

Abstract

This thesis investigates frequency-related phase relationships among returns of five major 5-minute European stock market indexes and compares relative phases on high frequencies, with focus on dynamics between developed and developing stock markets from 2008 to 2015 using. Using continuous and discrete wavelet transform we find significant phase relationships among the considered indexes, particularly we spot very strong relationship between the developed ones with no significant phase difference on any investigated frequency. Furthermore we observe significant lag of developing markets behind developed ones, particularly on horizons between 20 and 80 minutes. We also observe that the relationships is fading throughout the examined period, with increased variance of the relative phases and diminishing significance of some phase differences. The results indicate that either less developed markets are becoming more effective or it can be a sign of decreasing inter-dependencies (e.g. lower common trends). This thesis contributes to the literature by examining noisy financial time series on highest frequencies and shows relevance of the method on simulated signals with high degree of noise.

JEL Classification C14, C15, C65, G14

Keywords Stock market comovement, phase difference, wavelet analysis, spectral analysis, causality

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