

ABSTRACT

There are many studies states that the Deep Reinforcement Learning model has a good performance in making decision of buying and selling stocks. In addition, studies have shown that Deep Reinforcement Learning has a good ability to deal with rapidly changing or unstable data.

However, it is still unknown to what extent Deep Reinforcement Learning has a good performance in making buying and selling decisions. Does Deep Reinforcement Learning have a good performance to be applied to the five types of stock fractions? Does Deep Reinforcement Learning perform well even if it is applied to data affected by the COVID-19 pandemic? This will be tested using two Deep Reinforcement Learning model algorithms, namely, Proximal Policy Optimization, and Deep Deterministic Policy Gradient.

From the test results, it is found that the Deep Reinforcement Learning algorithm does not always produce good performance in every environment al condition. The application of the Deep Reinforcement Learning algorithm to the five fractions and the four effects of the pandemic data shows that the Proximal Policy Optimization algorithm has a better performance than the Deep Deterministic Policy Gradient with the Rata-rata sharpe ratio for each of these algorithms is 0.172 and 0.058. As for the best conditions/environment s that Deep Reinforcement Learning can learn, namely the environment for fraction 3 without containing data containing the COVID-19 pandemic.

Keywords: *Deep Reinforcement Learning, Stocks, Fractions, Pandemic, Deep Deterministic Policy Gradient, Proximal Policy Optimization.*