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# Sticky prices or economically-linked economies: The case of forecasting the Chinese stock market $\stackrel{\mbox{\tiny\size}}{}$



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#### ABSTRACT

We explore whether economic links via trade affect aggregate Chinese stock market returns. We find that market return indices from countries that China net imports from can forecast the Chinese aggregate market return at the weekly time horizon. The stock returns of countries that China net exports to have no consistently significant OOS predictability.

The economic intuition for our results follows from the fact that China has positioned itself as a low-cost provider competing on price. As a low-cost provider China has a more difficult time passing cost increases through to export customers because of sticky prices. However, import costs, e.g., raw materials, are subject to both consumption and speculative demand and thus vary. We can conclude that costs will drive short term economic gains for the overall Chinese economy. One interpretation of our results is that supply shocks are absorbed within 2 weeks.

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#### 1. Introduction

Can aggregate Chinese stock returns be forecast? To date, there is mixed US evidence on out-ofsample (OOS) predictability using fundamentals and macro variables, the two work horses of the predictability literature. However, outside the US there is mounting evidence that markets are predictable by alternative variables.<sup>1</sup> This paper adds to the international predictability literature by exploring whether economic links between countries are useful for identifying predictor variables for the Chinese market. Chan et al. (2007) provide a recent survey of financial research on China.<sup>2</sup> They discuss several cross-sectional predictability studies but virtually nothing on aggregate market OOS predictability.<sup>3</sup> Two recent studies explicitly consider OOS forecasts of the Chinese market. Rapach et al. (2013) study the forecast power of Chinese fundamentals and Goh et al. (2013) study the forecast power of both Chinese and US fundamentals. These studies provide some initial evidence that the Chinese equity market index has a predictable component. In contrast to these studies we i) examine other countries' returns as predictors, ii) examine weekly frequency data and iii) focus on China's major trading partners. According to The Economist (2011) China could surpass the US as the number one economy by 2020. Thus, China is growing in importance in terms of world trade.<sup>4</sup> Thus, understanding whether China is substantially different from other large economies<sup>5</sup> and whether the returns of trade partner economies are useful in forecasting the aggregate Chinese stock market return index is of vital importance. The purpose of this paper is to fill this gap and investigate whether trade relations impact out-of-sample (OOS) predictability of Chinese stock market returns.<sup>6</sup>

There are two potential theories that might motivate superior OOS predictability to one subset of countries over another. China has positioned itself as an export economy.<sup>7</sup> Being an export oriented manufacturing economy has important implications, foremost is that China will compete on price. China exports a lot of manufactured goods, whose prices are sticky since contracts are previously agreed; therefore, export prices cannot respond quickly to economic fluctuations. Hence net export countries returns will not impact Chinese returns in the short-run. On the other hand, China is a major importer of raw materials, whose prices are determined daily on the global market; therefore raw material costs are flexible in the short term. Hence, shocks to Chinese firm's costs will affect its profits

<sup>3</sup> We explore the predictability of the aggregate Chinese market. However, there are two papers that explore predictability of cross-sectional differences. First, Wang and Xu (2004) apply a three-factor model to A-shares in the Chinese stock market using data from July 1996–June 2002. They find that size is able to explain the cross-sectional differences. Contrary to the findings using US data, the beta and book-to-market ratio did not account for return differences across individual stocks. Second, Chen et al. (2010) consider 18 firm-specific variables that have been shown to predict cross-sectional stock returns in the US, and examine their relation to stock returns. (at the annual horizon) in China over the period 1995–2007. They find that only 5 of the 18 variables predict Chinese stock returns. The explanation for this finding of weak predictability that they find support for is that, i) return predictors in China are less hetrogeneously distributed than they are in the US and ii) stock prices in China are less informative in China than they are in the US, in the sense that there are persistent noisy valuations and persistent mispricing in China.

<sup>4</sup> The growing importance of China is reflected by the increase in the number of articles with a China focus. For example, Sheng (2013) studies China reserve diversification strategy, an important global driver. A search of Web of Knowledge clearly demonstrates the growth in research focusing on China. In 1990, 2000, and 2012 there were just under 140, 420, and 2550 articles, respectively, in the Business and Economics section with the search term "Chin<sup>\*</sup>".

<sup>5</sup> China is an interesting new market structure that may differ significantly from the standard free-market paradigm. According to the U.S.-China Economic and Security Review Commission (see Szamosszegi and Cole, 2011), the Chinese government held a controlling interest in over 70% percent of firms listed on the Chinese markets. Another important difference between China and the West is that the major banks in China are owned by the Chinese government, so low interest loans to its own firms may provide competitive advantages.

<sup>6</sup> We focus on Chinese 'A' shares which comprise of 99% of all trading volume in China.

<sup>7</sup> China has historically positioned itself as a low-price exporter, however, this has changed in the most recent years. Research has documented that a low cost strategy works and remains viable in China. For example, Aulakh et al. (2000) study export strategies of emerging market firms exporting to developed markets and find that cost-based strategies enhance export performance. Li et al. (2009) find that low-cost positions remain a profitable strategy for Chinese firms competing in the export market.

<sup>&</sup>lt;sup>1</sup> See Jordan et al. (2012) and Lee and Rui (2000) for a review of the international fundamental predictability literature.

<sup>&</sup>lt;sup>2</sup> Some papers examine the relation between China and other aggregate markets. However, these papers focus on the Greater China markets or a sample of Asian countries, sometimes including the US. Hsiao et al. (2012) explore the impact on 24 countries from the economic integration of Hong Kong with mainland China. The focus in this literature is on contagion or other market linkage characteristics. A significant difference between this line of literature and our paper is that this line of literature does not explore out-of-sample forecasting.

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