**Technical Analysis and Malaysian Banking Sector during COVID-19 Pandemic**

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**ABSTRACT**

The announcements of Movement Control Order and Loan Moratorium caused a significant impact on the stock prices of Malaysian banks during the COVID-19 pandemic. This study aims to investigate the effectiveness of technical analysis in predicting the stock price movement and the ability of the technical analysis in generating returns. In doing so, six moving average rules used as the proxy of technical analysis and tested in this study. Majority of the MA rules shown positive returns before the various announcements dates. Specifically, this study revealed that MA rules of (2,5) and (2,10) were among the best performing MA rules during the COVID-19 pandemic. This study also recommends the investors to use the signals emitted by the technical indicator as the reference for their investment decision in the banks’ stock.

***Keywords:*** *Technical Analysis, Banks, COVID-19, MCO, Loan Moratorium*

**INTRODUCTION**

COVID-19 pandemic brings the significant impact to the lifestyle of 30 million Malaysian. As of 30 November 2020, more than 65,000 COVID-19 cases have been recorded in Malaysia (MOH, 2020). The Government of Malaysia also implemented several plans to mitigate the spreading of COVID-19 virus throughout whole country. In doing so, three different phases of Movement Control Ordering also implemented in Malaysia. To some extent, the movements of Malaysian have been temporarily limited during the MCO and CMCO. Many businesses have been ordered to stop operating for at least two weeks. During these three different phases of MCO, there is an average of 10,000 cases of loss of employment received by Social Security Organisation (SOCSO) (Chung, 2020). Indeed, MCO and CMCO also hit the financial performance of small and medium enterprise (SMEs) in Malaysia, not to say listed companies. A survey conducted by Department of Statistics Malaysia revealed that 67.8% of the business had no sales generated during the MCO period. In order to ease the financial burden of the Malaysian citizen, the Malaysian government also announced the six-months loan moratorium on 25th March 2020. Under the loan moratorium, all the Malaysian banks grants the automatic moratorium on all the loan repayments for the individual borrower and SMEs.

Table 1: Purpose of PRIHATIN

|  |  |  |
| --- | --- | --- |
|  | **Amount** | **Purpose** |
| 1. | RM 128 billion | Protecting the welfare of Malaysian |
| 2. | RM 100 billion | Supporting businesses, including SMEs |
| 3. | RM 20 billion | Announced in the previous stimulus package |
| 4. | RM 2 billion | Strengthen the economy |

On 27th March 2020, the Malaysian Government also introduced Prihatin Rakyat Economic Stimulus Package (PRIHATIN) that costs RM 250 billion (MOT, 2020). The purpose for the amount of RM 250 are broken down and presented in Table 1. Thereafter, more announcements have been made in order to flatten the growth of the COVID-19 cases in Malaysia. However, all of the announcements had several impacts on the stock price movements in Malaysian stock market. This study intends to test the effectiveness of technical analysis in predicting banks’ stock price movements and the ability of technical analysis in generating return around the various announcement dates.

Table 2: Various Important Announcements Made during COVID-19 Pandemic

|  |  |  |
| --- | --- | --- |
|  | **Amount** | **Date** |
| 1. | Movement Control Order (MCO) – Phase 1 | 16th March 2020 |
| 2. | Loan Moratorium & MCO Phase 2 | 25th March 2020 |
| 3. | Movement Control Order (MCO) – Phase 3 | 10th April 2020 |
| 4. | Movement Control Order (MCO) – Phase 4 | 23th April 2020 |
| 5. | Conditional Movement Control Order (CMCO) – Phase 1 | 11th May 2020 |
| 6. | Recovery Movement Control Order (RMCO) – Phase 1 | 7th June 2020 |
| 7. | Recovery Movement Control Order (RMCO) – Phase 1 | 28th August 2020 |

**LITERATURE REVIEW**

Efficient Market Hypothesis (EMH), also known as the theory of stock market action, has inspired a new dimension in behavioral finance science (Hussin, Ahmed & Ying, 2010). EMH also stated that the stock markets can be divided into three different forms of market efficiency, which included weak form market efficiency, semi-strong form market efficiency and strong form market efficiency. Under the weak-form stock market efficiency, the investors unable to generate any abnormal profits by analyzing historical share price movements. As for semi-strong form efficiency, the stock prices shall reflect all the past and publicly known information. Lastly, the strong form of market efficiency incorporates the characteristics of the previous two market efficiency. Thus, these suggest that investors can only make an abnormal profit by utilizing insider information (Fama, 1970).

