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Technical Analysis of Malaysia Stock Performance

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Abstract: Technical analysis is a tool that investors used to determine investment opportunities by examining the stock market using charts and technical indicators. However, there exist various types of technology tools that can be used to examine the performance of the stock market and traders might be unable to find the best techniques and indicators to help them in determining the suitable stock to trade or invest. This study aims to predict the stock market price movement and also determine the ideal time to buy or sell the stock by using some specific technical approaches. The sample study consists of the three largest capitalization companies from Kuala Lumpur Stock Exchange (KLSE) which are TopGlove, AirAsia and Digi. The sample period taken from June 1st 2021 to December 25th 2021. The technical tools used in this study are Exponential Moving Average (EMA 9 days and 100 days), Simple Moving Average Cross (SMA 9 days and 26 days cross), candlestick chart pattern, Fibonacci Retracement, Moving Average Convergence Divergence (MACD), Relative Strength Index (RSI) and Stochastic Oscillators. The result of the technical analysis shows that technical tools can provide reliable trading information which is buying and sell signals and market trend of the sample study on the covered sample period to traders to make investment decisions.

Keywords: Technical Analysis, Stock Market, Technical Tools, Predict, KLSE, Trend

1. Introduction

There are two techniques to analyze the stock market price movement such as fundamental analysis and technical analysis. Fundamental analysis and technical analysis are two of the most commonly used analytical models used as decision-making tools in the stock market. Fundamental analysis examines the stock on three fronts: the economy, its industry, and the company, using publicly available information about the stock. Technical analysis, on the other hand, employs various technical indicators on the available history of stock prices to make a decision [1]. Both can be used to determine the value of a stock as well as forecast its future performance. Fundamental analysis, on the other hand, examines

a stock's intrinsic value, whereas technical analysis forecasts the best time for investors to buy and sell the stock [2]. This study will mainly focus on technical analysis of three stock markets on Kuala Lumpur Stock Exchange (KLSE) since the purpose of this study is to determine the buy and sell signal of the stock market without evaluate the intrinsic value of a stock market.

Technical analysis is a type of research of financial market movements from the standpoint of finance. People who undertake technical analysis are known as technical analysts. They utilize graphical representations of past price and volume data to make investment judgments on where the financial markets will move in the coming time. [3]. Technical analysts believe that every piece of information about the stock market is reflected in the price, so they had devised a number of ways to represent price and volume data to make decision-making easier over time, and these are known as technical indicators like the Simple Moving Average (SMA), Exponential Moving Average (EMA), Moving Average Convergence Divergence (MACD), Relative Strength Index (RSI) which are the subjects of this study [4].

SMA and EMA are type of moving average, in statistics, moving average, is a type of finite impulse response filter used to analyze a set of data points by creating a series of averages of different subsets of the full data set. A moving average is commonly used with time series data to smooth out short-term fluctuations and highlight longer-term trends or cycles. The threshold between short-term and longterm depends on the application, and the parameters of the moving average will be set accordingly. MACD is a technical analysis indicator created by Gerald Appel in the late 1970s [5]. It is used to spot changes in the strength, direction, momentum, and duration of a trend in a stock's price. The MACD is a computation of the difference between two exponential moving averages (EMAs) of closing prices. This difference is charted over time, alongside a moving average of the difference. The divergence between the two is shown as a histogram or bar graph. RSI was developed by J. Welles Wilder and published in a 1978 book, New Concepts in Technical Trading Systems [6]. RSI is classified as a momentum oscillator, measuring the velocity and magnitude of directional price movements. Momentum is the rate of the rise or fall in price. The RSI computes momentum as the ratio of higher closes to lower closes: stocks which have had more or stronger positive changes have a higher RSI than stocks which have had more or stronger negative changes. Stochastic oscillator is a momentum indicator that uses support and resistance levels. Dr. George Lane promoted this indicator in the 1950s. The term stochastic refers to the location of a current price in relation to its price range over a period of time.

