# Markov chain model application on stock market price of Sri Lankan private banks

Anuthrika T. and Jeevana D.*

*Department of Mathematics and Statistics, Faculty of Science, University of Jaffna, Jaffna, Sri Lanka*

Analyzing stock prices is essential from the investor's point of view to make effective decisions regarding their investment. Therefore, this paper studies a Markov chain application on stock market price. This paper provides a Markov chain analysis on stock prices of three of the top banks; Hatton National Bank (HNB), Commercial Bank (CB) and National Development Bank (NDB) in Sri Lanka.The closing prices of each trading day of each of the above three banks were obtained during the period of Jan 2017 to June 2018. Two approaches have been followed to define the states of the system. For each bank, the states were considered as gain or loss for model 1 and high increment, moderate increment, small increment, small loss, moderate loss and high loss formodel 2. The Transition probabilities, steady state probabilities and mean recurrent time were obtained for these two models and compared among the banks. Based on the model 1, it is revealed that the chance of getting gain is comparatively high for all the banks. Further, it was noted in the steady state that there is 65% chance of getting gain and 35% chance of getting loss for HNB shareholders. According to model 2, the chance of getting small increment is high for each of the three banks. Also, noted that, for HNB shareholders there is 45% chance of getting small increment in near future.

**Keywords**: Markov chain, closing price, steady state probability, stock market and transition probability

*Corresponding author: sjeevana90@gmail.com