

TRADING BEHAVIOUR OF MALAYSIA INVESTOR
DURING COVID-19 PANDEMIC: SPECULATION
OR VALUE INVESTMENT

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APRIL2022

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FN (HONS)

April 2020

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A final year project submitted in partial fulfilment of the
requirement for the degree of

BACHELOR OF FINANCE (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF FINANCE

APRIL 2022


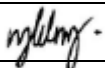
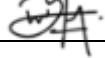


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DECLARATION

We hereby declare that:

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- (2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the FYP.
- (4) The word count of this research report is 12801 words.

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ACKNOWLEDGEMENT

The completion of this research would not have been successful without the support and help of many individuals. We sincerely express our thanks and gratitude to all of them.

We are grateful to our supervisor, Mr. Lim Chong Heng, for his patient guidance and technical support for this research work. We would not be able to achieve this successful outcome without his superior experience and knowledge. He is like a friend and mentor who guide us patiently and supporting us along this research. We also want to thank the department members of the faculty for their assistance and providing resources that we needed throughout the research.

Lastly, we wish to thank our family members for their love and support that make us feel stronger and able to complete this research. Once again, we are feeling thankful to all who lend a helping hand directly and indirectly.

DEDICATION

We would like to dedicate this research project to our beloved supervisor, Mr. Lim Chong Heng, who always give valuable feedback and shared his knowledge with us. We really appreciate his valuable guidance, advice, and motivation when we were facing difficulties during this research project.

Last but not least, this research project is dedicated to all of our group members who have contributed their time, effort, knowledge and cooperation thorough this research project journey. Due to the collaboration, understanding and enthusiasm toward this research project, it had led to the completion of this research project.

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LIST OF ABBREVIATIONS

D/E	Debt-To-Equity
DF	Degree of Freedom
EMH	Efficient Market Hypothesis
GDP	Gross Domestic Product
KLCI	Kuala Lumpur Composite Index
KLSE	Kuala Lumpur Stock Exchange
MCO	Movement Control Order
MPT	Modern Portfolio Theory
P/E	Price-To-Earning
P/B	Price-To-Book
Sig	Significance Level
U.S.	United States
USA	United States of America

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USD United States Dollar

SARS Severe Acute Respiratory Syndrome

SPSS Statistical Package for the Social Sciences

Preface

Malaysian investors are concerned with their portfolio performance during the coronavirus pandemic. This research can determine the return of the portfolios based on debt to equity, price volatility and market return and how these variables affect the switching of Malaysian investor trading behaviour. Malaysian investors will be able to evaluate and determine which portfolio is more preferable and profitable during the coronavirus pandemic. By identifying the trading behaviour of majority investors during the pandemic, this could provide a better market insight and allowing the investors to better allocate their portfolios.

Financial institution would be concerned with Malaysian investor trading behaviour and could refer and evaluate this research to capture the potential clients and customers. By obtaining the information of the portfolio performance based on debt to equity, price volatility and market return, it indicates the Malaysian investors' trading behaviour and enabling the financial institution to provide customized products and services to the investors.

Abstract

This research is to study the performance of portfolios based on debt to equity, price volatility and market return and identifying whether there is a switch in investors' trading behaviour before and during the coronavirus pandemic. This research collected data from KLSE top 100 market capitalization companies during 1st January 2020 to 30th June 2020. This research separates 2 periods which are 1st January 2020 to 17th March 2020 as first quarter and 18th March 2020 to 30th June 2020 as second quarter. The portfolios consist of 4 growth portfolios which derived from the lowest 25% of top 100 market capitalization companies and another 4 value portfolios that derived from largest 25% of top 100 market capitalization companies. Both the value and growth portfolios consist of 25 companies. This research used descriptive statistic to measure and compare all the portfolios performance. For the Man-Whitney-U, the returns between one portfolio and another portfolio are significantly different or same. Based on the result, all the portfolios return are significantly difference except for portfolio based on the lowest debt to equity with portfolio based on the highest debt to equity during quarter 1 year 2020. According to the descriptive statistic, all the portfolios had a negative return in the first quarter. The lowest loss of the portfolio is the portfolio based on the lowest price volatility (value portfolio). The highest loss of the portfolio is the portfolio based on the highest price volatility (growth portfolio). In addition, all the portfolios had a positive return during second quarter. The portfolio based on the lowest price volatility (value portfolio) had a lowest return and the highest price volatility (growth portfolio) had a highest return during quarter 2

CHAPTER 1: INTRODUCTION

1.0 Research Background

Trading behaviour normally used to indicate the portfolio preference of participants in the market whether they want to buy or sell securities depends on the price rise or fall that will result in a positive autocorrelation of return in the short term and will happen in stock market and foreign exchange market. The trading behaviour of investors in the market will influence the market price where different investors will have different reliance and presumption on the price by using different trading strategies. Investors will make decisions through the information from charts and fundamentals and change the information into price observed by all traders through their trading behaviour. When investors are analyzing the information, they may conclude what other investors are thinking and adjust their trading strategies in the next period to generate new prices (Gong, Tang, & Xu,2021).

Speculation and value investing are one of the varieties in trading behaviour but there are different practices and objectives for these two types of investors in the market. While speculation is the investors hope to get profit from the fluctuation of market price in a short-term period and they will not apply the “buy and hold” for their trading and they are able to bear the risk might happen in the period. Compared to speculation, value investing refers to the methodology where investors purchase the stock at the undervalued price, and they think that the price of stock may grow in future and get the profit from it. Even speculation and value investing are two different styles of investing, but they complement each other, hence speculation and value investing are able to let the portfolio become multiformity.

Wuhan, one of the cities in China, found the first cases of coronavirus disease in December of the year 2019 and started spreading to other countries in less than one month and infected more than 124 million people. The first case of coronavirus disease recorded in Malaysia was on 25 January 2020. At the beginning

of the pandemic outbreak in Malaysia, the government of Malaysia implemented a nationwide lockdown decision, Movement Control Order (MCO), which was effective from 18 March 2020. The MCO is to shut down most of the factories and industries activities temporarily and enforce social isolation of citizens (Yong, Jais & Chia, 2020).

The outbreak of coronavirus disease pandemic has brought a greater impact to the global financial market as there is blockade of economic activity and the sentiment of investors. While the governments of most countries implement measures to close the country and cities to prevent the spread of coronavirus, which lead to factories unable to run and produce as normal. Business of companies around the world face a terrible blow when the supply chain cannot run smoothly, and demand decreases at the same time. Besides that, the coronavirus disease pandemic also led to a decline in stock markets worldwide whereby the stock market performance will be sensitive with the amount of coronavirus disease cases in the short term (Liew, 2020). Global stock market is affected by coronavirus disease as most of the country happen stock market tumbled like the United States, Philippines and South Korea happen circuit breakers. Especially United States experienced 4 times of circuit breakers, and it has led to the longest record of 11 years bull run in U.S. stock was ended and followed by the fastest decline on record (Chebbi, Ammer & Hameed, 2021).

The rapid spread of coronavirus has brought severe detrimental effects upon Malaysia's economy and caused Malaysia to undergo economic recession as most of the economic sectors have been affected. The impact of coronavirus disease towards Malaysia's economy can be found through the unemployment rate of Malaysia where there is 3.3% of unemployment rate in the year 2019 but it increased and hit the highest record of 5.3% in May 2020. This situation shows there is a bad impact of coronavirus disease towards the demand of labour in Malaysia. On the other hand, GDP of Malaysia affected by coronavirus disease at the same time where the performance of GDP in quarter 2 year 2020 contracted 17.1% as the performance of all main sector in production have a decline except Agriculture sector and the performance for expenditure is same with production with a decline status except for government final consumption expenditure (DOSM,

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n.d.) There is depreciation of Malaysia Ringgit towards US Dollar and cause there is cost-push inflation where lowest exchange rate leads to higher cost of raw material import from other countries, especially for manufacturing companies in Malaysia which import raw materials from China.

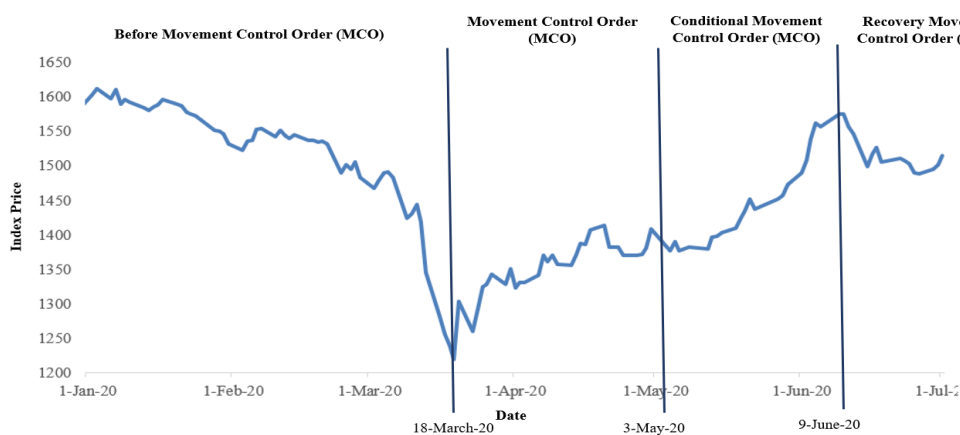


Figure 1.1 : Financial Times Stock Exchange Bursa Malaysia Kuala Lumpur Composite Index

Figure 1.1 shows the Kuala Lumpur Composite Index (KLCI) in Malaysia which involved the 30 largest market capitalization listed companies of the main market in Bursa Malaysia from 1 January 2020 until 1 July 2020. In 2020. The total listed companies on the Malaysian stock market consisted of 936 firms which contributed to the gross domestic product (GDP), and the large financial loss for the listed companies has led to a diminishing pattern in the stock market of Malaysia.

Furthermore, the uncertainty of the pandemic has made the stock market very volatile, which brings huge financial loss to investors (Bernama, 2020). From Figure 1.1, KLCI has undergone a downtrend since January 2020 and plummeted since the implementation of MCO in March 2020. Figure 1.1 also shows that it took around 6 months for the KLCI to recover back to pre-pandemic level.

