

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**EVALUATING THE EFFICIENCY OF MALAYSIAN STOCK
PERFORMANCE DURING COVID-19 PANDEMIC USING
STOCHASTIC FRONTIER ANALYSIS**

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

Recently, there have been a lot of unexpected incidents happened all around the globe especially in our own country, Malaysia. One of the events that contribute to businesses inefficiencies in managing their inputs effectively is disease outbreaks, like the Covid-19 pandemic. Efficiency calculations representing by model-based approach such as data envelopment analysis (DEA) do not take uncontrolled (noise) factors into consideration. Random noise has to be considered because it does relate with the unexpected incidents such as the Covid-19 pandemic. Therefore, it can influence the efficiency score's expected value, interrupt the process of making decisions, and have an adverse financial impact. As a result, SFA can be utilized because it is incorporating the random noise that closely representing noise that closely representing the real physical systems such as bank performance that can be influenced by globalization. Furthermore, one of the advantages of SFA is it allows for statistical hypothesis testing about the structure of production and level of inefficiency while taking stochastic noise into account in data. Hence, this research is devoted to apply SFA model to identify the performance of company stocks, while comparing sectors and companies based on their efficiency score. This study only uses three inputs, asset turnover ratio (ATO), inventory turnover ratio (ITO), and receivables turnover ratio (RTO) and one output, return on equity ratio (ROE). The stock performance of the company will be evaluated based on the efficiency performance using Technical Efficiency (TE). We applied function of the SFA, the Cobb-Douglas Production Function by using the inputs and output before we get TE. Scores based on TE have been done to rank the companies to identify the best and the bottom stock performance based on efficiency. Results from the study show that the top companies are Top Glove Corporation Berhad, followed by Astro Malaysia Holdings Berhad, and Supermax Corporation Berhad, and the bottom companies are Magnum Bhd, followed by Aeon Co (M) Berhad and Borneo Oil Berhad. In conclusion, this research can be useful for those who are involved in investment and those who would like to another research that apply the SFA method for different purposes.