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Master's Thesis Presentation

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A New Test Model for Mean Non-Stationary Time Series Analysis

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ABSTRACT

Stationarity has been the foundation of various available time series analysis methodologies. However, strictly stationary or weakly stationary may not be appropriate for certain processes. Here we applied a newly developed test statistic for analyzing mean-non-stationary models. With this proposed test statistic, we may be able to test the existence of structural breaks in trends. In addition, for those processes without significant structural breaks, we may also construct simultaneous confidence bands with asymptotically correct nominal coverage probabilities, based on a strong invariance principle of stationary processes. Applying this methodology in the analysis of Johnson & Johnson and Pepsico stock price data sets. We also use moving window method to test the stationarity of mean and variance. We found the mean non-stationary method is more appropriate for the data sets we analyzed.

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