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The efficacy of Relative Strength Index (RSI) in KLSE market trade

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Abstract

The Relative Strength Index (RSI) is a widely used technical indicator in stock trading because of its simple application. However, its application combined with fundamental analysis in Kuala Lumpur Stock Exchange (KLSE) is yet to be explored extensively. Hence, this study aimed to investigate the effectiveness of RSI as a predictive tool in the KLSE market. First, 39 stocks that met the set of criteria guided by fundamental soundness were identified. Trading signals are then initiated based on the RSI indicators, which are superimposed on the charts of the identified stocks. The return on investment (ROI) was then estimated and benchmarked against KLCI performance over a period of five years starting from 21st July 21, 2018. It was found that the average ROI was 3.46% against KLCI's -24.37% over the same period of 5 years, measured between 21st July 21, 2018, 21st July 21, 2023. The average ROI improves as the number of trade iterations increases to five. The peak average ROI is approximately 22%. Technology is the top performer, recording an ROI of more than 40%. In conclusion, the combination of RSI and fundamental analysis yielded a mixed set of results. Although it outperforms KLCI, the annualised ROI is only slightly above 4%. Nevertheless, the results of this study provide valuable insights into the application of the RSI as a trading signal generator in the KLSE market.

Keywords:
RSI;
Technical analysis;
KLSE;
Equity market;
Fundamental analysis.

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1. Introduction

There are two major schools of thought regarding stock investment methods: fundamental analysis and technical analysis. While the focus of fundamental analysis is to forecast future earnings of the stock (Baresa et al., 2013), technical analysis aims to predict stock prices to identify favourable moments for buying and selling stocks guided by certain chart patterns and trade indicators (Petrusheva and Jordanoski, 2016). Regardless of the approach, the goal of any stock investor is to maximise their return on investments. Drakopoulou (2016) presented a review of fundamental and technical analyses. Value, growth, income, and CAN SLIM investing were discussed in detail by Drakopoulou (2016).

Gupta et al. (2001) recommended holding 27 stocks to optimise portfolio diversification in the Kuala Lumpur Stock Exchange (KLSE.). However, it should be noted that the study was conducted more than 20 years ago, and market conditions might have evolved significantly to date. Portfolio

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diversification is a double-edged sword, as over-diversification could mean that potential gains are limited, whereas under-diversification could imply that the potential risk of loss may be aggravated by the concentration of funds in too few stocks. Chin et al. (2018) found that the consumer product is the best performing sector, while technology is the worst, based on the application of the Threshold Generalised Autoregressive Conditional Heteroskedasticity (TGARCH) model. While the returns of the KLSE Syariah Index were found to be not significantly different from Kuala Lumpur Composite Index (KLCI), investing in Syariah-compliant stocks also promotes investing in socially responsible companies, as they must adhere to good Syariah principles such as freedom from interest, gambling, doubtful transactions, and forbidden activities (Ahmad and Ibrahim, 2002).

Regarding technical analysis, the Relative Strength Index (RSI) is one of the most popular technical indicators alongside the Bollinger Bands (BB), Moving Average Convergence/Divergence (MACD), and stochastic indicators (Kouatli and Yunis, 2021). A recent study applied technical analysis to three stocks listed on the Kuala Lumpur Stock Exchange (KLSE), namely TopGlove, AirAsia, and Digi (Fam and Mohammad, 2022) for a period of six months. Various technical tools were used, namely, 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. They concluded that a combination of fundamental and technical analyses could yield a better Return on Investment (ROI). Jakpar et al. (2018) also found that technical analysis did not yield better returns than the fundamental analysis approach for 80 food manufacturing companies selected from Bursa Malaysia. Another recent proponent combining fundamental and technical analyses also integrates machine learning to further refine the approach (Picasso et al., 2018). As implied, the literature seems to suggest combining both fundamental and technical analyses to make investment decisions.