Technical analysis is a tool that investors used to determine the investment opportunities by examine the stock market using chart and technical indicators [7]. However, there exists numbers of indicator can be used to predict the performance of stock market and investors may not be able to indicate the best indicator for help them to determine the suitable stock to invest. Therefore, this study aims to predict the stock market price movement and also determine the ideal time to buy or sell the stock by using some specific technical approaches. With this study, we hope that can help investors to determine the right time to invest the stock market and making profit.

2. Materials and Methods

In this study, daily data of three large capitalization listed companies of Kuala Lumpur Stock Exchange (KLSE) with the sample period covered from the June 1st 2021 to December 25th 2021 will be used. The major source of data and all the calculation and figure is generating from the technical analysis function in M+ trading platform. The three listed companies chosen are TopGlove, AirAsia and Digi.

Simple Moving Average (SMA), Exponential Moving Average (EMA), Relative Strength Index (RSI), Stochastic Oscillator (SO), and Moving Average Convergence/Divergence (MACD) are the technical indicators employed and examined in this study. Technical indicators do not examine any of a company's fundamentals, such as revenue, earning, and profitability. Fibonacci Retracement is used

to determine the possible entry and exit timing and also identify the potential support and resistance level.

SMA is the unadjusted mean of the preceding *n* data points. For example, a 10-day SMA of closing price is the average of the preceding 10 days' closing prices. In this study, we will use the SMA cross techniques which two SMA such as short 9 days SMA and long 26 days SMA is employed to indicate buy and sell signals for a stock. When the short SMA surpasses the long SMA, a purchase position is created, which is a long position. When a short SMA moves below a long SMA, a sell signal is created. The SMA of a stock is determined as follows:

$$SMA = \sum_{i=1}^{n} \frac{C_i}{n}$$
 Eq. 2.1

where C_i refer to the closing price level in the selected period of n days.

EMA is a type of MA similar to SMA but EMA provided a greater weighted and react more quickly than SMA to the changing of previous stock prices. In this study, 9 days EMA and 100 days EMA will be used to indicate the trend of a stock and also identify the possible support and resistance level for a stock. The EMA of a stock is determined as follows:

$$EMA_t = C_t \left(\frac{2}{T+1}\right) + EMA_{t-1} \left(1 - \frac{2}{T-1}\right)$$
 Eq. 2.2

where C_t is the last closing price and T represent the number of observations included in the starting value and t represents the time period for example 9 days, 12 days, 26 days.

MACD indicator is used to indicate a stock market's direction and momentum [8]. The MACD line (also known as the quicker line) is the difference between the exponentially smooth moving averages of 12 and 26 days (EMA). Aside from that, the signal line (also known as the slower line) is the 9-day EMA. When the MACD line crosses over the signal line, buy signals are generated. However, when the signal line crosses over the MACD line, however, a sell signal is generated. MACD of a stock is determined as follows:

$$MACD = (12 days EMA) - (26 days EMA)$$
 Eq. 2.3

The RSI should give you readings in the range of 0 to 100. The numerator of RS indicates the average of rising prices over a given time period, while the denominator reflects the average of falling prices over that same time period. A stock is considered overbought if the RSI reading is around 70, and selling should be considered. However, in a bull market, someone believes that a RSI reading of 80 is a stronger indicator of an overbought stock because equities generally trade at greater values during bull markets. In contrast, if the RSI hits 30, the stock is deemed oversold, and investors might consider purchasing and also adjusting the RSI to 20 in a down market. In this study, we also use RSI to indicate the trend of the stock market, if the RSI is above 50, we say that the stock is on uptrend and if RSI is below 50, the stock is on downtrend. The calculation of RSI is show as follows:

$$RSI = 100 - \frac{100}{1 + RS}$$
 Eq. 2.4

where RS is the relative strength with the following formula:

$$RS = \frac{\text{Average of x days'up close}}{\text{Average of x days'down close}}$$
 Eq. 2.5

Stochastic Oscillators are a momentum indicator that compares the current price to its price range over a given time period. It is made up of two lines: %K and %D. These lines show expected stock market price changing moments. These lines' calculations are displayed below:

$$\%K = 100 \left(\frac{P_c - P_L(n)}{P_H(n) - P_L(n)} \right)$$
 Eq. 2.6

$$\%D = EMA(\%K, 3)$$
 Eq. 2.7

where Pc is the current day's closing price and P_L and P_H are the stock's low and high prices for the previous period n. The sell signal generates when %D is above overbought and %K crosses below %D whereas buy signal generate when %D is below oversold and %K crosses above %D.