The number of individual investors in global stock markets increased significantly throughout the coronavirus disease pandemic. Individual investors were identified as market drivers and they have to focus more on their trading

behaviour and role in the stock market dynamics. There are different approaches to managing their finances. Some of them will analyse data carefully before making a decision and some of them are more instinct driven. Hence, it is worth it to analyse and document the trading behaviour of individual investors in the stock market during this pandemic.

1.1 Problem Statement

The coronavirus disease pandemic could have caused a severe impact to the global financial market with similar impacts brought by the severe acute respiratory syndrome (SARS) pandemic outbreak. The SARS pandemic had brought severe negative impacts upon the global economy, hitting several industries including airlines, transportations, travel, and others. Overall, the SARS outbreak has caused a financial loss of 30 to 100 billion USD to the global economy (Smith, 2006).

Despite the uncertainties and high volatility in the stock market, that does not stop the retail investors from entering the markets and continuing to invest in Malaysian stocks. In this context, the MCO restrictions had brought a lot of extra free time to the citizens while they were confined to their homes. Due to the advanced technology which provides ease of access to financial services, this opens a huge opportunity in the stock market to the citizens as it is easier and more convenient to start investing in the stock market (Oertzen & Schröder, 2019). In fact, it has been recorded that the number of central depository system (CDS) accounts registered by the public during January to July 2020 has increased tremendously. (The Edge Markets, 2020). However, the main concern is that such a volatile market would be too risky for the new investors which have no prior experience and knowledge in the stock market, leaving them more vulnerable to investment losses.

Therefore, this research believes that the event of coronavirus disease pandemic can contribute to the research in the stock market such as obtaining information regarding investors' trading behaviour before and during the pandemic

and identifying the underlying factors that affect investors' portfolio and investment decisions. There are many studies that examined the impact of coronavirus disease pandemic on the Malaysian stock market by using macroeconomic variables as independent variables. There is a lack of studies about the investors' trading behaviour based on market performance during the pandemic using market indicators and financial metrics. Hence, this research aims to contribute and bring improvements to the existing studies by investigating how the Malaysian stock market performance affects the investors' trading behaviour during coronavirus disease pandemic.

1.2 Research Objectives

1.2.1 General Objectives

To identify the ways of coronavirus disease pandemic affect the trading behaviour of investors in the Malaysia stock market.

1.2.2 Specific Objectives

1. To determine the portfolio performance based on market return before and during coronavirus disease pandemic.
2. To determine the portfolio performance based on price volatility before and during coronavirus disease pandemic.
3. To determine the portfolio performance based on debt to equity before and during coronavirus disease pandemic.

1.3 Research of Questions

1.3.1 General of Questions

How does the coronavirus disease pandemic affect the trading behaviour of investors in the Malaysia stock market?

1.3.2 Specific of Questions

1. Does the market return affect portfolio performance before and during coronavirus disease pandemic?
2. Does the price volatility affect portfolio performance before and during coronavirus disease pandemic?
3. Does the debt to equity affect portfolio performance before and during coronavirus disease pandemic?

1.4 Significance of the Study

In March 2020, the coronavirus disease pandemic began in Malaysia. After the Malaysian government's announcement of the Movement of Control (MCO), most of the company's stock price dropped and the KLCI index ended with a lowest point which is 1,523.44 from 2018 to 2019 during 18 March 2020 (Shu, Thomas, & Lim, n.d.). It caused a lot of the investors to change their trading behaviour in the coronavirus disease pandemic to adjust an ideal portfolio allocation and target return according to the current market environment. This finding will contribute to the understanding of the influence of the trading behaviour of Malaysia investors in coronavirus disease pandemic. In this research, information on the performance of market return of KLCI, the high price volatility and debt to equity ratio from top 100 capitalization companies to determine the effect of the trading behaviour of the

Malaysian investors during coronavirus disease pandemic. It is to determine whether the independent variables are having a significant relationship to affect the changing of Malaysian investors' trading behaviour during the coronavirus disease pandemic.

Based on the past study, the performance of market return for the KLCI, price volatility and companies' debt to equity ratio is able to determine whether investor behaviour is significant in increasing the effectiveness of the findings of this research. Besides, this research is based in Malaysia as the information about the performance of market return is derived from the KLCI index, the price volatility and debt-to-equity ratio from top 100 capitalization companies in Malaysian stock market.

In addition, this research is studying whether the market returns from KLCI can significantly influence the trading behaviour of Malaysian investors during coronavirus disease pandemic. The investors will analyze the market return from KLCI before making their investment decision. If they realize that the average market return is not stable during coronavirus disease pandemic, they will change their trading behaviour to avoid the loss in the investment. Therefore, this research aims to find out whether the market return is a factor that influences investors' trading behaviour by identifying the difference between the market index performance before and during the coronavirus disease pandemic.

Furthermore, the performance for the company's debt to equity ratio might have an influence on the trading behaviour of Malaysia investors during coronavirus disease pandemic. The debt-to-equity ratio is used to determine the company's financial leverage to finance the business operation. This information is provided to the investors to analyze the company's financial leverage through the debt versus wholly owned funds during the coronavirus disease pandemic. The investors can base on the debt-to-equity performance to make their investment decision and their trading behaviour (Affandi, Sunarko & Yunanto,2019). To better understand the research, this research will separate a higher debt to equity portfolio (growth portfolio) and the lower debt to equity portfolio (value portfolio) from the top 100 largest market capitalization companies in Malaysia to study analyse the portfolio's

return before and during the coronavirus disease pandemic and find out the significant difference between the portfolio performance. Then, it would indicate the trading behaviour of investors based on their portfolio allocation using the debt-to-equity ratio method.

Moreover, the price volatility refers to the price fluctuations on the stock price. The stock will have a higher volatility risk due to the uncertainty and fluctuation of the stock price and is able to generate a higher return associated with the higher risk. During the coronavirus disease pandemic, many stock prices in the Bursa Malaysia Market dropped and prices fluctuated greatly (Shu, Thomas, & Lim, n.d.). Based on the information of price volatility, the investor can re-manage their portfolio to reduce the risk. However, most Malaysian investors' trading behaviour will shift to a successful portfolio during the coronavirus disease pandemic as the economy slowly recovers from the trough and investors will begin to adapt to the new norms. Therefore, this research will diversify into a higher price volatility (growth portfolio) and the lower price volatility (value portfolio) from the top largest 100 market capitalization companies to analyse the portfolio's return during the coronavirus disease pandemic. Thus, it can be clearly determined whether the factor of price volatility is able to affect the Malaysian investors' trading behaviour before and during the coronavirus disease pandemic.

In conclusion, this research is able to help the researchers to understand and be knowledgeable on the factors that influenced the trading behaviour (growth or value). The independent variables could help the researcher to better analyze the trading behaviour of Malaysian investors during the coronavirus disease pandemic.

1.5 Structure of the Study

Chapter one consists of introduction to this research and followed by the research background, problem statement, research objectives, research questions, and significance of the study. This chapter is focusing on determining and analyzing the basics of outlining for the research background of the Malaysian trading behaviour during the coronavirus pandemic.

Chapter two is the review of the past studies that investigated for the investors trading behavior based on the debt to equity, market return and price volatility. Besides that, the connection between the independent variables and dependent variables will be studied as well during the literature review.

Chapter three will cover the methodology that will be tested in this research and conclusion will be drawn to the next chapter. This chapter covers the methodology of this research. All the methodologies applied such as data collection methods, sampling design, data processing and data analysis methods will be explained more specifically in this chapter.

Chapter four will use methods in the previous chapter to identify whether the outcome achieves the research objective, by performing diagnostic checking, descriptive statistics, hypothesis testing and data analysis. The patterns and analyses of the results that describe the research questions and hypotheses of this research will be conveyed in this chapter.

Chapter five will summarize the test satisfied the research goal and that the results from earlier journals are supported. Furthermore, this chapter will provide the limitations in this research and come up with concrete recommendations for future research.

1.6 Conclusion

This chapter is introducing the background history of the Malaysia stock market during the coronavirus disease pandemic. This chapter has clearly determined the objective for the investors who changed their investment behaviour when the coronavirus disease pandemic happened. In addition, the problems statement also demonstrates the issues brought by the coronavirus disease pandemic and its effect on the stock market. Despite exposure to uncertainty and high risk in the stock market under the pandemic, still there are investors willing to venture into the market and make investments. Therefore, the problem given an ideal for this research to investigate whether the Malaysian investors' change their trading behaviour during the coronavirus pandemic. Besides, to clearly proceed the research, the study of significance has evaluated the effect of the investors' investment behaviour (growth or value) based on independent variables (price volatility, debt to equity and market return) during the coronavirus pandemic. This chapter included a summary of the layout of the chapters in this research.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In Chapter 2, review of literature is reviewing and summarizing the journals or articles on factor change of the trading behaviour of investors to better understand the research. Review of literature will be evaluated and summarize several different journals to discuss the independent variables. Besides, the relevant theories also discuss in detail the variables which are price volatility, debt to equity and market return for better understanding of the variables and the research objective. The definition and relationship of the dependent variables and independent variables will be shown in the variable review. This part will also include a review of previous studies to demonstrate different researchers' perspectives on the relationship between the variables. Lastly, current theory will be presented and used to support the researchers' perspective in the theoretical framework. It will be able to be critically analyzed and improved.

2.1 Review of Literature

2.1.1 Review of speculation and value investing

According to Erik & David (2014), investors with value investing behaviour are more preferring to invest in stocks that are able to generate stable return such as stocks that are currently undervalued and are able to achieve higher capital growth and return in the future. However, it is different compared with speculation where the investors have to bear higher risk as they want to generate profit from the stock market in a short period. Value investing is buying stock of a company with a lower price-to-books ratio and growth investing is buying stock of a company with a higher price-to-book ratio. While investors analyze stock from different companies, they

will analyze from different areas which include the dividends of shares and the financial statement of the company. After the process, it will result in two different types of stock which are value stocks and growth stocks.

Yeh & Hsu (2014) states that there is a negative relationship between value stock and growth stock. Value stock is defined as a stock with lower volatility, price-to-earning (P/E) ratio, and price-to-book (P/B) ratio while growth stock is with higher ratio. Value stock promises to generate stable return compared with growth stock and be able to buy in with cheaper price of stock. Value stock means the company is weak but stable on earning profit in the past and growth stock means the company is strong on earning profit in the past (Yen, Sun & Yan, 2004). Growth stock is the stock that investors have higher expectation towards the stock will continue to grow and earn higher profit in future. Growth stock is the preferable stock for most of the investors as the companies of growth stock are having better products with their creative ideas and have greater opportunities in the markets. With this reason, companies are able to increase the value of it and have higher return on growth stocks (Yeh & Hsu, 2014).

