicates that the nature of the relationship differs from one country to another and probably varies between countries that are at different levels of economic growth. Moreover, it is also possible that unobservable cultural or institutional factors determine the existence and nature of the relationship between the stock market and the real economy. Therefore, the best way to study the relationship between stock market and economy could be to analyse data on a country-by-country basis. The second crucial issue is the choice of a robust methodology. The extant literature indicates that determining whether a causal relationship exists between the stock market and the real economy depends on the methodology used to analyse the data.

In the present study, we examine an emerging economy that is one of the largest economies in the world: that of China. We focus on China's economy for two reasons: First, China has experienced remarkable economic growth since the 1980s. There is a great amount of ongoing debate regarding whether the factors of accumulation or improved productivity are the main forces driving the economic growth in China. However, the financial sector's contribution to China's economic development has largely been ignored. Second, according to Owen and Griffiths (2006), stock markets move approximately six months ahead of inflection points in the real economy. Hence, in this study, we aim to determine whether China's stock market can forecast its economic performance six months ahead of the inflection points in its real economy.

Only a small subset of the literature considers this important question in the case of China's economy. Hasan et al. (2009) used a dynamic panel data framework of Chinese provinces to investigate the role of institutional components in a transitional economy. Based on Blundell and Bond's (1998) estimation, financial markets are one element that is associated with strong economic growth. Liang and Teng (2006) used the bank credit ratio as the indicator of financial development based on the assumption that the size of financial intermediaries is positively related to the quality of financial services. Using natural logarithm of real per capita GDP, bank credit ratio, real interest rate, natural logarithm of real per capita fixed capital and trade ratio and the Johansen cointegration test and the Granger causality test, they found evidence of uni-directional causality running from economic growth to financial development. Zhang et al. (2012) used data collected in 286 cities over the period 2001–2006 in conventional cross-sectional regressions and first differenced and system GMM estimations. Their results suggested that traditional financial development indicators had a positive impact on economic growth.

In this study, we use a new measure of stock market development to examine its relationship with the real economy in China. The methodology used in this study contributes to the literature by modelling for structural breaks and heteroscedasticity in the data in testing for the presence of the unit root in the series. We employ an Autoregressive distributed lag (ARDL) model and the Toda Yamamoto causality test to determine the nature of the relationship between stock market development and the real economy in China.

The rest of the paper is organised as follows. The following section presents a brief review of the relevant literature and discusses the major theoretical and empirical studies that have explored the stock market in terms of economic growth. Section 3 presents an overview of the Chinese stock market, followed by Section 4, in which we present a theoretical model that links the real economy with the stock market in the Chinese context. Section 5 discusses the empirical results. Section 6 summarises the robustness checks preformed to cross-validate the results by using difference measures of stock market activity and different methodologies. Some policy implications of our analysis are discussed in Section 7, and a conclusion is provided in Section 8.