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Sector Rotation Strategy

Bet on Tech, Industrial, Construction & Consumer

FBM KLCI: 1,744.20 points

2017 Year-end Target: 1,830 points

STRATEGY

Rotational trading systems in equity sectors are nearly as old as the equity market itself. Since early on, fund managers and traders have noticed that stocks from different sectors have different sensitivity to business cycle and have always tried to exploit this relationship. Momentum investing, a form of relative strength investing, is at the heart of the sector rotation strategy as it seeks to invest in sectors showing the strongest performance over a specific timeframe. In his book, What Works on Wall Street, James O'Shaunessey found that relative strength strategies were consistently at the top of the performance list over the last 50 years. Sector rotation, based on relative strength strategy, may improve risk-adjusted portfolio returns.

OBJECTIVE

The objective of this study is to gauge whether sector rotation, based on relative strength strategy, can improve risk-adjusted investment returns in Malaysian equity market.

STUDY PARAMETERS

The test period covered for Malaysian equities spans January 2009 to October 2017. Data for this study are sourced from Bloomberg.

The following criteria are used in the study:

1) The performance of eight sectoral indices on the Bursa Malaysia was monitored for the last 8.8 years;
2) The FBM KLCI was used as a benchmark for the period reviewed;
3) Each month, the eight sectors are ranked on total price return excluding dividends. Again, as in previous reports, varying periods of measurement were used, ranging from 1, 3, 6, and 12 months;
4) When examining relative strength at the 1 month interval, simply sort the eight sectors by their prior month total price returns, excluding dividends. For the 3-month period, again simply sort the eight sectors by their 3-month total price returns, excluding dividends. This is also done for both the 6- and 12-month periods;
5) Buy Rules - The rotation strategy invests in the top X sectors via the index. That is, for Top 1, the system is 100% invested in the top ranked sector. For Top 2, the system is 50% invested in each of the top two sectors. For Top 3, the system is 33% invested in each of the top three sectors, and so on;
6) Sell Rule - Since the rotation strategy is a simple ranking based on sector returns for the period reviewed, the top X sectors are held and if a sector via its index falls out of the top X sectors it is sold at the monthly, quarterly, semi-annual and yearly rebalance according to the strategy and replaced with the sector in the top X;
7) All entry and exit prices are on the day of the signal at the close. The model is only updated once a month or the period chosen on the last day of that month. Price fluctuations during the rest of the month are ignored;
8) All data series are total return series excluding dividends;
9) Taxes, commissions, and slippage are excluded.

A good factor or strategy is one where:

1) The Top 1 model portfolio outperforms the Top 2 model portfolio which in turn outperforms the other Top 3 to nth model portfolios;

2) There must be a linearity of returns among the top model portfolios against the lower model portfolios over the period tested; and
3) The strategy must also consistently outperformed the market index over time. Consistent outperformance is defined when the top models outperforms the market (FBM KLCI Index) portfolio 60% or more of the time.

FINDINGS

The results in this study met the good factor or strategy where the Top 1 model portfolio outperforms the Top 2 model portfolio, met the linearity of returns among the top model portfolios against the lower model portfolios over the period tested, and the strategy consistently outperform the market index over time. Consistent outperformance is defined when the top models outperforms the market (FBM KLCI) portfolio 60% or more of the time.

Returns for Rebalancing Periods in Periods Reviewed: For the period reviewed, there was consistent out performance for all rebalancing periods.

Risks Return Reward: The risk return rewards as measured by the return risk ratio were also conclusive. The strategy gave strong returns with less risk compared to the FBM KLCI risk.

Tables of numerical results. Please refer to OVERALL FINDINGS on pages 8-13.

Conclusions. Please refer to CONCLUSIONS on page 14.

RECOMMENDATIONS

Analysis of Top 4 Sectors to invest based on period momentum for 1-, 3-, 6- and 12-month holding periods.

The tables below show sector rotation performance based on the last 2 recent successive holding periods.