Efficient Market Hypothesis has been widely applied by previous studies in several ways, by using data from different countries, over different periods and using various event studies. In the context of Malaysia, the earlier findings of Nassir, Ariff and Mohamad (1993) shown that Malaysian stock market belongs to the weak form market efficiency. This result indicated that the stock prices in Malaysian stock market reflect the current and past information in the earlier years. Technical analysis which based solely on the historical information shall not be used under this circumstances. Nearly after two decades, Hussin, Ahmed and Ying (2010) and Yip et al. (2010) found that Malaysian stock market has switched into semi-strong form efficiency. In line with the dividend signaling hypothesis, they found that stock prices tend to move around the dividend announcements. Specifically, the stock prices in Malaysian stock market tend to move upward when the company announce the higher dividend payout. Consistent with the previous findings, Hamid et al. (2010) also concluded that Malaysian stock market was weak form market inefficiency.

On the other hand, Lai, Balachandher and Nor (2007) revealed that technical analysis owns the predictive power in Malaysian stock market. They reported that 5 days and 60 days was the best moving average rule in terms of generating profits. By testing 13 different technical rules on the 38 stocks, Heng et al. (2012) concluded that Malaysian stock market was predictable. Chan, Azmin and Ismail (2016) further shown that technical analysis performed well in Malaysian stock market. These results suggest that investors shall exploit the technical analysis and generating abnormal profit. However, Nor and Wickremasinghe (2017) highlighted that Malaysia stock market is increasingly becoming efficient market when the technical analysis performed poorly during the recent sub-sample period. They also pointed out the possible reason in explaining this circumstance. The technology advancement has led to tremendous development in online trading facilities and allow the investors access to the information quickly. These result in faster investment decision making and enhance the stock market liquidity.

Prior studies also shown that stock prices tend to react to various announcements in Malaysian stock market. Hussin et al. (2010) and Yip et al. (2010) reported that the stock prices tend to increase after the announcement of increasing dividends. Besides that, How and Tsen (2019) also detected the upward movements in the stock prices after the stock split announcements in Malaysia. On the other hand, Sulistiawan and Hartono (2014) tested the ability of technical analysis in detecting the stock price reaction around the earning announcements date. By testing data over the period 2007 to 2011 in Indonesian stock market, they revealed that technical analysis able to generate abnormal profit before the earning announcements, but not after. However, far too little attention has been paid to the reaction of banking stocks around the various announcements made during the COVID-19 pandemic.

**DATA AND METHODOLOGY**

This section discusses the data and technical rules applied in this study. Since this study only focusses on the banking sector, the daily data of eight Malaysian banks over the period from 2nd March 2020 to 30 have been included in the analysis. Moving average (MA) also used as the proxy of technical analysis in this study. Specifically, 1 and 2 days have been used for the short MA, while 5, 10, 20 days used for the long MA. The short/long MA are calculated as follows:

N – day MA = , *n = 1, 2, 5, 10, 20*

As a result, six different MA rules formed and tested in this study. These six MA rules were (1, 5), (1, 10), (1, 20), (2, 5), (2, 10), (2, 10). The buy (*sell*) signals of MA rules shall be emitted when short MA is above (*below*) the long MA. Firstly, the effectiveness of MA rules also has been tested in this study. A buy signal is usually suggesting the investors to buy the particular stock and expecting an uptrend in stock prices in the following day. Whereas, the sell signal is usually suggesting the investors to sell the particular stock and expecting a downtrend in stock prices in the following day. The buy (*sell*) signal is considered effective when the it associated with positive (*negative*) return in the next day. Secondly, this study also calculated the stock returns generated by MA rules. The stock returns are calculated as follow:

Stock return = x 100%, where SPt = stock price at day *t* and SPt-1 = stock price at day *t-1*.