RSI is a momentum indicator and is especially useful in detecting the optimal entry price in the oversold region where there is a significant chance that the price is near the bottom, although there have been exceptions, just like any other trading indicator. However, taking a position in the oversold region minimises risk from the perspective of the risk-to-reward ratio. Coupling RSI with the principle of investing in fundamentally sound companies could potentially yield credible positive ROI. This combination of RSI and fundamental analysis in KLSE is yet to be explored extensively in the literature, and this serves as the main motivation of this study.

2. Methodology

The following criteria were used to identify the stocks to be analysed using RSI. First, the company must be listed in the Main Market. This can potentially filter off companies that are not in a fundamentally sound position, such as not being consistently profitable, having insignificant market capitalisation, and not having a sound corporate governance framework in place (Bursa Malaysia, 2023). Second, stocks must be Shariah compliant for the reasons explained in the previous section. Third, they must be continuously profitable for the past 10 years and must be in a net cash position, that is, have more cash than debts at hand. This minimises the chance of the company defaulting due to its inability to service its debt. Next, the stocks must also be priced at least RM1 per share and have a significant market cap of at least RM 500 million as of 21st July 21, 2023, to minimise the risk of stock price manipulation by a certain party. By applying the aforementioned screening criteria, 39 stocks were identified (Table 1).

Table 1: Selected stocks

Name	Code	Category
KERJAYA	7161	Construction
BAUTO	5248	Consumer Products & Services
AMWAY	6351	Consumer Products & Services
PADINI	7052	Consumer Products & Services
FPI	9172	Consumer Products & Services
PWROOT	7237	Consumer Products & Services
PETDAG	5681	Consumer Products & Services
HLIND	3301	Consumer Products & Services
MAGNI	7087	Consumer Products & Services
KAWAN	7216	Consumer Products & Services
DLADY	3026	Consumer Products & Services
ZHULIAN	5131	Consumer Products & Services
BURSA	1818	Financial Services
TAKAFUL	6139	Financial Services
AHEALTH	7090	Health Care
UCHITEC	7100	Industrial Products & Services
WELLCAL	7231	Industrial Products & Services
PCHEM	5183	Industrial Products & Services
PIE	7095	Industrial Products & Services
TGUAN	7034	Industrial Products & Services
CMSB	2852	Industrial Products & Services
KFIMA	6491	Industrial Products & Services
INNO	6262	Plantation
UTDPLT	2089	Plantation
KMLOONG	5027	Plantation
TAANN	5012	Plantation
FAREAST	5029	Plantation
SOP	5126	Plantation
HSPLANT	5138	Plantation
MATRIX	5236	Property
AYER	2305	Property
UOADEV	5200	Property
VITROX	97	Technology
GTRONIC	7022	Technology
INARI	166	Technology
PENTA	7160	Technology
TIMECOM	5031	Telecommunications & Media
GASMSIA	5209	Utilities
PETGAS	6033	Utilities

To better illustrate the distribution of stocks according to category, Figure 1 is presented. It can be seen that most of the identified stocks are in the consumer products and services category followed by plantation and industrial products and services. There are no stocks in the energy and real estate investment trust (REITs) sectors.