Sectors performing last 2 periods and Current Period as at 7 Nov 2017

		RETURNS - 1 Month Rebalanced		RETURNS - 3 Month Rebalanced		RETURNS - 6 Month Rebalanced		RETURNS - 12 Month Rebalanced	
		30-Sep-17	31-Oct-17	30-Jun-17	30-Sep-17	31-Dec-16	30-Jun-17	31-Dec-15	31-Dec-16
FBMKLCI Index	FTSE Bursa Malaysia KLCI	(0.99)	(0.44)	1.36	(0.46)	(0.75)	7.43	(3.90)	(3.00)
Ticker	Short Name	Holding Period Return 1 Mth	Holding Period Return 1 Mth	Holding Period Return 3 Mth	Holding Period Return 3 Mth	Holding Period Return 6 Mth	Holding Period Return 6 Mth	Holding Period Return 12 Mth	Holding Period Return 12 Mth
KLCON Index	Bursa Malaysia Construct	(1.60)	1.05	5.17	(4.32)	0.87	19.47	(0.78)	3.00
KLCSU Index	Bursa Malaysia Consumer	0.32	0.28	3.40	(1.07)	(3.24)	9.56	5.80	(2.11)
KLFIN Index	Bursa Malaysia Finance	(1.98)	(1.04)	7.07	(1.95)	1.25	16.57	(9.84)	1.58
KLPLN Index	Bursa Malaysia Plantatio	0.30	1.61	(3.53)	(0.52)	2.45	2.12	(3.39)	1.69
KLPRO Index	Bursa Malaysia IndusProd	1.78	3.67	1.03	2.88	2.76	7.73	21.56	(7.27)
KLPRP Index	Bursa Malaysia Property	0.70	(0.82)	(0.36)	(3.82)	(0.45)	15.22	(7.63)	(5.05)
KLSER Index	Bursa Malaysia Trad/Svc	(0.19)	0.27	(1.11)	0.03	(1.65)	4.95	(0.13)	(4.33)
KLTEC Index	Bursa Malaysia Technolog	(2.14)	6.56	15.22	5.59	4.10	58.86	52.40	(13.28)

Note : **Blue** color denotes Outperform Index

		Mthly Sector Rotation returns		3 Mthly Sector Rotation returns		6 Mthly Sector Rotation returns		12 MthlySector Rotation returns	
FBMKLCI Index	FTSE Bursa Malaysia KLCI	(0.99)	(0.44)	1.36	(0.46)	(0.75)	7.43	(3.90)	(3.00)
% Allocation	Portfolio Strategy	Returns	Returns	Returns	Returns	Returns	Returns	Returns	Returns
100.00	Top 1	1.78	6.56	15.22	5.59	4.10	58.86	52.40	3.00
50.00	Top 2	1.24	5.12	11.14	4.24	3.43	39.16	36.98	2.35
33.33	Top 3	0.93	3.95	9.15	2.84	3.10	31.63	26.58	2.09
25.00	Top 4	0.77	3.22	7.71	2.13	2.64	27.53	19.91	1.04
20.00	Top 5	0.58	2.64	6.17	1.60	2.29	23.93	15.77	0.83
16.67	Top 6	0.48	2.24	5.31	1.15	1.83	21.23	12.57	(0.03)
14.29	Top 7	0.19	1.92	4.50	0.71	1.57	18.20	10.78	(0.74)
12.50	Top 8	(0.08)	1.58	3.80	0.14	1.17	16.54	8.48	(1.56)