2.1.2 Review of Price volatility

According to Rabi & Rana (2019), price volatility has become an important factor to be considered by investors when they research and analyze the stock price. This is because price volatility is one of the opportunities to let the investor buy at a lower price and sell at a higher price to make profit for the day before trading hours end. The price volatility refers to the change of the stock price whereby the large change in price indicates a high volatility and low volatility for a small change in price. The importance of the volatility index is becoming crucial in the financial market as it may be used to predict the underlying index about future volatility. When the expectation of investors towards the volatility is a trend of increasing, the opportunities of investment will decrease because it will

change the risk-reward balance. Hence, the risk-averse investor will increase their demand for the stocks that are highly sensitive to the volatility for hedging purposes (Pati, Rajib & Barai, 2019).

According to Saad, Edi & Haniff (2020), when financial analysts wish to estimate time series that represent the financial risk, volatility will be the crucial element in this period, yet it is difficult to observe directly and hypersensitive to changes of market. While investors have a greater expectation towards the securities market due to external factors will lead them to change their trading behaviour to minimize losses or maximize profit. This situation causes a high price volatility for the listed company and high price volatility risk if investors sold their securities at the same time. If the uncertainty occurs more frequently, the volatility of the stock market increases and leads to cost of capital increase. This is because the external financial frictions increase but investment and value of equity decrease. It shows that the volatility of the stock market is a forward-looking indicator that reviews the uncertainty for discount rate and future cash flows and makes the systematic risk borne by shareholders become higher. (Kang, Ratti, Vespignani, 2020).

2.1.3 Review of Market Return

According to the Ngu, Ziaei & Szulczyk (2021), stock market return analyses by investors when they have an idea to change trading behaviour and make an appropriate investment decision. Stock return is the profit made by the investor after they were investing into the market and normally demonstrated by annual percentage rate. Stock return is categorized by expected return which is the return expected by investors that can be received in the future and realized return which is used to calculate the performance of a company by using the historical data. Realized return is the issue that has happened, and it is crucial to measure the expected return and risk in the future and the financial performance of the company. The

relationship between expected return and risk is positive as when the expected return of the investor is higher, the risk faced by the investor will be higher at the same time. (Chandra, 2016)

In the study of Christiana, Setiana & Mamdudh (2016), interest rates are the main factor that will affect the market return of the stock market as it controls the purchasing power of investors. The relationship between the volume of trading and stock return which have been confirmed in the study before which is positive as stocks with higher return will attract more trading volume. Next, the volatility can be affected by the stock return which can be reduced significantly by the variance of stock returns. However, when there is a bull market, the information from stock return is not the main information that will be needed by the investor to analyse as there is insufficient evidence to support the claim that there is an asymmetry relationship at the same time.

2.1.4 Review of Debt-to-Equity Ratio

The debt-to-equity ratio refers to the leverage ratio which is able to determine the firm's long-term ability to recover all outstanding debts when businesses face downturn in financial status. If the company uses one time debt to invest in a project may increase profit for their company shareholders in the future. Yet, if the company debt to equity ratio continues to increase and the amount of debt is too large, the use of debt can lead to bankruptcy. Therefore, total debt and total equity are the most appropriate measures of corporate leverage. It is because the debt-to-equity ratio can determine the relationship between the risk and return to the investor (Affandi, Sunarko & Yunanto, 2019).

According to Rozima, Harith & Afidah (2021), several businesses in Malaysia have seen an unexpected level of liquidity and leverage disruption which brought significant impact upon their business performance during

the coronavirus disease pandemic. The uncertainty during the coronavirus disease pandemic had influenced the Malaysian investors in decision making for their investment activities and this is due to the higher volatility risk in the stock market. Therefore, the financial ratios analysis can provide the information on a company's financial status to support investment decision making for investors. For example, the influence of Covid-19 on stock price and the economy debt to equity ratio are used to determine the firm's financial leverage factors in the study. However, the investor can't only based on the debt-to-equity ratio to do the investment decision making.

2.2 Relevant Theories

2.2.1 Efficient Market Hypothesis

Based on Fama (1970), Efficient Market Hypothesis (EMH), also known as Random Walk Theory, is explained as an efficient market that fully reflects all the available information quickly and accurately. It is important to deal with questions such as how and why prices change in security markets. Investors try to determine stocks that are undervalued, and are expected to rise in future value, and particularly the prices will increase. However, EMH said that it is difficult for investors to identify new information and profit from predicting future price movements, as security prices adjust immediately before an investor reacts and trades in a short period. There are also more and more analysts competing against each other to identify overvalued or undervalued stocks with new information, the poorer the probability of exploiting such mis-priced stocks, and only relatively less investors are able to profit from new information. According to Jones (1993), there are three forms of efficient market, namely, weak form, semi-strong form and strong form, where each form depends on different kinds of available information.

Weak form of the EMH states that current price completely integrates information contained in the past history of prices only (Clarke, Jandik, & Mandelker, 2001). No one is able to identify mispriced stock by analyzing past prices and profit from information that everyone knows. On the other hand, there are analysts using technical analysis to look for patterns in stock prices and ascertain a meaningful sign to forecast the future path of stocks. However, investors are able to make significant returns in a weak form efficient market by using fundamental analysis or by insider trading.

Semi-strong form of the EMH states that current price completely integrates all publicly available information which includes past historical prices, public announcements, expectations regarding macroeconomic factors, facts and figures reported in a company's financial statements and other publicly known information (Clarke, Jandik, & Mandelker, 2001). Semi-strong efficient market still implies that no one can earn above-average risk-adjusted returns after the announcement of public information and the assumption is far stronger than a weak-form efficient market. Investors require a lot of time and energy to gather all public information and analyze all financial information. However, investors are able to earn abnormal returns by using insider trading.

As for the strong form EMH, the existing price completely absorbs all available information for both public and private (Clarke, Jandik, & Mandelker, 2001). No one is able to consistently produce profits in a strong efficient market, even company's management (insider). In this form, no one is able to outperform the market even with insider trading.

There are several assumptions that need to be held if EMH is correct, such as transaction costs are excluded, current and correct information is available for public as well as similar results are interpreted with given information (Fama, 1970).

However, if EMH holds completely true in this research, there will be no significant return found in the market regardless of value investing or

speculation. Hence, EMH is not fully accepted in this research. This is due to value investing believes in the fundamentals of business to grow the capital gain, where speculation gains profit from undervalued stocks or intrinsically better investment. Investors believe they could earn abnormal returns by using either of the methods. Therefore, D/E ratio and price volatility, act as publicly available information, is used in this research to find out investors trading behaviour or preference.

2.2.2 Modern Portfolio Theory

Modern Portfolio Theory (MPT) is a theory focused on maximizing overall portfolio expected return with minimum or acceptable level of risk by choosing the proportions of various assets and diversifying the portfolio (Markowitz, 1952). Through diversification of assets, it is able to reduce the unsystematic risks of a portfolio even if the individual assets' returns are positively correlated as different types of assets often change in value in opposite ways. Markowitz has divided MPT into two basic concepts: return and risks. To illustrate the returns of a portfolio with stocks in it, it is the sum of the weight of stock A (W_A) multiplies the expected return of stock A (r_A) and the weight of stock B (W_B) multiplies the expected return of stock B (r_B).

$$r_p = W_A r_A + W_B r_B$$

Risk is the standard deviation (σ_p) of the portfolio, which depends on the weights and variance (σ^2) of the individual assets times the standard deviation of the assets and the correlation between them (ρ_{AB}). Correlation between stocks is the key to diversify the risk of a portfolio. When the stocks in the portfolio are highly correlated, the price movement of stocks in the portfolio will move in the same direction. However, when the stocks in the portfolio are not correlated, the price movement of stocks in the portfolio will move in the opposite direction or not be affected.

$$\sigma_p = [W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \sigma_A \sigma_B \rho_{AB}]^{1/2}$$

There are several assumptions made by the MPT framework about investors and markets such as the neglect of taxes and transaction costs, use of normal distributions to model returns and efficient market theory (Omisore, Yusuf & Christopher, 2011).

The concept of MPT contradicts with EMH. EMH stated that no abnormal returns can be found in the market as everyone is given with similar publicly available information and similar level of risk. Nevertheless, MPT is able to maximize the return with minimum level of risk. In this research, the parameters of high D/E ratio and price volatility represents a higher level of risk, thus by calculating the risks and return using MPT, it is able to determine investors trading behaviour based on the investors level of risk acceptance.

2.2.3 Behavioural Finance

There are critics who question the accuracy of efficient market hypothesis and stated that modern portfolio theory is not the only method to make a return from the market. Hence, behavioural finance was introduced to overcome the arguments, which is able to identify and understand the decision-making process from the psychological viewpoint. According to Statman (2008), behavioural finance is finance with normal people in it, but in contrast, standard or traditional finance is finance with rational people in it. The biggest difference between normal and rational investors is the immunity to framing errors, cognitive errors and misleading emotions, and rational investors are immune to it. However, even knowledgeable normal investors still tend to be affected by cognitive errors and misleading emotions, as it is difficult to resist the intuition of hindsight and fail to make rational investment decisions (Statman, 2014).

Based on Debondt and Thaler (1987), the behavioural bias that investors show is regret avoidance, where investors regret a stock losing in value more if this stock is unconventional. This means that a stock that has lower future expected performance compared to a stock that is conventional, that is its price compared to its book value or earnings is high. This then leads to investors avoid from investing in value stocks with low P/E and P/B ratios (Bodie, Kane & Marcus, 2011). Besides, the study by Kahneman and Tversky (1973) shown that investors tend to focus on recent experience rather than general picture of a phenomena. As an illustration, when investors predict the earnings too much dependent on recent experience, it will cause the price growth stocks with high P/E ratio to move higher as the expected returns are driven up too much. As contrast, if investors expected the earning to be lower, the price of growth stocks will then fall or stagnant. Hence, based on behavioural finance, it is assumed that investors are irrational in the stock market based on different cognitive biases.