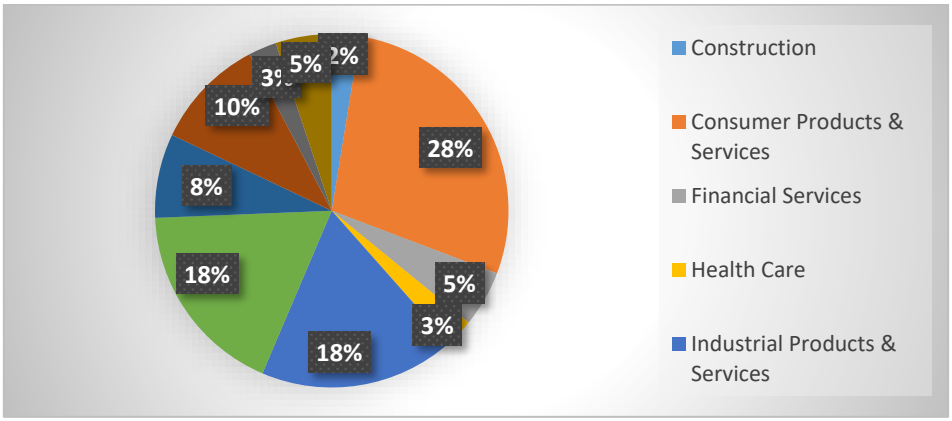

Figure 1: Categorisation of the selected stocks

The stocks were then analysed using RSI on a daily basis for a period of five years, counting backward from July 21, 2023. A default setting of 14 periods was used for the RSI. When the RSI crosses below 30, the stock is deemed to be oversold. On the other hand, the stock was deemed overbought when the RSI crossed above 70. For the purpose of simulation in this study, the stock was bought at the opening price one day after the first oversold signal was detected on July 21, 2018. The stock is then sold when the opening price one day after the first overbought signal is higher than the entry price. This process was repeated for each stock until July 21 2023. Trades will be made if the aforementioned criteria and trade setup are in place. Gains or losses are computed for each stock, as listed in Table 1. Note that the stock prices have been adjusted considering corporate exercises such as issuance of dividends or bonus shares among others by each stock, if any.

3. Results and discussions

Table 2 shows the returns of each identified stock by simulating trading, based on the conditions set in the methodology section. Note that stocks without an exit date are still not sold because the current price is still lower than the entry price and/or the overbought level has not been breached. In other words, they can be deemed unrealised ROI.

The proposed trading plan, which combines both fundamental and technical analyses, yields mixed results in terms of return on investment (ROI). The average return rate was 3.46%. However, it outperformed the Kuala Lumpur Composite Index (KLCI) which recorded -24.37% from July 21, 2018, to July 21, 2023.

In terms of winning rate, the percentage stands at 89.7%, with only 4 out of 39 stocks yet to be exited as it is still running at a loss; that is, the stock's price has not reached a higher level than the entry price. The average number of holding days for all winning trades is 257.11 days. Eleven stocks yielded gains of > 10%. The worst performers are DLADY and CMSB, with their prices tanking more than 60% within five years.

Nevertheless, the ROI improved as the number of iterations increased, as shown in Figure 2. Beyond five iterations, the ROI has reached a plateau, as the desired trade setup based on RSI is only available for less than five stocks. In other words, trades are no longer initiated for a large majority of the stocks. Reaching a peak ROI of approximately 22% means that the annualised return is approximately 4.4%.

Upon further zooming into the individual sectors, the technology sector showed an ROI of 43.7%, as illustrated in Figure 3. This was followed by the plantation sector, which recorded an ROI of 26.5%. Only sectors with more than three stocks are considered in Figure 3. This contradicts the findings of Chin et al. (2018), but it is understandable that the study period is different. The boom in the technology sector during the pandemic era has greatly contributed to its appreciation in the ROI.