Note : **Green** color denotes Outperform Index

		Monthly Ranking		3 Monthly Ranking		6 Monthly Ranking		12 Monthly Ranking		Sector Recommendation Last 2 Periods	
		Ranked	Ranked	Ranked	Ranked	Ranked	Ranked	Ranked	Ranked	Total	Ranking
FBMKLCI Index	FTSE Bursa Malaysia KLCI	6	7	5	4	7	7	7	5	48	7
Ticker	Short Name										
KLCON Index	Bursa Malaysia Construct	7	4	3	9	5	2	5	1	36	3
KLCSU Index	Bursa Malaysia Consumer	3	5	4	6	9	5	3	4	39	4
KLFIN Index	Bursa Malaysia Finance	8	9	2	7	4	3	9	3	45	6
KLPLN Index	Bursa Malaysia Plantatio	4	3	9	5	3	9	6	2	41	5
KLPRO Index	Bursa Malaysia IndusProd	1	2	6	2	2	6	2	8	29	2
KLPRP Index	Bursa Malaysia Property	2	8	7	8	6	4	8	7	50	9
KLSER Index	Bursa Malaysia Trad/Svc	5	6	8	3	8	8	4	6	48	7
KLTEC Index	Bursa Malaysia Technolog	9	1	1	1	1	1	1	9	24	1

The top table shows the last 2 successive period returns performance for all four holding periods (1-, 3-, 6- and 12-month) for each sectoral index against benchmark FBM KLCI. It is observed that just by choosing a sector to invest arbitrarily, the sector may or may not outperform the market. The Blue and White colour coded boxes show outperformance and underperformance against the benchmark respectively.

The middle table shows the last 2 successive period returns performance for all four holding periods (1-, 3-, 6- and 12-month) for each sector rotation strategy, i.e. investing in strongly performing sectors only, against benchmark FBM KLCI. It is observed that all 8 portfolio sector strategy outperformed the FBM KLCI. The Green colour coded boxes show outperformance against the benchmark.

The bottom table ranks each sector performance for all period holdings for the last 2 successive periods. The ranks for each period are then added up for all periods and re-ranked. It is observed that the top 4 sectors in ranking order are 1) KLTEC Index, 2) KLPRO Index, 3) KLCON Index, and 4) KLCSU Index.

MIDFR Universe: 8 stocks in the Top 4 sectors with Buy recommendation

Stock Name	Price 7-Nov (RM)	MIDFR Target Price (RM)	Exp. Price Return (%)	Dividend Yield (%)	Exp. Total Return (%)	MIDFR Recommendation
KLTEC Index						
Unisem	3.94	4.58	16.20%	3%	19.3%	Buy
KLPRO Index						
Petronas Chemicals	7.33	8.18	11.6%	3%	14.3%	Buy
Cahaya Mata Sarawak	3.7	4.62	24.9%	0%	24.9%	Buy
Kossan	7.15	7.57	5.9%	1%	7.1%	Buy
KLCON Index						
IJM Corp	3.16	4.00	26.6%	5%	32.0%	Buy
Sunway Con	2.33	2.67	14.6%	1%	15.4%	Buy
Hock Seng Lee	1.55	2.00	29.6%	2%	22.8%	Buy
KLCSU Index						
Spritzer	2.35	2.83	20.4%	2%	22.3%	Buy

Source: MIDFR, Bloomberg

Hence it is recommended that the select stocks in TECHNOLOGY, INDUSTRIAL PRODUCTS, CONSTRUCTION and CONSUMER sectors are to be invested in.

Macro Strategy	:	**Sector Selection** using Quantitative Selection Strategy
Strategy Types	:	**Momentum** Play Investing
This Strategy	:	**Sector Rotation Trading Strategy**

Strategy Concept :

Sector Rotation based trading strategies are popular because they can **improve risk-adjusted returns**. **Momentum** is at the **heart of the sector rotation strategy**. It seeks to **invest in sectors showing the strongest performance over a specific timeframe**. Momentum investing is another form of **relative strength investing**.

There are **many research supporting the concept of momentum investing** or relative strength investing. One of the prominent proponents of this method, James O'Shaunessey, in his book, What Works on Wall Street, details the best performing strategies over the last fifty years. O'Shaunessey **found that relative strength strategies were consistently at the top of the performance list**. Investors are **rewarded for buying the strongest stocks and avoiding the weakest**. As in most studies on stocks or sectors it is observed that, based on momentum, the strong tend to get stronger, while the weak tend to get weaker. This makes sense because most investors loves winners and hates losers.