2.3 The study's Theoretical Framework

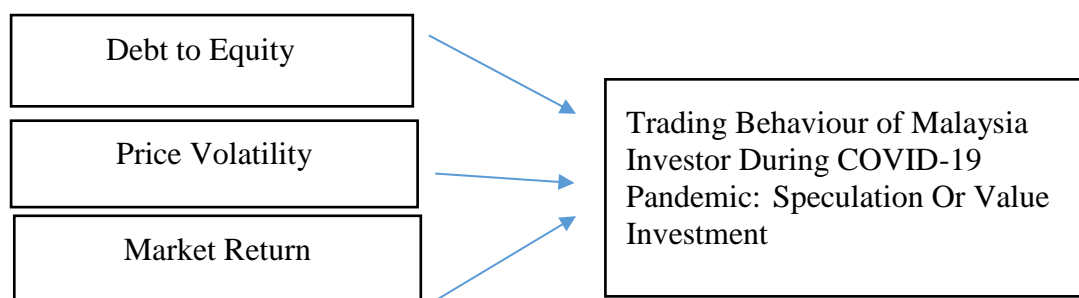


Figure 2.1: *Dependent Variables and Independent Variables*

According to Lee, Jais, and Chan (2020), investor behaviour whether speculating or value investing, impacted by the Covid-19 pandemic instances, which then resulted in increased stock market volatility. Shu, Thomas, and Lim (n.d.) indicated that growth versus value investing is a never-ending argument between two different approaches to investment. In financial economics, the principles of value and growth investment have a complex past. There are currently

2,050 value funds and 3,200 growth funds available to individuals that prefer these investment strategies (Cronqvist, Siegel, & Yu, 2015).

According to Kabir, Aripin, and Al-Dhamari (2017), prospective investors always believe that the risk is related to the possible investment. They are able to calculate market risk by comparing changes in a stock's price to changes in the overall average price of all stocks. However, debt to equity is somewhat different because certain growth stocks aren't usually financed with debt. Based on Nukala and Prasada Rao (2021), the debt-to-equity ratio is an important capital structure factor for a company's valuation. The debt-to-equity ratio is one of the capital structures factors that has a significant impact on a company's long-term profitability. Capital structure factors have both a positive and negative correlation to a company's profitability, subject to its financial leverage. Example of a sufficient debt-to-equity ratio is required to optimise shareholder returns, which have a long-term influence on the firm's stock price. Based on technical analysis, stock price returns are based on past values, and the required rate of return from a particular stock is typically variable because of unpredictability in market performance. Based on Shu, Thomas, & Lim (n.d.), investors preferred low debt-to-equity stocks during the pandemic. During a crisis, debt-to-equity appears to be a useful indication to monitor since investors would initially "dump" high-debt equities. Furthermore, a company's "survivability" or "sustainability" is critical during a pandemic.

Based on Lee, Jais, and Chan (2020), the findings revealed that, with the exception of the Real Estate Investment Fund (REIT) index, higher numbers of Covid-19 cases in Malaysia tended to have a negative effect on the performance of the KLCI index and other industry indices. Due to the difficulties and uncertainties caused by the outbreak of Covid-19 pandemic and MCO lockdown, a considerable number of shareholders from public traded companies sold their shares during the first few trading days of MCO. The amount of verified Covid-19 cases resulted in unusual stock indices results, since the pandemic created uncertainty in the global stock exchange. In addition, investors were fearful and pessimistic about returns in the future. Besides that, some companies, particularly those with significant debts, appeared to be facing financial troubles when their production and shipments were disrupted (Keh & Tan, 2021). Besides that, the positive market attitude in Asia

because of China's decision to keep its lending prime rate constant resulted in a big number of positive daily returns for all indices on 20 March 2020. Surprisingly, all the indices, which include KLCI, had negative returns, particularly during the one-month period prior to the MCO lockdown. On the other hand, the returns were more positive during the deployment of the MCO. KLCI suffered a smaller number of loss (-5.261%) and made a larger number of profit (6.851%) referring to the lowest and highest daily percentage returns on indices table (Chee, Liew, & Rowland, 2020).

According to Liu, Manzoor, Wang, Zhang, and Manzoor (2020), stock prices of a company indicate the possibility of future earnings since investors perceive the epidemic as lowering economic activity and are concerned about future income. The typical investor approach would be to sell the stocks before the severity of the decline is visible. Based on Saad, Edi, and Haniff (2020), six restrictions have been imposed which are closure of most of the sectors since Malaysia saw a significant jump in active cases. With the announcement on the various restrictions, especially tourists from other countries are not permitted to enter the nation, and closure of all government and private buildings except for necessary services, most of the stock market participants respond quickly to their trading performance, which has caused price volatility since they understand that outbreak of Covid-19 pandemic could have a major impact in the market performance globally.

2.4 Hypothesis

2.4.1 Hypothesis of Market Return

H₀: The market return does not affect the portfolio performance before Covid-19 pandemic

H₁: The market return does affect the portfolio performance before Covid-19 pandemic

H₀: The market return does not affect the portfolio performance during Covid-19 pandemic

H₁: The market return does affect the portfolio performance during Covid-19 pandemic

Due to the Covid-19 pandemic outbreak, the uncertainties of the pandemic have brought a huge impact to the stock market, causing the Malaysian stock market to decline, and plummeting since the implementation of MCO. Past studies have shown that investors' trading behaviour would differ according to the market return, whereas investors allocate more capital when there is an increase in market return and vice versa (Yang & Samitas, 2020). Hence, the investors' investment option would be switching over to the market index whenever the market index is performing better than other portfolios. This suggested that the market index is a viable investment option to the investors as their trading behaviour might alter with the market return. Meanwhile, as the pandemic hit hard on the global economic and trade activities, the global stock market also declined due to investors panic selling in the stock market. However, investors' behaviour varies during the phase of pandemic, as the investment decisions of retail investors tend to be affected by their sentiments and behaviours, causing them to speculate during economic recession (Wagner, 2020).

2.4.2 Hypothesis of Price Volatility

H₀: The price volatility does not affect the portfolio performance before Covid-19 pandemic

H₁: The price volatility does affect the portfolio performance before Covid-19 pandemic

H₀: The price volatility does not affect the portfolio performance during Covid-19 pandemic

H₁: The price volatility does affect the portfolio performance during Covid-19 pandemic

The uncertainties about the pandemic had influenced the investors' trading behaviours, leading to a greater volatility in Malaysian stock market. Past studies also showed that the Malaysian stock market performance has a negative relationship with market volatility, which then will affect investors' trading behaviour and their investment decisions (Lee, Jais, & Chan, 2020). This indicates that there is a significant relationship between the Covid-19 pandemic, market volatility and investors' trading behaviour, as investors need to adopt different investment strategies and decide whether to invest in growth stocks or value stocks. With higher market volatility, there would be more price fluctuation risks associated with higher return for the growth stocks, which then would affect the investors' perspective on constructing their investment portfolios. The investors might allocate their capital into portfolios with higher price volatility, aiming to obtain higher returns associated with higher volatility risk, or they may choose to avoid volatile portfolios and obtain lower returns. The switching of investors' trading behaviour and strategies can be observed via their portfolios before and during the coronavirus disease pandemic.

2.4.3 Hypothesis of Debt to Equity

H₀: The debt-to-equity ratio does not affect the portfolio performance before Covid-19 pandemic

H₁: The debt-to-equity ratio does affect the portfolio performance before Covid-19 pandemic

H₀: The debt-to-equity ratio does not affect the portfolio performance during Covid-19 pandemic

H₁: The debt-to-equity ratios does affect the portfolio performance during Covid-19 pandemic

Debt to equity ratio gives an idea to investors about how the company is financing its business during the Covid-19 pandemic, which provides an insight and information to the investors about the business performance and allows the investors to measure their investment risks. Studies have shown that investors tend to prefer lower debt to equity ratio stocks during the pandemic, as it indicates that the business is being financed with other funds other than debts, showing that the company did not imply that much risk (Shu, Thomas, & Lim, 2020). Hence, the investors will most likely change their investment decisions based on the debt-to-equity ratio or the investment risks of the company. The portfolios would be allocated based on investors' trading behaviour and perspectives. The value portfolio indicates that the investors prefer the company to have lower debt to finance the business and enjoy lower credit risk, while growth portfolio indicates that the investors can accept a business with high debt as they would expect the business to leverage on the high debt to expand the business growth.

2.5 Gap of Literature Review

The absence of sufficient studies exploring the connections between the explanatory variables and responding variables in this research is a research gap. This research is unable to find more studies regarding the relationships which are only in Malaysia, instead it is for few other countries. For example, one of the studies that this research is using is conducted in Malaysia, China, and the USA (Lee, Jais, & Chan, 2020). Besides that, there are other factors that normally confuse correlations between change of the explanatory variables and the responding variable. However, the research was conducted that usually uses one of the variables

that this research is using. For example, one of the journals this research reviewed is related to one of the variables which is the price volatility that this research is using. Therefore, this research would like to test the interrelation between the explanatory variables that this research has identified from past studies (debt to equity ratio, market return, price volatility) with investor trading behaviour. Other than that, the time duration is also considered as a limitation for this research since this research decided to take the 6-month period from January 2020 to June 2020, to observe the changes of trading behaviour before and after fully lockdown for Covid-19. However, some of the studies that this research found only provide the information until April 2020.

2.6 Conclusion

This chapter had summarized a few literature reviews to demonstrate the finding of previous studies. These might assist us in identifying the finding to better understand the variables. In this chapter, it also provided this model to investigate if the results were consistent with the previous review. Lastly, hypothesis testing is the major objective to be tested in the study.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In chapter 3, research design is a technique or method chosen to present a research problem. This is a way to support how research findings are found in this research. Besides, this chapter will determine the data collection method and exhibit the methodology of this research. In the data collection method, all information and data collection will be exactly consistent with the problems in the study by using the secondary data. Quantitative data can provide a better perspective to make better research decisions. The research of the data for independent variables from January 2020 until June 2020. All the collected data will be used in the data processing. In addition, this research will use the Mann-Whitney-U, Shapiro-Wilk of Normality Test and descriptive statistics to test for the relationship between performance of the portfolio based on the price volatility, debt to equity ratio and market return. Through the hypothesis tests, the research will be able to analyse and evaluate the performance of the portfolio in detail.