**RESULTS AND DISCUSSION**

This section discusses the results obtained throughout this study. Table 3 presents the effectiveness of MA rules around the various announcement dates. The buy (*sell*) signal is considered effective when it comes with the positive (*negative*) return in the next day. The number reported in Table 3 representing the percentage of the effective buy or sell signal. Around the MCO announcement date, MA rules had high percentage of effective sell signals, ranged from 61% to 65%. This indicated that 61% to 65% of the sell signals emitted successfully predicted the negative returns of the bank stocks in the next day. However, only two MA rules, (1,5) and (2,5), emitted buy signals around the MCO announcement date. Noteworthy, the MA rule of (2,5) produce 100% effective buy signal around the MCO announcement date. Thereafter, MA rule of (2,5) also consistently emitted higher percentage of effective signals around the announcement of MCO extension and loan deferment.

Table 3: Effectiveness of Technical Analysis Signals

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| MA rules |  | (1,5) | (1,10) | (1,20) | (2,5) | (2,10) | (2,20) |
| MCO (1) | Buy | 36.36 | - | - | 100.00 | - | - |
|  | Sell | 61.04 | 61.36 | 61.36 | 65.85 | 61.36 | 61.36 |
| MCO (2) & Loan | Buy | 37.50 | 41.03 | 28.57 | 48.00 | 41.03 | 28.57 |
|  | Sell | 37.50 | 40.82 | 41.98 | 50.00 | 40.82 | 43.21 |
| MCO (3) | Buy | 53.33 | 55.38 | 56.92 | 53.45 | 58.73 | 58.06 |
|  | Sell | 7.14 | 21.74 | 17.39 | 13.33 | 32.00 | 19.23 |
| MCO (4) | Buy | 41.67 | 41.86 | 35.85 | 40.48 | 39.02 | 33.96 |
|  | Sell | 50.00 | 51.11 | 48.57 | 47.83 | 48.94 | 45.71 |
| CMCO | Buy | 37.78 | 46.34 | 46.88 | 55.10 | 59.52 | 55.17 |
|  | Sell | 20.93 | 31.91 | 33.93 | 35.90 | 43.48 | 38.98 |
| RMCO (1) | Buy | 53.45 | 47.22 | 44.05 | 51.67 | 43.42 | 44.05 |
|  | Sell | 63.33 | 50.00 | 25.00 | 60.71 | 25.00 | 25.00 |
| RMCO (2) | Buy | 27.59 | 30.00 | 27.27 | 32.00 | 29.41 | 28.57 |
|  | Sell | 54.24 | 57.35 | 56.06 | 57.14 | 56.34 | 55.22 |

Notes: **MCO (1)** refers to the announcement of *Movement Control Order* on 16th March 2020; **MCO (2) & Loan** refers to announcement for the second phase of *Movement Control Order* and loan moratorium on 23th March 2020; **MCO (3)** refers to announcement for the third phase of *Movement Control Order* on 10th April 2020; **MCO (4)** refers to announcement for the fourth phase of *Movement Control Order* on 23th April 2020; **CMCO** refers to announcement for the *Conditional Movement Control Order* on 11th May 2020; **RMCO (1)** refers to announcement for the *Recovery Movement Control Order* on 7th June 2020; **RMCO (2)** refers to announcement for the *Recovery Movement Control Order Phase 2* on 28th August 2020. MA rule: The first number in the bracket represent the day for short MA, while the second number in the bracket represent the day for long MA. For instance, MA rule of (1,5) refer to the combination of 1 day short MA and 5 day long MA.

Around the announcement of MCO phase 3, all the MA rules emitted low percentage of effective sell signals. This indicated that investors cannot used the MA rules to predict the downtrend of banks’ stock price movements. However, all the MA rules tend to produce higher percentage of effective buy signals as compared to the previous two announcements. Around the announcement of MCO phase 4, the percentage of effective buy signals ranged between 33% to 42%, while the percentage of effective sell signals ranged between 42% to 52%. Lastly, the MA rule of (2,5) also consistently emitted higher percentage of effective signals around the following announcements, which included CMCO, RMCO (1) and RMCO (2).