By focusing investments in the top performing sectors within an index, fund managers are more likely to own more of the leaders and less of the laggards in the stock market. This, in turn, can boost the portfolio returns if the current uptrend continues in the selected sector(s).

Strategy Studies :

This is a Momentum based strategy, **grouped as both trend following and relative strength techniques have been applied as investment strategies for over a century**. Momentum has been one of the most widely discussed and researched investment strategies (some academics would prefer the term "anomaly").

The original study "Relative Strength Strategies for Investing" was by Mebane T. Faber a portfolio manager from Cambria Investment Management, Inc. The study was based on US equity sector from 1926 to 2009. The results was there was an **increased in absolute returns with equity-like risk**. The study concluded that relative strength portfolios outperform the buy and hold benchmark in approximately 70% of all years and returns are persistent across time.

Sector Momentum - Rotational System

Rotational trading systems in equity sectors/industries are nearly as old as equity markets. Fund Managers and Traders have noticed that stocks from different sectors have different sensitivity to business cycle and have always tried to exploit this relationship. There **exist several different approaches to sector rotation, and a rotation based on momentum is one of the most successful**. The investment universe in the USA example contains 10 industry sectors, and the Relative Strength strategy advocated here repeatedly picks equity sectors with highest momentum (past performance) into the portfolio. **The goal of this strategy is to outperform simple buy and hold of equity index**. There is a long only strategy.

Fundamental reason

Equity sectors have different sensitivity to the business cycle therefore it is possible to rotate between them and hold only the sectors with the highest probability of gain and lowest probability of loss. The momentum anomaly is often explained by behavioural shortcomings, such as investor herding, investor over and under reaction and confirmation bias. These behavioural shortcomings were mentioned in **MIDF Research report** dated June 1, 2017 titled **Price**

Earnings Announcement Drift (PEAD). One behavioural explanation is the so-called disposition effect, which is the tendency for investors to sell winners and hold on to losers, thus causing prices to slowly adapt to changing fundamentals. However, overall, it **appears the systematic under reaction to new information may be the best explanation**. How does this work? Investors are slow to act due to a variety of explanations: they're conservative, they dollar-cost-average into shares, they suffer from anchored views, they update their views incrementally, they're not paying full attention, they suffer from time lags due to investment committee bureaucracies, etc. In general, on average over time, investors are slow to accept the full impact of new information. To summarize, **investors tend to systematically underreact to market moving news, and at times, performance chasing and fund flows can also explain why momentum can work**.

Other existing literature has documented that cross-sectional stock returns exhibit momentum patterns. Namely, past winners continue to perform well and past losers continue to perform poorly. In particular, **Jegadeesh and Titman (1993)** shows that stocks with higher past returns subsequently earn higher returns, at horizons ranging from 3 to 12 months.

They refer to investment strategies of buying past winners and selling past losers as relative strength strategies, which are widely referred to as momentum strategies in subsequent studies. As shown by Fama and French (1996), the momentum effect is not subsumed by the size or value effects. On the other hand, **Moskowitz and Grinblatt (1999) document a strong and prevalent momentum effect in industry components of stock returns which accounts for much of the individual stock momentum anomaly**. They show that momentum investment strategies of buying past winning stocks and selling past losing stocks are significantly less profitable once industry momentum is controlled for. They further show that industry momentum investment strategies, which involve **buying stocks from past winning industries and selling stocks from past losing industries, are highly profitable, even after controlling for common risk factors**.

Academics have focused on studying momentum investing properly for the better part of two decades. A study by Hancock found a momentum strategy outperformed a broad universe of U.S. stocks by nearly 4% per year from 1927-2009. Some research suggests that momentum investing delivers even better abnormal performance than either size or value styles. Momentum's effect exists in nearly all sizes/sectors, different asset classes and international markets. It does however depend on the investment time horizon. Most academic studies of momentum skip the most recent month, since "there exists a reversal or contrarian effect in returns which may be related to liquidity or microstructure issues" (Jegadeesh). Overall, **trading based on individual stock momentum appears to be a poor strategy over a short historical horizon (especially less than one month)**; it is **highly profitable at intermediate horizons (up to 24 months, but especially in the 6- to 12-month range)**; and is once again a poor strategy at long horizons (beyond 24 months).

