Independent Study Title	CAPTURING THE ORDER IMBALANCE WITH HIDDEN MARKOV MODEL: A CASE OF SET50 AND KOSPI50
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Academic Year	2016

ABSTRACT

Based on the empirical evidence of the recent strand of the literature, Market Efficiency creation process is not instantaneous, but rather attains over short-horizon of time. With the low liquidity market, the price movement of financial assets can be predicted by order imbalance indicators. In contrast, in a more liquidity market, the predictability of return is significantly decreased. In this study, we implement one of the well-known machine learning models for pattern recognition known as the Hidden Markov Model (HMM) with order imbalance to forecast the price movement of selected stocks in markets with different levels of liquidity which are the Stock Exchange of Thailand (SET) and Korea Exchange (KRX). As the consequence, we can create an algorithmic trading strategy based on the states of risky assets captured by the models. The result is consistent with the previous literature that both the predictability of the models and the profitability of the strategy diminish as the frequency decreases and market liquidity increases. Remarkably, our model in the market with lower liquidity is able to generate signal that achieves average hit ratio of 83.38% in predicting the risky assets' positive price movement at frequency of 5 minutes.

Keywords: Algorithmic trading, HMM, market efficiency, liquidity, order imbalance