UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

THE EFFECT OF COVID-19 OUTBREAK TOWARDS STOCK MARKET IN MALAYSIA AND SINGAPORE: HOW TO MINIMIZE THE RISK USING MEAN-VARIANCE MODEL

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

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ..... **ii**
TABLE OF CONTENTS **1**
LIST OF TABLES **2**
LIST OF FIGURES **2**
ABSTRACT **1**
CHAPTER 1: INTRODUCTION **1**
1.1 Motivation 1
1.2 Problem Statement 3
1.3 Objectives 4
1.4 Significant and Benefit of Study 4
1.5 Scope and Limitation of Study 5
1.6 Definition of Terms 6

CHAPTER 2: BACKGROUND THEORY AND LITERATURE REVIEW **8**
2.1 Background Theory 8
2.2 Literature Review/ Related Research 9

CHAPTER 3: METHODOLOGY AND IMPLEMENTATION **14**
3.1 Methods 14
3.1.1 Data collection 15
3.1.2 Data analysis 15
3.1.3 Constructing the risk minimizing portfolio 19
a) Variance 20
b) Mean-variance model 21
3.1.4 Compare and analyse the risk behaviour 22
3.2 Determination of target return 22

CHAPTER 4: RESULTS AND DISCUSSION **23**

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS **35**
REFERENCES **36**
APPENDIX A **38**

LIST OF TABLES

Table 1: Definition of terms 6
Table 2: Simulation of weekly return for KLCI 16
Table 3: Simulation of weekly return for STI 17
Table 4: Expected return and maximum performance from KLCI 18
Table 5: Expected return and maximum performance from STI 19
Table 6: List of assets for KLCI and STI 24
Table 7: Portfolio return of KLCI and STI before Covid-19 26
Table 8: Portfolio return of KLCI and STI before Covid-19 26
Table 9: Risk minimizing portfolio by using Solver before Covid-19 27
Table 10: Risk minimizing portfolio by using Solver after Covid19 28

LIST OF FIGURES

Figure 1: Steps in constructing risk minimizing portfolio by using mean-variance model 14
Figure 2: Behaviour of KLCI index in terms of portfolio return and varince before Covid-19 (Low return) 29

Figure 3: Behaviour of KLCI index in terms of portfolio return and variance before Covid-19 (Medium return) 29
Figure 4: Behaviour of KLCI index in terms of portfolio return and variance before Covid-19 (High return) 30
Figure 5: Behaviour of KLCI index in terms of portfolio return and variance after Covid-19 (Low return) 30
Figure 6: Behaviour of KLCI index in terms of portfolio return and variance after Covid-19 (Medium return) 31
Figure 7: Behaviour of KLCI index in terms of portfolio return and variance after Covid-19 (High return) 31
Figure 8: Behaviour of STI index in terms of portfolio return and variance before Covid-19 (Low return) 32
Figure 9: Behaviour of STI index in terms of portfolio return and variance before Covid-19 (Medium return) 32
Figure 10: Behaviour of STI index in terms of portfolio return and variance before Covid-19 (High return) 33
Figure 11: Behaviour of STI index in terms of portfolio return and variance after Covid-19 (Low return) 33
Figure 12: Behaviour of STI index in terms of portfolio return and variance after Covid-19 (Medium return) 34
Figure 13: Behaviour of STI index in terms of portfolio return and variance after Covid-19 (High return) 34

ABSTRACT

This study utilizes a mean-variance model to measure the volatility of the Malaysian and Singaporean stock markets both before and after the pandemic. In this study, we construct portfolios to obtain the minimum risk measures using the mean-variance model between the stock market in Malaysia and Singapore at various levels of the prescribed return. One of the most well-known models for assessing the expected return and risk minimization is the mean variance model. Variance was the first indicator applied in the mean-risk model which is the most often utilized indicator of portfolio selection. The main problem in this study is how to collect the weekly scenario returns of the top 30 companies in Bursa Malaysia and Singapore Exchange. Beside of that, the objectives of the study are to collect the scenario (weekly) return of the top 30 assets that we have selected in each of Bursa Malaysia and Singapore Exchange. Next to construct the variance minimising portfolios of the top 30 assets for both exchanges (on various risk-and-return trade-offs) by using the mean-variance optimisation model. Lastly, to compare and analyse the risk (in terms of variance) behavioural patterns of the portfolios obtained in second objectives for both before covid-19 and during covid-19. This study focuses on the effect of Covid-19 outbreak on the stock market in Malaysia and Singapore and how to minimize the risk using the mean-variance model. We collect the data from Bursa Malaysia and Singapore Exchange to be used in this selection model which is the weekly returns of adjusted close price assets. A total of 417 scenarios before the pandemic and 156 scenarios during the pandemic. The step of this constructing risk minimizing portfolio by using this model are started by collecting the adjusted close price of 30 assets from Malaysia and Singapore. Next, to simulate weekly return and variance by Excel. After that, constructing the risk minimizing portfolio – mean-variance model. Lastly, compare the performance and risk behaviours between two countries. As for results, KLCI shows a stable performance before and after Covid-19 compared to STI in terms of variance and expected return because the risk is lower. This study also shows that Covid-19 pandemic is really impacting the stock market for both indexes in terms of variance because there is significant increase in risk (variance) after Covid-19.