3.1 Research Design

3.1.1 Secondary Data

This research is using secondary data with quantitative data, quantitative research method is the most effective method for the study thus secondary data being used for this research. The secondary data with quantitative data is applied to determine the performance of the portfolios based on the debt to equity, price volatility and market return. All the research variables data were collected from Bloomberg terminal. Besides, this research is using the SSPS software to run all the hypothesis tests to

determine the relationship between the portfolio performance and the changing of investors' trading behaviour.

The time period used in the date will be 1st January 2020 until 30th June 2020. This research separates 2 periods which are 1st January 2020 to 17th March 2020 as first quarter and 18th March 2020 to 30th June 2020 as second quarter. This is to determine the changing of their investing behaviour during the coronavirus pandemic. This research categorized into two groups for each quarter (Quarter 1 and Quarter 2) and resulted in 8 different portfolios where 4 of them are growth portfolios (last 25% of 100 market capitalization companies) and another 4 is value portfolios (first 25% of 100 market capitalization companies).

Table 3.1 Data Sources

Variable	Proxy	Unit measurement	Sources
Debt to Equity	1. The debt to equity for KLSE Top 100 market capitalization companies in quarter 1 and quarter 2	1. Index	Bloomberg
	2. The companies' stock price for high debt to equity of portfolio and low debt to equity of portfolio	2. Ringgit Malaysia	
Price Volatility	1. The price volatility for KLSE Top 100 market capitalization companies quarter 1 and quarter 2	1. Percentage	Bloomberg
	2. The companies' stock price for high price volatility of portfolio and low price volatility of portfolio	2. Ringgit Malaysia	

Market	1. KLCI index for quarter 1	1. Index	Bloomberg
Return	and quarter 2		

3.2 Data Processing

There are four steps in the research of data processing. First, all the independent variables data from the Bloomberg website will be collected. Afterwards, the data will be arranged and selected the useful date to create the portfolios for running hypothesis tests by using SSPS software. Lastly, the result will be compared and analysed for making a conclusion to the research objective.

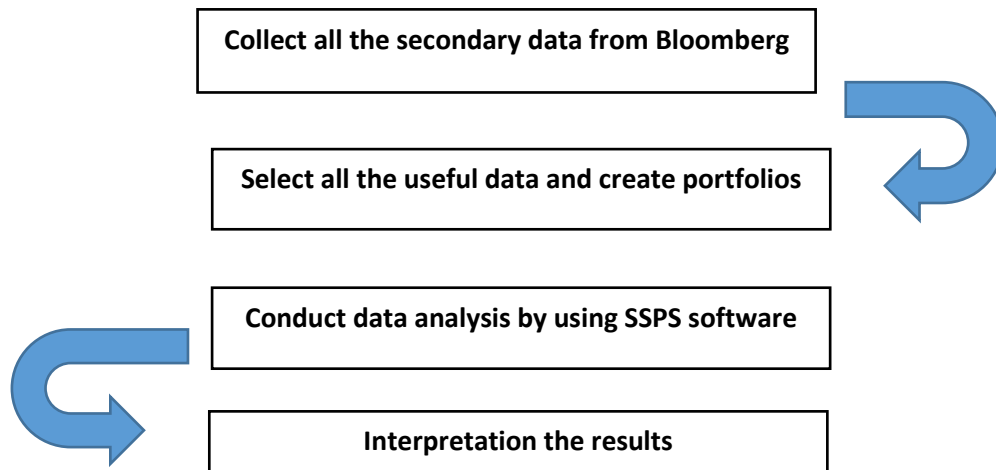


Figure 3.1: Diagram of Data Processing

3.3 Data Analysis Tools

3.3.1 Creation of portfolios

Before the calculation of data, this research divides the data that has been collected into two portfolios which are value portfolios and growth portfolios. This is to provide a comparison to study the market reaction and switching of trading behaviour of investors. The portfolios were created based on the D/E ratios and price volatility from January 2020 until June 2020. The portfolios are categorized into two groups for each quarter and result in 8 different portfolios where 4 of them are growth portfolios and another 4 are value portfolios. 25% of 100 stocks with the lowest D/E ratios and price volatility classify as value portfolios; 25% of stocks with the highest D/E ratios and price volatility placed in growth portfolios and the remaining 50% will be viewed as neutral stock assuming that the impact on these neutral stocks is relatively lower. The aim of creating the portfolios with quarter based is because there will be different reactions of market participants in January 2020 and March 2020 due to the Covid-19 pandemic in Malaysia, and it is easier to distinguish their reaction when something unexpected happens. The research aims to find out the immediate reaction of Malaysian investors towards the stock market under pandemic and hence a shorter timeline would be better as it emphasizes the impact of Covid-19 pandemic on stock market.

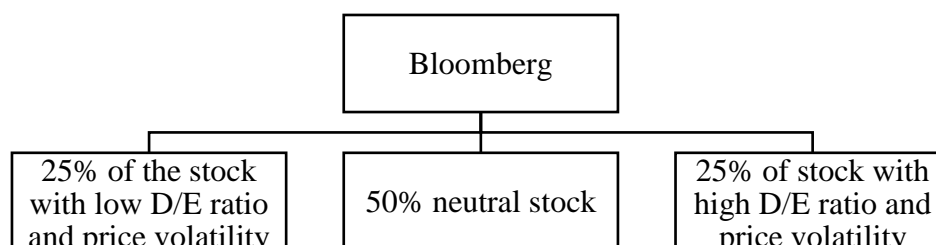


Figure 3.2: Way of 8 portfolios have been created

3.3.2 Calculation of Returns

While the stock prices for each 100 companies have been collected from Bloomberg, this research calculates the return of each stock for each period. This process shows the changes of profit earned by market participants for each period as return is the tool more often used to analyze financial data. Other than that, return is the more appropriate to use in this research as there is an argument for it as this research is more like statistical analysis. The stock price used to calculate return is the closing stock price of the day, this means the impact of dividends have been factored in. The formula used to calculate return of stock this research collects from Bloomberg show as below:

$$R_t = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$$

By using the formula above, first calculate stock return for each company of the period and average of stock return with SPSS for all companies. After that, the data that have been calculated will be used in this research for statistical test purposes.

3.3.3 Calculation of Price Volatility

Price volatility is a measure of the rate of fluctuations in a security's price over time. Price volatility creates an opportunity for investors and traders to buy securities at a cheaper price and sell when overpriced. When securities are in high volatility, investors and traders are willing to pay more and give market makers the opportunity to charge greater premiums. When securities are in low volatility, there is lesser uncertainty and risk and hence the bid-ask spread is narrow. Volatility is usually calculated using variance and standard deviation. There are five steps in calculating simple price volatility. First, find the average of the data set by summing up each value from the data set and dividing it by the number of values. Second, calculate

the difference between each value and the mean. Third, square the deviations to eliminate negative values. Fourth, sum up the squared deviations. Fifth, divide the sum of squared deviations by the number of values. The final value will show investors or traders how far the price may deviate from the average. Historical volatility is used in this research, which is the fluctuations of underlying securities by measuring price changes based on past prices and trends.

3.3.4 Calculation of Debt-to-Equity Ratio

Debt to Equity (D/E) Ratio is used to assess a company's financial leverage and by dividing total liabilities by total equities of the company. It shows the relative proportion of shareholders' equity and debt used to finance a company's assets. The formula shown as below:

$$\text{Debt to Equity Ratio} = \frac{\text{Total liabilities}}{\text{Total Equities}}$$

Companies with a lower debt to equity ratio usually indicate a more financially stable business. On the other hand, companies with a higher debt to equity ratio are classified to be riskier to creditors and investors compared to companies with a lower ratio. With debt financing, the principal amount of debt and regular interest payments must be repaid to the lender, which is a more expensive form of financing than equity financing. Payments might not be made when companies leverage large amounts of debt and will lead to bankruptcy of companies as well as loss of investors' confidence. The average D/E ratio is collected and tested in this research.

3.3.5 Descriptive statistics

The approach of descriptive statistics used to analyse the large sample of quantitative. From the descriptive statistic, the researchers can be measuring the central tendency which include Mode, Median and Mean, whereas standard deviation, variance, maximum and minimum variables are measurements of variability. Mean represents the average from the sample. Median is a value which is exactly in the middle point of the data. The standard deviation measures how far scores differ from the mean on average (Hayes, 2022). In the descriptive statistics, this research is able to determine the mean, standard deviation from every portfolio.

3.3.6 Normality Test

Normality test is a statistical test of normal distribution for a group of data. All the tests require the assumption of normal distribution. Normality can be tested by analytical and graphical methods (Stephanie, 2020). The graphical approach is the most basic and straightforward of the plotting graphical like a histogram. For analytical methods, it consists of empirical distribution function method and descriptive measurement function method. The disparity between actual and hypothesis distributions is used to assess the empirical distribution function. descriptive measure test to define the requirements for evaluating normality.

3.3.6.1 Shapiro-Wilk

Shapiro-Wilk is one of the best tests for the normality test. It can detect whether sample data are fit to normality distribution. In the Shapiro Wilk, it is used to confirm the normality before running a Test. It can be testing the goodness of fits to ensure whether the sample data are the

normal distribution. The Shapiro-Wilk can be competing with the skewness and kurtosis of distribution.

The researcher will refer to the P-value of Shapiro-Wilk to make the decision making. When the probability-value of the Shapiro-Wilk is less than the 0.05 of the significance level, it shows that there is significant evidence to reject H_0 (null hypothesis) and it is not normally distributed. However, the probability-value of the Shapiro-Wilk is greater than 0.05 of the significance level, which means that there is insufficient evidence to reject the H_0 (null hypothesis). This indicates that it is normally distributed.

3.3.7 Mann-Whitney-U

Mann-Whitney-U is a test to compare 2 independent samples if the one of the dependent groups is ordinal. It is able to test the equality of 2 independent groups' means. The dependent variable no need to be normally distributed. Therefore, Mann-Whitney U are able to test small samples which are also called a non-parametric test (Wayne, 2017). Based on the test, this research can determine that the returns between one portfolio and another portfolio are significantly different or same.