Fibonacci Retracement is conducted by taking the swing high point and swing low point on a stock chart and obtain the vertical distance by the key Fibonacci Ratios which the key ratios usually used in Fibonacci Retracement division are 23.6%, 38,2%, 50%, 61.8% and 100%. These ratios are calculated by dividing one number in the sequence by the following one number yields 61.8%, dividing one number by the second right number yield 38.2% and dividing one number by the third right number yield 23.6%. Fibonacci retracements can be used to place buy and sell orders, set stop-loss levels, and set price targets. Unlike moving averages, Fibonacci retracement levels are stationary prices that do not change. The price levels' static nature allows for quick identification. This enables investors and traders to predict and respond cautiously when price levels are examined. These levels are inflection points where price action, either a reversal or a break, is expected. In this study, Fibonacci Retracement is used to determine possible entry and exit timing.

Other than that, the candlestick chart pattern is use to predict the price movement. Observation of chart pattern will help to determine whether the stock is in uptrend or downtrend [9]. Bullish pattern is an uptrend pattern while bearish pattern is a downtrend pattern. The popular patterns of bullish and bearish are Harami, Engulfing, Piercing Line, Morning/Evening Star and other patterns [10]. Figure 2.1 show the example of popular bullish and bearish candlestick pattern.

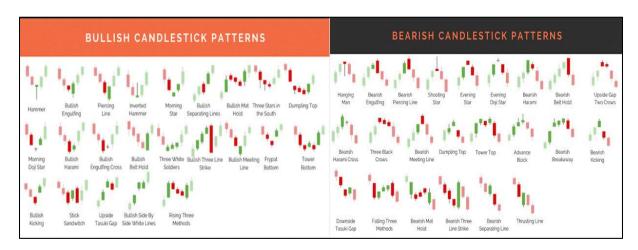


Figure 2.1: Example of Bullish and Bearish Candlestick Pattern. Source: Alphaex Capital [11]

3. Results and Discussion

In this section, the result of technical analysis of three large capitalization listed companies of Kuala Lumpur Stock Exchange (KLSE) is carry out and interpret. All of the results has been generate from the technical analysis function in M+ online trading platform.

3.1 Technical Analysis of Top Glove Corporation Berhad



Figure 3.1: Technical Analysis of Top Glove Corporation Berhad from June to December 2021.

Source: Author

Figure 3.1 show that the stock chart analysis of Top Glove Corporation Berhad with the technical tools applied on it. The figure consists of four charts which the first chart is the candlestick chart with the 100 days EMA (purple line), 9 days EMA (blue line), MA cross (red line 9 days SMA and green line 26 days SMA) and Fibonacci Retracement applied on it. The following charts are the MACD chart, RSI chart and Stochastic Oscillators chart of Top Glove Corporation Berhad from June to December 2021.

We analyze from the first chart of Figure 3.1, EMA 100 days line show that from June to December 2021, Top Glove stock market was facing a long term bearish market or downtrend, the candles were fall below the EMA 100 days line and this downtrend still ongoing. EMA 9 days line also show that this stock also facing a downtrend for short term as mostly all candles fall below EMA 9 days line. By using the MA crossing technique, two lines which are SMA 9 days and SMA 26 days made 8 crosses and generated 4 buy signals and 4 sell signals. The buy signals occurred at July 29th, August 30th, October 25th and December 1st and sell signals occurred at August 5th, September 9th, October 28th and December 14th. From this buy and sell signals, it showed that when a buy signal generated, the sell signal occurred after few days later, this show that the buy signals were not reliable and low accurate. After the sell signals occurred, the market price keeps decreasing, this show that the sell signals were reliable and high accurate. The Fibonacci Retracement show that the Top Glove market price were examine adjustment in between 0 to 0.236/23.6% Fibonacci ratio, if the price can break the 38.2% ratio or 61.8% ratio in the future, the market might be retracing back to uptrend or else if the price break the previous swing low point, the market might be continue downtrend. From the candlestick chart, majority of the candles are bearish candle and happen frequently from June to December 2021. This confirm that the market was on downtrend.