Table 2: Returns of each stock

Name	Entry date	Entry price	Exit date	Exit price/current price	ROI (%)
KERJAYA	3-Oct-18	1.05	25-Apr-19	1.16	10.48
BAUTO	19-Sep-18	1.45	20-Dec-18	1.65	13.79
AMWAY	27-Aug-18	5.56		5.27	-5.22
PADINI	3-Dec-18	4.22		3.9	-7.58
FPI	14-Aug-19	1.28	26-Aug-20	1.32	3.13
PWROOT	30-Oct-18	1.12	17-Jan-19	1.16	3.57
PETDAG	23-Apr-19	21.24	31-May-19	21.92	3.20
HLIND	3-Dec-18	7.77	10-Apr-19	8	2.96
MAGNI	11-Dec-18	1.29	29-Jan-19	1.34	3.88
KAWAN	24-Oct-18	1.68	1-Jun-20	1.71	1.79
DLADY	7-Sep-18	60.07		21.72	-63.84
ZHULIAN	16-Mar-20	0.925	13-May-20	0.975	5.41
BURSA	3-May-19	5.5	28-Jun-19	5.72	4.00
TAKAFUL	10-Oct-18	3.07	29-Jan-19	3.76	22.48
AHEALTH	30-Oct-18	1.13	21-Nov-18	1.31	15.93
UCHITEC	11-Dec-18	1.95	19-May-20	1.99	2.05
WELLCAL	9-Jan-20	0.9	22-Sep-21	0.96	6.67
PCHEM	10-Jan-19	7.19	28-Sep-21	7.66	6.54
PIE	19-Dec-18	1.18	14-Feb-19	1.46	23.73
TGUAN	10-Oct-18	1.1	4-Mar-19	1.19	8.18
CMSB	24-Jul-19	2.7		1.04	-61.48
KFIMA	10-Mar-20	1.17	14-May-20	1.21	3.42
INNO	12-Oct-18	0.44	12-Feb-19	0.485	10.23
UTDPLT	7-Oct-19	9.46	28-Nov-19	10.1	6.77
KMLOONG	14-Nov-18	0.9	7-Jan-19	1	11.11
TAANN	12-Oct-18	1.77	21-Dec-18	1.8	1.69
FAREAST	12-Nov-19	2.26	7-Oct-20	2.29	1.33
SOP	3-Sep-18	1.71	25-Nov-19	2	16.96
HSPLANT	25-Oct-18	1.62	11-Dec-19	1.67	3.09
MATRIX	22-Oct-18	0.965	9-Jun-20	1.02	5.70
AYER	16-Aug-18	4.94	27-Feb-20	5.37	8.70
UOADEV	17-Oct-18	1.57	23-Jan-19	1.63	3.82
VITROX	31-Oct-18	3.4	7-Mar-19	3.5	2.94
GTRONIC	25-Oct-18	1.7	30-Sep-19	1.76	3.53
INARI	25-Oct-18	1.7	8-Oct-19	1.8	5.88
PENTA	26-Oct-18	1.41	28-Feb-19	1.49	5.67
TIMECOM	11-Oct-18	1.93	24-Jun-19	2.26	17.10
GASMSIA	17-Dec-19	2.09	22-Feb-22	2.45	17.22
PETGAS	11-Oct-18	13.64	5-Dec-18	15.04	10.26
AVERAGE					3.46