In the Mann-Whitney-U test, the alternative hypothesis is that 2 portfolios are different while the null hypothesis is that 2 portfolios are the same. The formula is presented as below:

$$U_1 = n_1n_2 + \frac{n_1(n_1 + 1)}{2} - R1$$

Hypothesis:

$H_0 =$ *The two individual groups are the same.*

$H_1 =$ *The two individual groups are not the same.*

Decision Making:

Reject H_0 , if the probability-value is less than the 5% of the significance level other than that, do not reject the H_0 .

3.4 Conclusion

In chapter 3, it is able to have a clear explanation by using the hypothesis tests to test the significant relationship between the portfolio performance based on debt to equity, price volatility and market return. The hypothesis tests applied to the analysis research are Mann-Whitney-U, Shapiro-Wilk of Normality Test and Descriptive statistics. Those tests are able to provide a better analysis and result in this research.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter is giving a detailed presentation of the data analysis for this research. This research used Statistical Package for the Social Science (SPSS) to summarize all the data which include the descriptive statistics, Shapiro-Wilk of Normality test and Mann-Whitney-U test. The Shapiro-Wilk test is a test whether this research sample of data is normally distributed. Besides, this research will use descriptive statistics to determine all the average return of the portfolios and do the comparison and overview of portfolio performance against the market return and each of the portfolios. In addition, Mann-Whitney-U test is to compare if there are any significant difference relationships between each portfolio. The research will use the result of the hypothesis tests to evaluate and summarize in detail of the research.

4.1 Descriptive statistics

In order to conduct the research and determine whether investors are more likely to value investing or growth investing in the Malaysian stock market during Covid-19 pandemic, the market data has been collected, sorted and statistically tested. The following sections are some descriptive data highlighted in both tables and words

Table 4.1: Descriptive for the Debt-To-Equity ratio

D/E ratio	Quarter 1 2020		Quarter 2 2020	
	Value	Growth	Value	Growth
Portfolio				
No. of firms	25	25	25	25
Mean of D/E	-0.2000	-0.2906	0.2785	0.2857

Table 4.1 presents the descriptive statistics for both the value and growth portfolios when ranked by the D/E ratio over quarter 1 (Q1) and quarter 2 (Q2) of year 2020. In Q1 and Q2 2020, the value portfolios are having lower mean (average) of D/E ratio than growth portfolios. Besides, the changes of D/E ratio from Q1 to Q2 for growth portfolios are larger than value portfolios. This indicates that companies in the value portfolio are having lower debt and performing better compared to companies in the growth portfolio regardless before or during the Covid-19 pandemic.

Table 4.2: Descriptive for the price volatility

Price Volatility	Quarter 1 2020		Quarter 2 2020	
	Value	Growth	Value	Growth
No. of firms	25	25	25	25
Mean of Price Volatility	-0.1605	-0.3891	0.1082	0.5952

Table 4.2 shows the descriptive statistics for both the value and growth portfolios when ranked by the price volatility over quarter 1 (Q1) and quarter 2 (Q2) of year 2020. In Q1 and Q2 2020, the value portfolios are having lower mean (average) of price volatility than growth portfolios. On the other hand, the changes of price volatility from Q1 to Q2 for growth portfolios are larger than value portfolios. This indicates that companies in the value portfolio are having lower uncertainty or risks compared to companies in the growth portfolio regardless before or during the Covid-19 pandemic.

4.2 Diagnostic checking

4.2.1 Shapiro-Wilk of Normality Test

Table 4.3: Normality test for debt-to-equity ratios and price volatility for quarter 1 and quarter 2 year 2020

Shapiro-Wilk (Test)			
Portfolios	Statistic	DF	Sig (Probability value)
Portfolio 1: Value portfolio based on D/E ratio in quarter 1 year 2020	0.970	25	0.653
Portfolio 2: Value portfolio based on D/E ratio in quarter 2 year 2020	0.873	25	0.005*
Portfolio 3: Growth portfolio based on D/E ratio in quarter 1 year 2020	0.839	25	0.001*
Portfolio 4: Growth portfolio based on D/E ratio in quarter 2 year 2020	0.361	25	<0.001*
Portfolio 5: Value portfolio based on price volatility in quarter 1 year 2020	0.933	25	0.104
Portfolio 6: Value portfolio based on price volatility in quarter 2 year 2020	0.944	25	0.184
Portfolio 7: Growth portfolio based on price volatility in quarter 1 year 2020	0.944	25	0.181
Portfolio 8: Growth portfolio based on price volatility in quarter 1 year 2020	0.588	25	<0.001*

*Note: * represent the significance level of 5%. The Shapiro-Wilk test is a distributed normal test in null hypothesis. The null hypothesis will be rejected when the probability-value is less than significance level as not normality distributed.*

Based on table 4.3, it tested whether all portfolios are significantly normality distributions. The portfolio 1, portfolio 5, portfolio 6 and portfolio 7 are normally distributed due to the probability-value is greater than 5% (significant level). However, portfolio 2, portfolio 3, portfolio 4 and portfolio 8 are not normally distributed. This is because the probability-value is lesser than 5% (significant level).

4.3 Hypothesis testing

4.3.1 Mann-Whitney-U Test

Table 4.4 Mann-Whitney-U Test for hypothesis testing

Group	Mann-Whitney-U	Z-Test	Asymptotic Significance
Group A (Debt-to-Equity: Value portfolio against Growth portfolio quarter 1)	241.0	-1.387	0.165
Group B (Debt-to-Equity: Value portfolio against Growth portfolio quarter 2)	183.0	-2.513	0.012*
Group C (Price Volatility: Value portfolio against Growth portfolio quarter 1)	105.0	-4.026	<0.001*

Group D (Price Volatility: Value portfolio against Growth portfolio quarter 1)	570.0	4.996	<0.001*
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*Note: * represents the two portfolios from the respective group that have a significant difference in return at a significance level of 5%.*

Table 4.4 shows the result of Mann-Whitney-U test which is conducted for testing the significant difference between the portfolio return. The results indicated that only group A did not show significant difference in the portfolio returns as the asymptotic significance is larger than significance level at 5%. Meanwhile, the other three groups have shown significant difference for the respective portfolio returns since the asymptotic significance is lower than the significance level at 5%.

4.4 Portfolio and market returns

Table 4.5: Value and growth portfolio returns compared to market return during quarter 1 and quarter 2 year 2020

Quarter (Year 2020)	Value portfolio returns (D/E Ratio)	Growth portfolio returns (D/E Ratio)	Value portfolio returns (Price Volatility)	Growth portfolio returns (Price volatility)	Market Return
Q1 (1 Jan – 31 Mar)	-0.2000	-0.2906	-0.1605	-0.3891	-0.2824
Q2 (1 April – 31 June)	0.2785	0.2857	0.1082	0.5952	0.2531

Table 4.5 has shown the result from both the value and growth portfolios return during quarter 1 and quarter 2 in 2020. It can be noticed that the value portfolio of price volatility provides the highest return during quarter 1. Despite the value portfolio suffering from a loss during quarter 1, the other portfolios suffered negative return as well, with the highest loss of 38.91% suffered by the growth

portfolio of price volatility. For the debt-to-equity ratio portfolios, it has shown that the value portfolio performs better with a lower loss compared to the growth portfolio. Meanwhile, for the price volatility portfolio, it appears that the value portfolio also performs better than the growth portfolio. Also, both the value portfolio for debt-to-equity and price volatility have outperformed the market index with higher return. The bad performance and suffered from loss for all the portfolios during quarter 1 can be explained by the impact of Covid-19 pandemic.

Moving into quarter 2 of year 2020, it has shown that all portfolios are able to generate a positive return, with the highest of return of 59.52% being generated by the growth portfolio of price volatility. For the debt-to-equity ratio portfolios, the value portfolio has the worst performance which incurred a loss of 27.85% while growth portfolio is able to generate a higher return than market index. Meanwhile, for the price volatility portfolio, the growth portfolio performs better compared to the value portfolio and the market index. This indicated that the investors had switched their trading behaviour and were able to adjust their portfolios to generate a positive return compared to quarter 1.

In order to analyze and compare the difference between the portfolios and market performance, the market index KLCI quarter return has been presented as well. The market index performed similarly to the portfolios in terms of the pattern, whereas the market index achieved a negative return during quarter 1 and was able to generate positive return later at quarter 2. This result has proven that the Malaysian stock market is affected negatively by the Covid-19 pandemic initially but is able to adjust and recover from the pandemic later on.

4.5 Discussion of Major Findings

Table 4.6 : Summary of Shapiro-Wilk

Test	Hypothesis	Test Statistic	Result
Shapiro-Wilk Normality Test			
Value Portfolio - Lowest 25 D/E ratio company Q1 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.653 > \alpha =$ 0.05	Do not reject H_0 .
Value Portfolio - Lowest 25 D/E ratio company Q2 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.005 < \alpha =$ 0.05	Reject H_0 .
Growth Portfolio – Highest 25 D/E ratio company Q1 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.001 < \alpha =$ 0.05	Reject H_0 .
Growth Portfolio – Highest 25 D/E ratio company Q2 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $<0.001 < \alpha =$ 0.05	Reject H_0 .
Value Portfolio - Lowest 25 price volatility company Q1 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.104 > \alpha =$ 0.05	Do not reject H_0 .
Value Portfolio - Lowest 25 price volatility company Q2 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.184 > \alpha =$ 0.05	Do not reject H_0 .
Growth Portfolio – Highest 25 price volatility company Q1 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $0.181 > \alpha =$ 0.05	Do not reject H_0 .