Next, from our analysis on second chart of Figure 3.1, the MACD line (blue line) and signal line (red line) had made 10 crossing from June to December 2021 which generate buy and sell signals. 6 buy signals and 4 sell signals had been generating, the buy signals occurred at July 14th, August 16th, September 30th, November 15th, November 25th and December 23rd and sell signals occurred at August 4th, September 6th, November 2nd and December 9th. Although the buy and sell signals occurred at these date, but overall the two lines located below the zero line all the time from June to December which indicate the market trend was strong downtrend.

Moreover, from our analysis on the third chart of Figure 3.1, 7 buy and sell signals generated as the RSI value approaching the upper and lower limit, 6 buy signals occurred at June 23rd, July 14th, September 9th, September 28th, November 8th and November 11th and sell signal occurred at November 29th. However, the buy signals generated were not reliable as when the buy signals occurred, the RSI value didn't increase about 30 but fall below 30, the buy signals cannot determine there was the time to entry the market. From the chart, the overall RSI line fall below RSI 50 line which mean the market trend was on downtrend.

From the last graph of Figure 3.1, 7 buy and sell signals generated as buy signal occurred when %K (blue line) cross above %D (red line) and approaching lower limit 20 and sell signal occurred when %D cross above %K and approaching upper limit 80. The buy signal occurred at July 14th, August 17th, September 30th and November 23rd and sell signals occurred at July 23rd, September 1st and November 30th. However, the buy signal generated were not reliable as when buy signals occurred, the market price doesn't increase.

All of the techniques show that Top Glove Corporation Berhad examined a strong downtrend and there were no significant market entry signals from June to December 2021. Traders are encouraging to wait for the market reversal to entry the market.

3.2 Technical Analysis of AirAsia Berhad



Figure 3.2: Technical Analysis of AirAsia Berhad from June to December 2021. Source: Author

Figure 3.2 show that the stock chart analysis of AirAsia Berhad with the technical tools applied on it. The figure consists of four charts which the first chart is the candlestick chart with the 100 days EMA (purple line), 9 days EMA (blue line), MA cross (red line 9 days SMA and green line 26 days SMA)

and Fibonacci Retracement applied on it. The following charts are the MACD chart, RSI chart and Stochastic Oscillators chart of AirAsia Berhad from June to December 2021.

We analyze from first chart of Figure 3.2, EMA 100 days' line act as a support and resistance for the market price, when the candlesticks were above the EMA 100 days line at early of June, the line act as the support for market price, the price keep increasing when the candle surpass the EMA 100 days line. When the candles fall below the EMA 100 days' line on early July, the EMA 100 days line become resistance of the market price, when the candle break again the EMA 100 days line at middle of August, the line turn into support for market price again, the price keep increasing until the candle fall below EMA 100 days line at late November, the line become resistance again for the market price. On December, the candles were all fall below the EMA 100 days' line. This show that EMA 100 days played a crucial role for the support and resistance for AirAsia market price. Next, from the EMA 9 days line, the information obtained was when the candle located above the line, the market was on uptrend and when the candle located below the line, the market was on downtrend. By using the MA crossing technique, two lines which are SMA 9 days and SMA 26 days made 4 crosses from June to December 2021 and generated 4 buy and sell signals. The buy signals occurred at June 3rd and August 18th and the sell signals occurred at June 30th and November 1st. The signals generated by MA crossing technique were reliable in this case, when the crossing occurred, the price show significant changed. The Fibonacci Retracement show that the AirAsia market price were examine adjustment in between 0 to 0.236/23.6% Fibonacci ratio, if the price can break the 38.2% ratio or 61.8% ratio in the future, the market might be retracing back to uptrend or else if the price breaks the previous swing low point, the market might be continuing downtrend. The candlestick chart also provided reliable trading information for traders, when the price keep increasing on early June, the Bearish Engulfing pattern occurred on June 16th and the market trend reverse. On October 11th, when the price increased to the peak point, the next few days occurred long bearish candles, this show the trend reversal for the market from uptrend to downtrend, sell signal occurred.

