ABSTRACT

Title of Dissertation	Liquidity Risk and Expected Returns in Thailand
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Liquidity in the stock market is crucial for investment decisions, as it allows investors and issuers to meet their needs for investment, financing, and hedging. This, in turn, reduces investment costs and the overall cost of capital, creating a more efficient market environment. The aim of this dissertation is investigating the modern technique using computer science to resolve the liquidity problem and to formulate Machine learning and Deep learning models for the prediction of liquidity. Which is used for predicting the complexity problem in Thailand's Stock and Bond market which is the liquidity. Liquidity plays an important part in investment strategy and investor's decisions on the security market. In addition, it affects the stock and bond price and returns on investment through the cost of liquidity or trading by transferring the ownership of stock and bond. The nature of liquidity in the stock and bond market is complex and characterized as volatile, unpredictable, dynamic, and non-linear. Predicting liquidity is a challenging task because it has many factors that affect them such as volume trading, Trading value and so on. We focus on the Thailand Stock Market from 2005 to 2023 and Thailand Bond Market from 2015 to 2024. Both of market, it is characterized by limited market tightness and markets depth, compounded by its relatively modest size. We introduce a forward-looking illiquidity measure, Expected Illiquidity (EI), represented by the bid-ask spread. In pursuit of robust liquidity prediction models, the authors construct and refine to build robust liquidity prediction models, Multilayer Perceptron, Mixed Deep Learning, Long-Short Term Memory (LSTM), and Multiple Linear Regression models, and extreme gradient boosting (XGB) algorithms. We evaluate these models by comparing their out-of

sample forecasting errors against a naïve estimate using current daily illiquidity. XGB and LSTM demonstrates superior predictive capabilities, with the lowest Mean iv Absolute Percent Error, Mean Absolute Error, and Mean Squared Error. Including lowest when compare the outcomes of comparing the developed model with other methods from the relevant literature. The outcomes of this research hold practical significance, providing a foundation for the development of decision support methods tailored to the unique dynamics of the Thailand Stock and Bond Market. Including helping stakeholders improve their decision-making and enhance market efficiency. By leveraging the predictive insights generated by the XGB, LSTM, stakeholders can enhance their decision-making processes, contributing to the continued evolution and efficiency of the Thailand Stock and Bond Market. Therefore, the implementation of this study focuses on a significant contribution to improving portfolio management, investors' decisions, and policy tools. Regulators and central banks can closely monitor the expected development of liquidity and are able to take timely countermeasures, especially government policy. For example, regulators may actively revise the Act to stimulate capital market liquidity before the crisis as well as propose supporting measures. As can be seen in the mutual fund's policy, allowing passing on the cost of redemptions to the redeeming shareholders before or during the crisis could apply because the fire sales struggling funds might impact the whole market. The regulator may incentivize funds to broadly use new policies and alternatives to relieve the liquidity crisis. This paper chooses the emerging market in the Stock Exchange Thailand (SET) due to its conduct of liquidity forecasting. The purpose of this paper is to develop a predictive model by deep learning to forecast liquidity risk in emerging markets and try to develop deep learning models for liquidity prediction in order to mitigate liquidity risks and suggest preventive measures. The significance of this research could benefit not only potential investors who apply modern technique to manage portfolios but also the regulators who can develop the tools for monitoring. We believe that the results presented in this manuscript will engross the readers of ABAC journal because the findings established a robust model for predicting the liquidity and identified key factors influencing the model predicting for capital market of Thailand.