Growth Portfolio – Highest 25 price volatility company Q2 year 2020	H_0 : The data is normally distributed.	Shapiro-Wilk test statistic: $<0.001 < \alpha = 0.05$	Reject H_0 .
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Table 4.7: Summary of Mann-Whitney-U-test

Mann-Whitney-U Test			
Value vs Growth 25 lowest D/E companies against 25 highest D/E companies Q1 year 2020	H_0 : There is no significant difference between the value and growth portfolio returns during quarter 1 year 2020.	Asymptotic significance level: $0.165 > \alpha = 0.05$	Do not reject H_0 .
Value vs Growth 25 lowest D/E companies against 25 highest D/E companies Q2 year 2020	H_0 : There is no significant difference between the value and growth portfolio returns during quarter 2 year 2020.	Asymptotic significance level: $0.012 < \alpha = 0.05$	Reject H_0 .
Value vs Growth 25 lowest price volatility companies against 25 highest price volatility companies Q1 year 2020	H_0 : There is no significant difference between the value and growth portfolio returns during quarter 1 year 2020.	Asymptotic significance level: $<0.001 < \alpha = 0.05$	Reject H_0 .
Value vs Growth 25 lowest price volatility companies against 25 highest price volatility companies Q2 year 2020	H_0 : There is no significant difference between the value and growth portfolio returns during quarter 2 year 2020.	Asymptotic significance level: $<0.001 < \alpha = 0.05$	Reject H_0 .

companies Q2 year

2020

Table 4.8: Summary of Descriptive Statistics

Portfolio	Value Portfolio				Growth Portfolio			
	D/E	D/E	PV	PV	D/E	D/E	PV	PV
Statistic	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2
Mean	-0.2000	0.2785	-0.1605	0.1082	-0.2906	0.2857	-0.3891	0.5952
Standard Deviation	0.1444	0.2519	0.1118	0.0938	0.1593	0.7485	0.2392	0.7592

4.5.1 Market Return

The findings and results have shown a significant relationship between the market return and trading behaviour of Malaysian investors during the Covid-19 pandemic. The result is consistent with past studies from Lee, Jais, and Chan (2020). These past researchers concluded that there is a significant relationship between the KLCI market return and investors' trading behaviour. In their research, they have shown that the performance of market index is able to outperform many other stocks and sectors, indicating that the market index is a popular investment option during the Covid-19 pandemic and the KLCI index had significantly influenced the investors' trading behaviour. In short, when the market index can generate higher return, the investors would be preferable to invest in the market index instead of other alternatives in the stock market. From the findings (Table 4.5), it has proven that the market index has outperformed both the growth portfolio during quarter 1 and able to outperform the value portfolios during quarter 2, indicating that the market index is a viable investment option. This indicates that during the Covid-19 pandemic, some of the investors were affected by the KLCI performance, which caused them to switch their behaviour and invest in the market index instead of choosing value investing

or growth investing. This might be due to the perspectives of investors which thought that the market performance will not worsen as the other companies, which then decide to put their capital in the market as a safer option compared to other stocks. Hence, it is concluded that the trading behaviour of Malaysian investors during Covid-19 pandemic would be affected by the market return.

4.5.2 Price Volatility

There is a significant relationship between price volatility and Malaysian investors' stock trading behaviour during Covid-19 pandemic. The past studies from Qammar and Abidin, (2019), Pati, Rajib, and Barai (2019), Ngu, Ziaei, and Szulcyyk (2021), has also shown consistent results proving that the price volatility has a significant impact on the investors trading behaviour. The empirical findings showed that the construction of investors' portfolio investment would be taken into consideration of price volatility of the stock. Through our findings, the price volatility showed a significant impact on the portfolio's return, whereby the performance between value and growth portfolios can be easily noticed as the results showed significant difference. During quarter 1, the value portfolio performs the best among the other options, despite incurring an investment loss at -16.05%, while the growth portfolio has the worst performance with the highest loss at -38.91%. Meanwhile, the growth portfolio is able to generate the highest return of 59.52% during quarter 2. This has shown a clear image on the switching of trading behaviour throughout the period, as the investors denied the high price volatility stocks during the first quarter of year 2020, which is the period when Covid-19 is being discovered in Malaysia. Then, most of the investors have switched to stocks with high price volatility during the second quarter, showing that the investors came to accept the Covid-19 pandemic as 'new normal', and are more willing to bear more risk to achieve a higher investment return. Other than that, the Mann-Whitney-U test also showed that the value and growth portfolios do

have a significant difference in the investment returns in quarter 1 and quarter 2 of year 2020. Thus, it is concluded that the price volatility does affect the trading behaviour of Malaysian investors during the Covid-19 pandemic.

4.5.3 Debt-to-Equity

The debt-to-equity ratio has a significant relationship with the stock trading behaviour of Malaysian investors during the Covid-19 pandemic. Consistent results and affirmation can be noticed from the past studies by Chandra (2016), Affandi, Sunarka, and Yunanto (2019). The empirical findings from the past studies indicated that the debt-to-equity ratio of the companies would affect the investors' investment decision, as the investors would share different perspectives on the debt weightage of the companies. Some argue that companies with high debt are having financial risks in terms of ability to repay the obligations, while some argue that the companies are leveraging the debt to expand their businesses. Through the findings, this research discovered that the return from the value and growth portfolios have shown significant difference. During quarter 1, it can be noticed that the value portfolio had better performance in return with -20% compared to growth portfolio of -29.06%, indicating that most investors would prefer the value portfolio during quarter 1 of year 2020. However, during quarter 2, the result of value portfolio is underwhelming at 27.85% compared to the performance of growth portfolio at 28.57%, which means that there is a change in the trading behaviour as most investors have switched over to the growth portfolio during quarter 2. This may be due to perspectives from the majority of the investors which thought that it is normal for businesses to incur high debt during the pandemic, and they are more concerned on the business growth instead of the stability. As the whole economy was affected by the Covid-19 pandemic, some businesses struggled to sustain and survive during this period, which forced the businesses to acquire more debt to finance their businesses. Hence, investors

might assume that businesses that have a high debt-to-equity are reasonable and hoping that the business could leverage on the debt to expand the business growth. Hence, it has proven that the debt-to-equity ratio of a company will affect the trading behaviour of the investors during Covid-19 pandemic.

4.6 Conclusion

The empirical results were clearly analysed with tables and figures in Chapter 4. The hypothesis tests this research is using are Mann-Whitney-U Test and Shapiro-Wilk of Normality Test. Firstly, the Shapiro-wilk proved that there are a few of the portfolios not normally distributed. Therefore, this research is suitable to use Mann-Whitney-U test to test whether there is a significant difference between each portfolio. It is because the Mann-Whitney-U test is a non-parameter test which does not need to be distributed. Secondly, the descriptive statistics and portfolios and market returns are used to compare each of the returns of the portfolios. Lastly, all empirical results will be further exemplified and discussed in the following chapter.

CHAPTER 5: CONCLUSION

5.0 Summary of the Study

Table 5.1 Overview of portfolio performance

Portfolio	Quarter 1 Performance	Quarter 2 Performance
Debt-to-Equity (Value)	-20%	27.85%
Debt-to-Equity (Growth)	-29.06%	28.57%
Price Volatility (Value)	-16.05%*	10.82%**
Price Volatility (Growth)	-38.91%**	59.52%*
KLCI Market Index	-28.24%	25.31%

*Note: * represents the portfolio with highest return while ** represents the portfolio with the lowest return*

Table 5.1 summarizes the performance overview of the value and growth portfolio and KLCI market index performance. It has shown that the value portfolio of price volatility achieved the best performance during quarter 1 while the growth portfolio of price volatility recorded the worst performance during quarter 1. During quarter 2, the growth portfolios of price volatility achieved the highest return while the growth portfolio of price volatility recorded the lowest return. The KLCI market index also shown significant difference in performance during quarter 1 and 2, indicating that there is a switching in investors' trading behaviour and confidence towards the stock market as the index is able to obtain 25.31% of return during quarter 2 compared to its loss of 28.24% during quarter 1. Thus, it can be concluded that trading behaviour of investors before and during the coronavirus disease pandemic will be affected by the debt-to-equity ratio, price volatility and market return.

5.1 Implications of the Study

5.1.1 Financial Institutions

Financial institutions that are related to the stock market would be concerned with the trading behaviour of Malaysian investors. For instance, the investment banks, investment companies and brokerage firms would have a significant relationship with the trading behaviour of the investors. The financial institutions could utilize the cutting-edge big data analytic tools to capture the potential clients and customers and provide customized products and services to the investors. For example, the investment banks can customize the mutual funds according to the trading behaviour and preference of the investors. Also, as the research has shown that the number of investors had increased tremendously during the pandemic, and most investors prefer value portfolios during quarter 1 and switch to growth portfolio during quarter 2. This indicates that it is necessary for the financial institutions to provide financial and investment literacy to the public investors as to equip them with relevant knowledge about the stock market. As many investors adopt growth value during quarter 2, it is important for the financial institutions to provide investment knowledge to their clients and customers as to help them understand about the investment risks behind growth portfolio. Thus, understanding the trading behaviour of investors during the pandemic is important for the financial institutions as the public retail investors are one of their biggest stakeholders.

5.1.2 Market Investors

It is important for the investors to be knowledgeable in the stock market as to reduce their investment risks and capital loss. Both the retail investors and corporate investors should understand and be aware of the majority investors' trading behaviour during the pandemic. By finding out the trading behaviour of majority investors during the pandemic could allow

the retail investors and corporate investors to better allocate their portfolios and make precise investment decisions. If the market is preferable for a value portfolio, the market investors should be conservative and invest in the value portfolio without taking the risks of losing capital due to high-risk investment. When the market becomes preferable for a growth portfolio, the investors can allocate their capital to growth stocks to enjoy higher return from the investments. If both portfolios are underperforming, the investors could choose to invest in the market index alone or allocate their capital on other investment options. So, the market trading behaviour during pandemic is important for the market investors to provide a reference or guidance to the investors for better investment decisions when there is any major event in the market in the future.

5.2 Limitations of the study

5.2.1 Time Period Restriction

This research is focused on trading behaviour of investors during Covid-19, which is in the period of pandemic. In this research, it is limited in certain time periods and certain situations only. The data used for this research was between January 2020 to March 2020, which was before the pandemic lockdown and April 2020 to June 2020 which the pandemic lockdown started. This is a specific short-term investigation on the investor's trading behaviour which is limited to a certain extent. The result can be used for very specific conditions only such as next pandemic or serious issues that affect internationally.

5.2.2 Limited Sample Size

This research is using top 100 market capitalization companies. The technique limitation is one of the reasons why this research did not contain a larger sample size. However, there are 936 public limited firms listed in Bursa Malaysia in 2020 (Muller, 2021). In this research, the first 25 companies with the lowest D/E ratios and price volatility, and the last 25 companies with the highest D/E ratios and price volatility are used. Based on 'Testing for Normality using SPSS Statistics' (n.d.), the Shapiro-Wilk Test that is used is more suitable for small sample sizes which are 50 samples. Thus, the sample size used in this research is limited.

