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Can US economic variables predict the Chinese stock market?

Jeremy C. Goh, Fuwei Jiang, Jun Tu *, Yuchen Wang

Singapore Management University, Singapore

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ABSTRACT

In the last few decades, we observed a significant increase in global economic activities and these activities may have an impact on both China's economy and stock market. Given the potential impact, we empirically examine whether US economic variables are leading indicators of the Chinese stock market. Prior to China joining the World Trade Organization (WTO) in the end of 2001, we find no statistical relationship between US economic variables and the Chinese stock market returns. However, we find US economic variables have statistically significant predictive power for periods after China's admission into the WTO. In addition, we show that the combination of US and China economic variables is more superior in terms of forecasting ability than either single country economic variables. These findings are of economic importance from an investment perspective.

1. Introduction

There is an ongoing debate as to whether there is a decoupling between economic activities in emerging markets with those in mature markets. Studies supporting the notion that markets are integrated are many. For example, Gultekin et al. (1989), Bekaert and Harvey (1995), Bekaert et al. (2010), and Bracker et al. (1999) find that the stock markets contemporaneously co-move among economically integrated countries. In addition, Carrieri et al. (2007) find evidence suggesting that, notwithstanding the substantial differences and time variations in integration, none of the emerging markets are completely segmented from the global market. However, Chinese stock market seems to be different. In particular, Huang et al. (2000) find no co-integration and casual relationship between Chinese and American stock markets. It is important to note that their sample period is from October 1992 to June 1997, which happens to coincide with the period before China joined the World Trade Organization (WTO).

* Corresponding author at: 50 Stamford Road, Lee Kong Chian School of Business, Singapore Management University, Singapore, 178899. Tel.: +65 6828 0764; fax: +65 6828 0427.
E-mail address: tujun@smu.edu.sg (J. Tu)

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In a recent study, Johansson (2009) documents evidence suggesting that China is showing an increasing level of integration with several major financial markets during the last decade. Incidentally, this study's sample includes the period after China's admission into the WTO. It may not be surprising that joining the WTO may be a turning point for the Chinese economy. For example, studies have shown that the importance of the global economy on the Chinese economy has increased significantly after joining the WTO in December 2001. (e.g., Canova and Dellas, 1993; Sachs and Warner, 1995; Frankel and Romer, 1999; Rumbaugh and Blancher, 2004).

In addition, a close relationship exists between economic activity and stock prices (e.g., Schwert (1990) and Roll (1992) for the US economy, and Canova and De Nicolo (1995) for European economies). Hence, it is plausible that the Chinese stock market may be affected by global economic activities through a transmission mechanism from the Global to the Chinese economy, and then from the Chinese economy to the Chinese stock market.[1] Since the US is the world's largest economy and is China's largest trading partner, it is reasonable to use US economic variables as a proxy for global economic activity.[2] In this paper, we investigate whether US economic variables, such as the dividend–price ratio, earnings–price ratio, as well as the term and default spreads can predict Chinese stock market behavior. We also explore whether US economic variables can provide additional information beyond that contained in Chinese economic variables in predicting the Chinese stock market.

Investigating the forecasting ability of US economic variables for the Chinese stock market is relevant for a number of reasons. First, it establishes the proper information set or benchmark for investors focusing on the Chinese stock market. For instance, if US economic variables can predict and provide additional forecasting information for the Chinese stock market beyond that contained in Chinese economic variables, investors should incorporate US economic variables into their information set to enhance the accuracy of their return forecasts. The enhancement of the return forecasts may be economically important from an investment perspective, and will therefore affect the benchmark used for measuring investment performance.

Second, analyzing the forecasting ability of US economic variables for the Chinese stock market could have important implications for the cross-sectional returns of the Chinese stock market. As shown by Ferson and Harvey (1999) for the US stock market, among others, economic variables that predict stock returns provide significant explanatory power for the cross-sectional stock returns. Hence, incorporating US economic variable may lead to better asset pricing modelling as well as better cost of capital measuring (e.g., Fama and French, 1997).

Third, an investigation of the forecasting ability of US economic variables for the Chinese stock market improves our understanding of the return predictability across countries. Since the extant voluminous literature on return predictability focuses almost exclusively on the US stock market, the present paper provides additional evidence across countries by examining the forecasting ability of the US economic variables for the Chinese stock market.

In this paper, we conduct the following analyses on the forecasting ability of the US economic variables for the Chinese stock market. First, we analyze the in-sample forecasting ability of the US economic variables for the Chinese stock market for the aggregate market portfolio and for a large number of component portfolios. Second, we employ an out-of-sample analysis, focusing on comparing the forecasting performance of the enhanced forecasts utilizing the US economic variables as additional predictors relative to the benchmark forecasts based on historical average and the benchmark forecasts based on the China economic variables alone, respectively. Third, we examine the economic importance of incorporating the US economic variables as additional predictors from an investment perspective.

Our analysis on the forecasting ability of the US economic variables for the Chinese stock market uncovers a number of interesting empirical facts. In-sample results reveal that although in the time period before China joined WTO, the US economic variables are unable to predict the Chinese stock market. These variables show significant predictive ability after China joined WTO. Following Rapach et al. (2011), we

[1] We recognize alternative transition mechanisms. For example, global economy may directly affect the degree of risk averse of Chinese stock market investors.

[2] Harvey (1991) and Bekaert and Harvey (1995) show that US economic variables are highly correlated with world economic variables.