Table 4 and 5 show the average return obtained by the MA rules around various announcement dates. In order to mitigate the spreading of COVID-19 virus, Malaysian government announced the Movement Control Order (MCO) on 16 March 2020. As a result, the financial performance of many businesses have been affected, which included the banking sector. Based on result obtained, MA rules consistently generated positive return 5 days and 10 days before the MCO announcement. However, technical analysis had the mixed results around the announcement dates for the extension of MCO and the loan moratorium. Specifically, only 6 out of the 12 MA rules shown positive return before the announcement of MCO-Phase 2; while none of the MA rules able to generate any return after the announcement of MCO Phase-2.

Table 4: Return Generated by MA Rules (*Short MA: 1 day*) around the Announcements Date

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | (1,5) | | (1,10) | | (1,15) | |
| Announcement |  | 5 days | 10 days | 5 days | 10 days | 5 days | 10 days |
| MCO (1) | After | -0.8630 | -0.3453 | -0.8178 | -0.4798 | -0.8178 | -0.7405 |
|  | Before | 2.8263 | 1.3410 | 2.9630 | 1.5041 | 2.9630 | 1.5202 |
| MCO (2) & Loan | After | -0.3135 | -0.1267 | -0.3362 | -0.0758 | -0.2023 | -0.1144 |
|  | Before | -0.8150 | 1.3454 | -1.0040 | 1.2759 | -1.2105 | 1.2471 |
| MCO (3) | After | 0.1513 | -0.0598 | 0.3204 | -0.0589 | 0.7059 | 0.0970 |
|  | Before | -0.1371 | -0.2805 | 0.0680 | -0.2080 | -0.1624 | -0.0460 |
| MCO (4) | After | -0.2184 | -0.3097 | -0.1172 | -0.1533 | -0.2244 | -0.1742 |
|  | Before | 0.0182 | -0.1757 | -0.1301 | -0.1617 | -0.0906 | -0.0234 |
| CMCO | After | -0.0983 | -0.1290 | -0.0806 | 0.0265 | -0.0574 | 0.1741 |
|  | Before | -0.5303 | -0.2695 | -0.2074 | -0.1250 | -0.1228 | -0.1376 |
| RMCO (1) | After | 0.3187 | 0.0949 | -0.7857 | -0.2525 | -1.3554 | -0.7970 |
|  | Before | 1.5671 | 0.7037 | 1.6716 | 0.9026 | 1.6716 | 1.0386 |
| RMCO (2) | After | -0.0536 | -0.3250 | -0.1272 | -0.3609 | -0.1272 | -0.1928 |
|  | Before | 0.1778 | 0.0771 | 0.4167 | 0.0438 | 0.2737 | 0.0388 |

Notes: **MCO (1)** refers to the announcement of *Movement Control Order* on 16th March 2020; **MCO (2) & Loan** refers to announcement for the second phase of *Movement Control Order* and loan moratorium on 23th March 2020; **MCO (3)** refers to announcement for the third phase of *Movement Control Order* on 10th April 2020; **MCO (4)** refers to announcement for the fourth phase of *Movement Control Order* on 23th April 2020; **CMCO** refers to announcement for the *Conditional Movement Control Order* on 11th May 2020; **RMCO (1)** refers to announcement for the *Recovery Movement Control Order* on 7th June 2020; **RMCO (2)** refers to announcement for the *Recovery Movement Control Order Phase 2* on 28th August 2020. MA rule: The first number in the bracket represent the day for short MA, while the second number in the bracket represent the day for long MA. For instance, MA rule of (1,5) refer to the combination of 1 day short MA and 5 day long MA.

Table 5: Return Generated by MA Rules (*Short MA: 2 days*) around the Announcements Date