Then, from our analysis on second chart of Figure 3.2, the MACD line (blue line) and signal line (red line) had made 8 crossing from June to December 2021 which generate buy and sell signals. 4 buy signals and 4 sell signals had been generated. The buy signal happens on July 26th, August 6th, September 23rd and December 15th and the sell signal happen on June 21st, July 12th, September 13th and October 18th. The MACD graph show that when the two lines were above zero line, the market was on uptrend and in contradict, when two lines fall below zero line, the market was on downtrend.

Next, from the analysis on third chart of Figure 3.2, 7 buy and sell signals generated as the RSI value approaching the upper and lower limit, 2 buy signals occurred at November 25th and December 21st and 5 sell signals occurred at September 23rd, September 27th, October 4th, October 7th and October 12th. The sell signals of RSI occurred when the market was on uptrend, therefore, only the sell signal on October 12th was reliable as after this signal occurred, the market trend reverse to downtrend. The buy signal on November 25th was not reliable as the market trend was downtrend and buy signal on December 21st was reliable as the market trend was start to reverse into uptrend. From this figure, when the RSI line was above the RSI 50 line, the market was on uptrend. Moreover, as show in last chart of Figure 3.2, 2 buy signals generated as buy signal occurred when %K (blue line) cross above %D (red line) and approaching lower limit 20. The buy signal occurred on July 5th and October 26th. However, the signals generated were not reliable and need to combine with other techniques to decide the investment decision.

All of the techniques show that if a trader enters the market on August 18th and exit the market on November 1st, the trader will enjoy about 36% profit by the Stop-Loss Profit indicator. For the current market, the adjustment is still ongoing and the Fibonacci Retracement show that if the market achieves 0.382 Fibonacci ratio, the market will be retracing back to uptrend, there is no significant entry signals for the current market, traders are encouraging to wait for the entry time.

3.3 Technical Analysis of DiGi.Com Bhd



Figure 3.3: Technical Analysis of DiGi.Com Bhd from June to December 2021. Source: Author

Figure 3.3 show that the stock chart analysis of DiGi.Com Bhd with the technical tools applied on it. The figure consists of four charts which the first chart is the candlestick chart with the 100 days EMA (purple line), 9 days EMA (blue line), MA cross (red line 9 days SMA and green line 26 days SMA) and Fibonacci Retracement applied on it. The following charts are the MACD chart, RSI chart and Stochastic Oscillators chart of DiGi.Com Bhd from June to December 2021.

We analyze from the first chart of Figure 3.3, EMA 100 days line act as a support and resistance for the market price, when the candlesticks were above the EMA 100 days line at early of June, the line act as the support for market price, the price keep increasing when the candle surpass the EMA 100 days line. The EMA 100 days line become the resistance of the market when the candle fall below the line at October 29th, the market was examined downtrend at that moment until now. This show that EMA 100 days played an important role for the support and resistance for DiGi's market price. Next, from the EMA 9 days line, the information obtained was when the candle located above the line, the market was on uptrend and when the candle located below the line, the market was on downtrend. By using the MA crossing technique, two lines which are SMA 9 days and SMA 26 days made three crosses from June to December 2021 and generated three buy and sell signals. The buy signal occurred at August 3rd when the short SMA 9 days line cross above the long SMA 26 days line and the sell signal occurred at July 5th and October 5th when the short SMA 9 days line cross below the long SMA 26 days line. The first sell signal on July 5th was a late signal since the price already drop for few days and the second sell signal on October 5th was reliable as the market price just started to decrease. The buy signal on July 5th was reliable since the cross occurred, the market price start to increase gradually. The signals generated by MA crossing technique were reliable in this case, when the crossing occurred, the price show significant changed. The Fibonacci Retracement show that the Digi market price were approached 0.382/38.2% Fibonacci ratio and 0.382 ratio might be the possible support for market price, if the price can break the 61.8% ratio in the future, the market might be facing uptrend or else if the price breaks the previous swing low point, the market might be continuing downtrend. The candlestick chart also provided reliable trading information for traders, when the price keep increasing on early August, the Bearish Engulfing pattern occurred on October 1st and the market trend reverse to downtrend.

