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The Performance of One Belt and One Road Exchange Rate: based on Improved Singular Spectrum Analysis

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HIGHLIGHTS

- Improved SSA is used to decompose the exchange rate.
 - Dynamic lead-lag structure is found between CNYX and OBORR in the medium term.
 - The fluctuation of OBORR is larger than CNYX.
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ABSTRACT

“One Belt and One Road” strategy in China is on push of foreign trade openness at northwest, southwest and northeast, absorption of the excess capacity and new support for economic increase. However, the fluctuation in RMB exchange rate with the countries along the road is unstable so related Chinese enterprises will face high risk of exchange rate. Precise explanation or prediction for exchange rate has been the challengeable hop point in the international finance. This paper decomposed the One Belt One Road Exchange Rate Index (OBORR) and the RMB Effective Exchange Rate Index (CNYX) into trend term, market fluctuation term and noise term using improved singular spectrum analysis (SSA). It turns out that the increasing velocity of OBORR is greater than that of CNYX in the long term, and there is dynamic lead-lag structure in the medium term. In the short term, the fluctuation range and frequency of OBORR are greater than those of CNYX, which means there will be more exchange rate risks in One Belt and One Road countries.

Key Words: Singular Spectrum Analysis; Increment for Singular Entropy; One Belt One Road; Exchange Rate; Thermal Optimal Path

1. Introduction

According to the statistics from Ministry of Commerce of People’s Republic of China, the Chinese enterprises contracted 2677 new projects with 60 countries along the one belt and one road from January to October in 2015, the values of newly signed contracts reached US \$64.55 billion amounting to 43.3% of foreign contracted projects with year-on-year growth of 21.6 percent. Besides, the Asian Infrastructure Investment Bank established in the end of 2015, the projects of Jakarta-Bandung high-speed rail and the China-Laos railway started, and the China-Thailand railway laid foundation, which means the number of the projects brought by “One belt and one road” has exceeded the expectation. As a significant strategic policy for Chinese construction enterprises, the “One belt and one road” will continuously release impetus for the

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