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | (2,5) | | (2,10) | | (2,15) | |
| Announcement |  | 5 days | 10 days | 5 days | 10 days | 5 days | 10 days |
| MCO (1) | After | 1.2495 | 0.7539 | -0.8178 | -0.4298 | -0.8178 | -0.7280 |
|  | Before | 2.9630 | 1.1090 | 2.9630 | 1.4534 | 2.9630 | 1.3879 |
| MCO (2) & Loan | After | -0.0367 | -0.0072 | -0.3702 | -0.0844 | -0.1772 | -0.0869 |
|  | Before | 0.8485 | 2.4119 | 0.9206 | 1.3259 | -1.2105 | 1.2471 |
| MCO (3) | After | 0.1432 | -0.1084 | 0.3666 | -0.0308 | 0.6424 | 0.0389 |
|  | Before | -0.1810 | -0.1466 | 0.1131 | -0.2025 | -0.1326 | -0.0185 |
| MCO (4) | After | -0.2436 | 0.0748 | 0.1264 | 0.0761 | 0.0191 | 0.0381 |
|  | Before | -0.1116 | -0.2589 | -0.1823 | -0.1308 | -0.1225 | -0.0711 |
| CMCO | After | -0.0389 | -0.3480 | 0.1431 | -0.0514 | -0.0179 | 0.1838 |
|  | Before | 0.1049 | 0.0551 | 0.2701 | 0.1298 | 0.3206 | 0.0983 |
| RMCO (1) | After | 0.0354 | 0.0718 | -1.3833 | -0.5207 | -1.2176 | -0.7712 |
|  | Before | 1.2723 | 0.3076 | 1.1153 | 0.4347 | 1.1153 | 0.7504 |
| RMCO (2) | After | -0.0715 | -0.1984 | -0.1790 | -0.1885 | -0.1955 | -0.2256 |
|  | Before | 0.2484 | 0.0987 | 0.3734 | 0.0750 | 0.2737 | 0.1006 |

Notes: **MCO (1)** refers to the announcement of *Movement Control Order* on 16th March 2020; **MCO (2) & Loan** refers to announcement for the second phase of *Movement Control Order* and loan moratorium on 23th March 2020; **MCO (3)** refers to announcement for the third phase of *Movement Control Order* on 10th April 2020; **MCO (4)** refers to announcement for the fourth phase of *Movement Control Order* on 23th April 2020; **CMCO** refers to announcement for the *Conditional Movement Control Order* on 11th May 2020; **RMCO (1)** refers to announcement for the *Recovery Movement Control Order* on 7th June 2020; **RMCO (2)** refers to announcement for the *Recovery Movement Control Order Phase 2* on 28th August 2020. MA rule: The first number in the bracket represent the day for short MA, while the second number in the bracket represent the day for long MA. For instance, MA rule of (1,5) refer to the combination of 1 day short MA and 5 day long MA.

On the other hand, only the MA rule of (1,5) and (1,10) able to generate a small return in the banks’ stocks before the announcement of MCO-Phase 3 and MCO-Phase 4, respectively. Noteworthy, MA rules with the short MA of 2 days started to generate return after the announcement of MCO-Phase 4. After more than two months of MCO, Malaysian government also successfully flatten the growth of COVID-19 cases. At 11th May 2020, Malaysian government announced the implementation of Conditional Movement Control Order (CMCO), whereby most of the business are allowed to operate within the specific hours. Based on the results obtained, the MA rules with short MA of 2 days tend to generate return before the announcement of CMCO. Lastly, the technical analysis continued to generate return before the announcement dates for both Recovery Movement Control Order (RMCO) and RMCO-Phase 2.

Consistently, the results indicate that technical analysis own predictive power before various announcements dates during the COVID-19 pandemic. These results also suggest the investor to use the signals emitted by technical analysis to predict the stock prices movements of banking sector. Among the 12 MA rules tested in this study, only the rules of (2,5) and (2,10) shown the positive return around all the announcements, except for the announcements of MCO-Phase 3 and 4. These results also suggested that short MA of 2 days is appropriate to be used in capture the short term information for the banking sector. Meanwhile, the long MA of 5 days and 10 days were appropriate to capture the information of the banking stocks for a longer period.

**CONCLUSION**

The different phases of Movement Control Order (MCO) and Loan Moratorium significantly affected the financial performance of banking sector. This study contributes to the existing literature by examining the ability of technical analysis in predicting stock price movements for the banking sector around various announcement dates. Majority of the MA rules shown positive return before the various announcements dates. Specifically, this study revealed that MA rules of (2,5) and (2,10) were the best performing MA rules. This study also recommends the investors to use the signals emitted by the technical rules as the informative signals for their investment decision in banking sector. For further study, researchers can expand the analysis by testing more technical rules on bigger sample size.

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