Next, from our analysis on second chart of Figure 3.3, the MACD line (blue line) and signal line (red line) had made 9 crossing from June to December 2021 which generate buy and sell signals. 4 buy signals and 5 sell signals had been generated. The buy signals occurred at June 21st, July 27th, November 19th and December 24th and sell signals occurred at June 3rd, June 28th, September 20th, October 20th and

November 26th. The MACD graph show that when the two lines were above zero line, the market was on uptrend and in contradict, when two lines fall below zero line, the market was on downtrend.

Then, from the third chart of Figure 3.3, the chart did not show any buy and sell signals and when the line located above the RSI 50 line, the market was on uptrend and when the line located below the RSI 50 line, the market was on downtrend. Furthermore, from last chart of Figure 3.3, 6 buy and sell signals generated as buy signal occurred when %K (blue line) cross above %D (red line) and approaching lower limit 20 and sell signal occurred when %D cross above %K and approaching upper limit 80. The buy signals occurred at July 8th, November 1st, November 17th and December 8th and sell signals occurred at August 18th and September 23rd. However, the signals generated were not reliable to make investment decision as the signals occurred, the market trend went opposite side of the buy and sell signals.

From all the technique above, each technique provided reliable trading information for trader to make investment decision. By combining all techniques above, the best entry time was at August 3rd and exit the market on October 1st will generated about 6% profit for traders. For current market, the Fibonacci Retracement show that if the market price can achieve the 0.618 Fibonacci ratio, the market will be examining an uptrend, the suggest entry market price is RM 4.108 which is the price of 0.618 Fibonacci ratio or else traders are encourage to wait for significant entry market signal.

4. Conclusion and Recommendation

The technical analysis of Top Glove Corporation Berhad by using the above techniques show that from June to December 2021, the stock market was examined a downtrend. Result show that traders should avoid having any investment decision to this stock currently since all the technical tools show that Top Glove Corporation Berhad was in a strong bearish market and there is no significant market entry signal.

Besides, the technical analysis of AirAsia Berhad by using the above techniques show that from June to December 2021, the stock market was examined uptrend from August 18th to October 12th and the trend reverse into downtrend from October 13th to now. Result show that start from November, the market was having the adjustment and the technical tools had not provided any reliable market entry signal, so traders are advised to wait for the market reversal.

Next, the technical analysis of DiGi.Com Bhd by using the above techniques show that from June to December 2021, the stock market was examined uptrend from August 2nd to October 1st and the market reversed into downtrend from October 4th until now. The technical tools had provided reliable buy and sell signals for this stock market. Currently, the Fibonacci Retracement show that if the market price can achieve the 0.618 Fibonacci ratio, the market will be examining an uptrend, the suggest entry market price is RM 4.108 which is the price of 0.618 Fibonacci ratio or else traders are encourage to wait for significant entry market signal.

In conclusion, all of the technical tools employed in this study does provided buy and sell signals for the samples studied, however, the signals generated might not be accurate as sometime the signals generated might be false signals for traders. Therefore, for recommendation, traders can be employ two or more technical tools when conducting the technical analysis for particular stock market to help them in making investment decision since a single technical tool cannot provide sufficient trend information for a stock market.

Moreover, traders are recommending to carry out both technical and fundamental analysis together besides just employ technical analysis. This could increase the win rate of a trader to invest in a market by study the company fundamental information such as revenue and valuation and also employ technical analysis to navigate the difference between inherent value and market price.

Lastly, recommendation could be make from this study is traders have to choosing the right strategy which suitable for themselves no matter fundamental analysis or technical analysis. Every person has different point of view while conducting these analysis, therefore, having the right trading strategy

which suitable for ourselves is crucial for just following the other person since there have no 100% accurate analysis in trading, only the most suitable strategy.

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