5.3 Recommendations for future research

This research has contributed to literature as it explored the investors trading behaviour in Malaysia stock market during strong crises like Covid-19 pandemic, and there are few suggestions that could be brought out in this research topic.

Firstly, the time frame used in this research is six months as the comparison is carried out between a short period, which is 3 months before and after the pandemic outbreak. Hence, it is suggested to conduct the research and observe the investors trading behaviour with a longer time frame as there are other factors affecting the market during pre and post pandemic, which might bring out different results on investor trading behaviour.

Secondly, it is suggested to have more independent variables (parameters) included in the research such as P/E ratio and P/B ratio. Based on past studies, companies in growth portfolios tend to have higher P/E and P/B ratio from a quantitative perspective. Therefore, by including more variables in the research, it enables to get a more concrete and comprehensive result.

Thirdly, only a small sample size has been chosen in the research, which might affect the accuracy and create biases in the result. Thus, it is recommended to carry out the research with larger sample size and different methodology to test the result which will increase the power of the study and decrease the margin of error.

Fourthly, it is encouraged to study more on behavioural finance and human's psychological perspectives as investment and trading decisions are greatly affected by human emotions, biases, and cognitive limitations of the mind, where the end result might turn out in a different way.

REFERENCES

- Affandi, F., Sunarko, B., & Yunanto, A. (2019). The impact of cash ratio, debt to equity ratio, receivables turnover, net profit margin, return on equity, and institutional ownership to dividend payout ratio. *Journal of Research in Management*, 1(4), 1-11.
- Bernama. (2020, March 17). Bursa Malaysia opens in the red. *New Straits Times*. Retrieved 30 July 2021, from <https://www.nst.com.my/business/2020/03/575252/bursa-malaysia-opens-red>
- Bodie Z., Kane A. & Marcus A. J. (2011). Investments and Portfolio Management, 9th ed, 266. *Singapore:McGraw Hil*
- Chandra, K. (2016). Return on equity effect and debt to equity ratio on return stock of food and beverage. *Business and Entrepreneurial Review*, 16(1), 31-44.
- Chebbi, K., Ammer, M., & Hameed, A. (2021). The COVID-19 pandemic and stock liquidity: Evidence from S&P 500. *The Quarterly Review Of Economics And Finance*, 81, 134-142.
- Chee, R. C. J., Liew, V. K. S., & Rowland, R. (2020). Daily new COVID-19 cases, the movement control order, and Malaysian stock market returns. *International Journal of Business and Society*, 21, 553-568.
- Christiana, A., Setiana, E., & Mamduch, M. (2016). The Empirical Relationship between Stock Return and Trading Volume based on Stock Market Cycles. *Indonesian Capital Market Review*, 8(1). doi: 10.21002/icmr.v8i1.5186
- Clarke, J., Jandik, T., & Mandelker, G. (2001). The efficient markets hypothesis. *Expert financial planning: Advice from industry leaders*, 7(3/4), 126-141.
- Cronqvist, H., Siegel, S., & Yu, F. (2015). Value versus growth investing: why do different investors have different styles. *Journal of Financial Economics*, 117(2), 333-349.
- De Bondt, W. F., & Thaler, R. H. (1987). Further evidence on investor overreaction and stock market seasonality. *The Journal of finance*, 42(3), 557-581.
- DOSM. (n.d.). *Key statistics of labour force in Malaysia, December 2020*. Department of Statistics Malaysia Official Portal. Retrieved March 16, 2022, from https://www.dosm.gov.my/v1/index.php?r=column%2FcthemByCat&cat=124&bul_id=Y25FMFU4eINLSIVpbk5reVF2M3pWUT09&menu_id=U3VPMldoYUxzVzFaYmNkWXZteGduZz09

- Erik, B., & David, M. (2014). An empirical study into value investing on the Stockholm stock exchange. *Umeå School of Business and Economics*.
- Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25(2), 383-417.
- Gong, Q., Tang, Z., & Xu, B. (2021). Trading behaviors on knowledge of price discovery in futures markets. *Journal of Innovation & Knowledge*, 6(3), 191–195.
- Hayes, A. (2022, March). Descriptive Statistics. Investopedia. Retrieved 13 August 2021, from https://www.investopedia.com/terms/d/descriptive_statistics.asp
- Jones, C. P. (1993). Investments analysis and management, 323-325. *New York:John Wiley & Sons*.
- Kahneman, D., Tversky, A., (1973) On the Psychology of Prediction. *Psychology Review*. 80, p. 237-251
- Kang, W., Ratti, R. A., & Vespignani, J. (2020). Global commodity prices and global stock market volatility shocks: Effects across countries. *Journal of Asian Economics*, 71, 1–15.
- Kabir, M. U., Aripin, N., & Al-Dhamari, R. A. A. (2017). Financial ratio analysis: decision usefulness for potential shareholders' benefit. *Journal of Business Management and Accounting*, 7(2), 51-59.
- Keh, C. G., & Tan, Y. T. (2021). COVID 19: The impact of government policy responses on economic activity and stock market performance in Malaysia. *Journal Ekonomi Malaysia*, 55(1), 123-133.
- Lee, K. Y. M., Jais, M., & Chan, C. W. (2020). Impact of Covid-19: evidence from Malaysian stock market. *International Journal of Business and Society*, 21(2), 607-628.
- Liew, K. J. (2020, April 30). How covid-19 affects the Malaysian economy. *Taylor's University*. Retrieved 30 July 2021, from <https://college.taylors.edu.my/en/life-at-taylors/news-events/news/how-covid-19-affects-the-malaysian-economy.html>.
- Liu, H. Y., Manzoor, A., Wang, C. Y., Zhang, L., & Manzoor, Z.. (2020). The COVID-19 outbreak and affected countries stock markets response. *International Journal of Environment Research and Public Health*, 17 (8), 2800.
- Markowitz H. (1952). Portfolio Selection. *The Journal of Finance*. 7. 1, . 77-91

- Muller, J. (2021, May 28). Number of public limited companies PLC listed in Bursa Malaysia 2016-2020. Retrieved from <https://www.statista.com/statistics/1024023/malaysia-number-of-plc-listed-in-bursa-malaysia/>
- Ngu, J. C. Y., Ziaei, S. M., & Szulczyk, K. R. (2021). The impact of Covid-19 pandemic on stock market return volatility: evidence from Malaysia and Singapore. *Asian Economic and Financial Review*, 11(3), 191-204.
- Nukala, V. B., & Prasada Rao, S. S. (2021). Role of debt-to-equity ratio in project investment valuation, assessing risk and return in capital markets. *Future Business Journal*, 7(13).
- Oertzen, A. S., & Schröder, G. O. (2019). Achieving continued usage in online banking: a post-adoption study. *International Journal of Bank Marketing*, 37(6), 1394-1418.
- Omisore, I., Yusuf, M., & Christopher, N. (2011). The modern portfolio theory as an investment decision tool. *Journal of Accounting and Taxation*, 4(2), 19-28.
- Pati, P. C., Rajib, P., & Barai, P. (2019). The role of the volatility index in asset pricing: the case of the Indian stock market. *The Quarterly Review Of Economics And Finance*, 74, 336-346.
- Qammar, R., & Zain-Ul-Abidin. R. (2019). Is stock price volatility a risk?: an evaluation review. *International Journal of Management, Accounting and Economics*, 6(1).
- Rozima, W. M. A. S., Harith, A. H., & Afidah, N. M. Y. (2021). The impact of covid-19 on the financial performance of PN17 and GN3 status firms: Does it add salt into the wound? *Advanced International Journal of Banking, Accounting and Finance*, 3(7), 47-58.
- Saad, N. M., Edi, N. E., & Haniff, M. N. (2020). Relationship between share price and COVID cases among all sectors in main market of Bursa Malaysia. *Global Business and Management Research: An International Journal*, 12(4).
- Shu, H. C., Thomas, J., & Lim, Y. Y. (n.d.). Growth versus value investing on the Bursa Malaysia during Covid-19 Pandemic.
- Smith, R. D. (2006). Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. *Elvesier Public Health Emergency Collection*, 63(12), 3113 -3123. doi: 10.1016%2Fj.socscimed.2006.08.004
- Statman, M. (2008). What is behavioral finance. *Handbook of finance*, 2(9), 79-84.

- Statman, M. (2014). Behavioral finance: Finance with normal people. *Borsa Istanbul Review*, 14(2), 65-73.
- Stephanie.G (2021, April 16). Assumption of normality / normality test. *Statistics How To*. Retrieved 23 February 2022, from <https://www.statisticshowto.com/assumption-of-normality-test/>
- The Edge Markets (2020, August 18). New CDS accounts opened in January to July soared 123% to 218,000- Bursa. Retrieved 30 July 2021, from <https://www.theedgemarkets.com/article/new-cds-accounts-opened-january-july-soared-125-218000-%E2%80%94-bursa>
- ‘Testing for Normality using SPSS Statistics’ (n.d.). Retrieved 23 February 2022, from <https://statistics.laerd.com/spss-tutorials/testing-for-normality-using-spss-statistics.php#:~:text=If%20the%20Sig.,deviate%20from%20a%20normal%20distribdistr.>
- Wagner, A. F. (2020, April 02). What the stock market tells us about the post-COVID-19 world. Retrieved 1 August 2021, from <https://www.nature.com/articles/s41562-020-0869-y>
- Wayne.W (2017, May 4). Mann Whitney U Test (Wilcoxon Rank Sum Test). Retrieved 22 February 2022, from https://sphweb.bumc.bu.edu/otlt/mphmodules/bs/bs704_nonparametric/bs704_nonparametric4.html
- Yang, J. Y., & Samitas, A. (2020). Investor behaviour, stock returns and CDS spreads: evidence from foreign and domestic investors in Korea. *International Journal of Managerial Finance*, 17(4), 497-521.
- Yeh, I.-C., & Hsu, T.-K. (2014). Exploring the dynamic model of the returns from value stocks and growth stocks using time series mining. *Expert Systems with Applications*, 41(17), 7730–7743.
- Yen, J. Y., Sun, Q., & Yan, Y. (2004). Value versus growth stocks in Singapore. *Journal of Multinational Financial Management*, 14(1), 19–34.