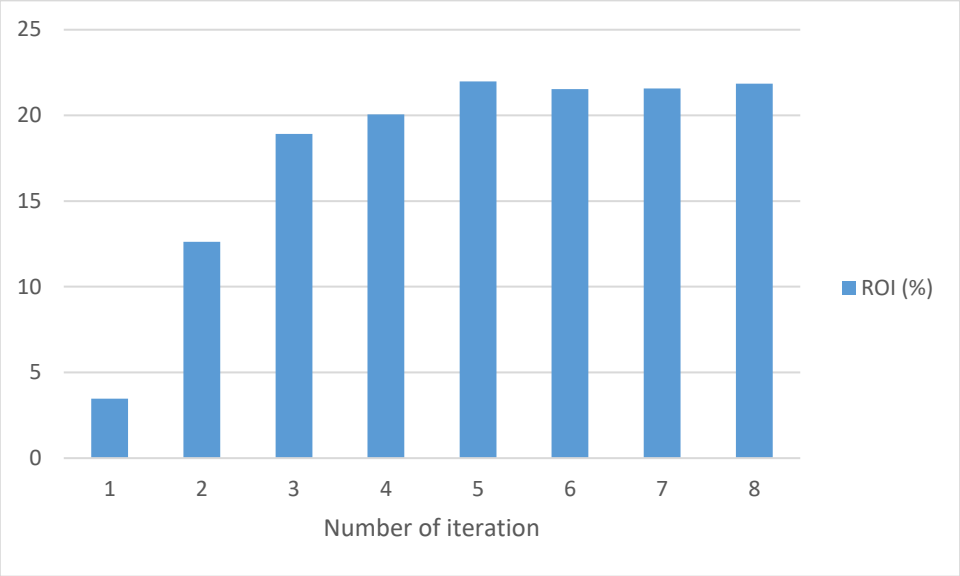

Figure 2: Average ROI for each number of iterations

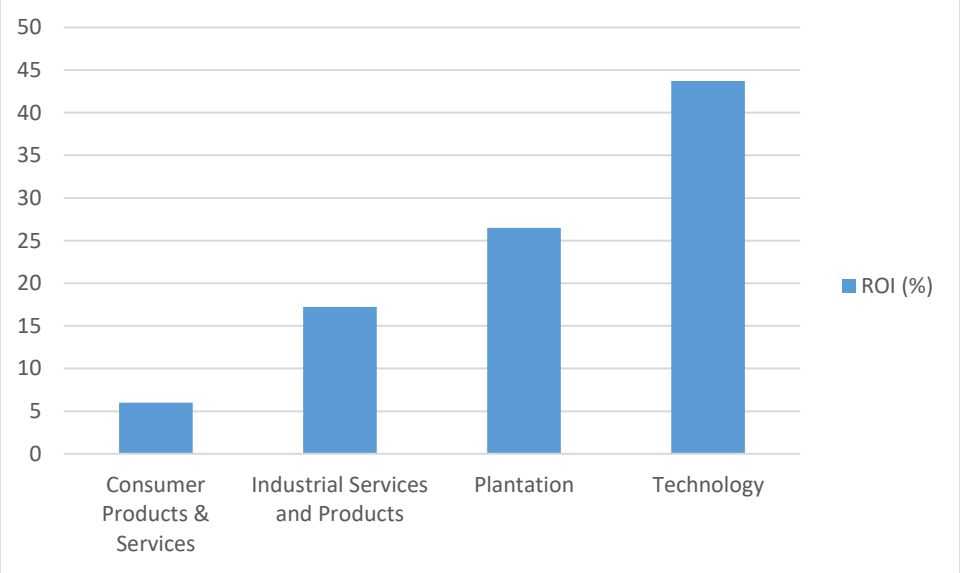

Figure 3: Average ROI for selected sectors

Note that this simulation assumes that all intended trades are successful. In reality, this also depends on the availability of stocks for the match order to be executed on that day. Note that brokerage and clearance fees may slightly reduce ROI. The ROI's can potentially be improved further by implementing stop-losses; that is, to dispose of the stock should the price be tanked below a certain level. By doing so, large losses of more than 60% attributed to DLADY and CMSB can be capped. Another potential way of enhancing the trading setup is to incorporate stock volume analysis.

4. Conclusions

The fundamental and technical approaches, or RSI, were integrated in this study. Selecting a fundamentally sound company is crucial to minimise the risk of investing in stocks that have a significant risk of defaulting. The RSI is a useful technical indicator for detecting the entry and exit points in a trade. The ROI of this integrated approach was annualised to approximately 4.4%. The technology sector recorded the highest ROI among the stocks considered in this study, largely attributed to the global boom in the technology sector during the pandemic. Although this integrated approach outperforms the returns of KLCI over the same period, the efficacy of RSI can still be further improved. Investors, especially retailers, are advised to further fine-tune the approach presented in this study to guide their trading decisions. Moving forward, other trading setups can be experimented with on a similar pool of stocks to identify and execute investing strategies with potentially higher ROI than RSI.

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The information of the stocks was sourced from https://www.klsescreener.com/v2/ .

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