Research has shown that momentum is particularly beneficial when combined with a value style because the two are negatively correlated. This confirms our previous report using **Piotroski F Score** to find **Value stocks** and **ERP5** for **stocks with momentum**. Moskowitz and Grinblatt conclude that "A value-momentum combination mitigates the extreme negative return episodes a value investor will face (e.g., the tech boom of the late 1990s and early 2000 or a dismal year like 2008)". **RESEARCH ALSO INDICATES THAT MOMENTUM CAN BE A CATALYST TO VALUE**, i.e. the research suggests that value stocks that have been long-term losers but have high 6–12 month returns will go on to outperform by an even wider margin.

Some of these studies are below:-

1. Moskowitz, Grinblatt: Do Industries Explain Momentum?

   http://faculty.chicagobooth.edu/tobias.moskowitz/research/industry.pdf

2. Huhn: Industry Momentum: The Role of Time-Varying Factor Exposures and Market Conditions

   http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2650378

3. Chen, Jiang, Zhu: Do Style and Sector Indexes Carry Momentum?

   http://www.apjfs.org/2009/cafm2009/04_03_Do%20Style%20and%20Sector%20Indexes.pdf

This Study Rationale : **The objective of this study is to gauge whether investment in sectors using a Sector Rotation based momentum or relative strength trading strategies can improve returns on the Malaysian Stock Market**.

At the heart of the sector rotation strategy, seeks to invest in Malaysian sectors showing the strongest performance over a specific timeframe. Momentum investing is another form of relative strength investing.

Fund Managers must then decide how much capital to allocate to each sector and to the strategy as a whole. **Fund Managers could buy the top 1, 2 or three sectors and allocate equal amounts to all three (33%). Alternatively, Fund Manager could implement a weighted strategy by investing the most in the top sector and lower amounts in the subsequent sectors**.

The test period covered for Malaysian equities spans Jan 2009 to October 2017. Data for this study are sourced from Bloomberg. The following selection criteria are used in study:

1) The Sector index are on the Bursa for last 8.8 years;

2) The FBM KLCI Index was used as a bench mark for the period reviewed.

3) Each month the eight sectors are ranked on total price return excluding dividends. Again as in previous reports varying periods of measurement ranging from 1, 3, 6, and 12 months were used.

4) When examining relative strength at the one month interval, simply sort the eight sectors by their prior month total price returns excluding dividends. For the three month period, again simply sort the eight sectors by their three month total price returns excluding dividends. This done for both the 6 and 12 months.

5) Buy Rules - The rotation strategy invests in the top X sectors via the index. That is, for Top 1, the system is 100% invested in the top ranked sector. For Top 2, the system is 50% invested in each of the top two sectors. For Top 3, the system is 33% invested in each of the top three sectors, etc.

6) Sell Rule - Since the rotation strategy is a simple ranking based on sector returns for the period reviewed, the top X sectors are held and if a sector via its index falls out of the top X sectors it is sold at the monthly, quarterly, semiannual and yearly rebalance according to the strategy and replaced with the sector/index in the top X.

7) All entry and exit prices are on the day of the signal at the close. The model is only updated once a month or the period chosen on the last day of that month. Price fluctuations during the rest of the month are ignored.

8) All data series are total return series excluding dividends.

9) Taxes, commissions, and slippage are excluded.

A **good factor or strategy** is one where:

1. The **top 1 model portfolio outperforms the top 2 model portfolio which in turn outperform the other 3 to nth model portfolios.**
2. There must be a **linearity of returns** among the top model portfolios against the lower model portfolios over the period tested, and
3. The strategy must also consistently outperform the market index over time. Consistent outperformance is defined when the top models o**utperforms the market (FBM KLCI Index) portfolio 60% or more of the time.**

Portfolio Rebalanced	:	1, 3, 6, and 12-Month Holding Period
Back Test Period	:	8.8 Years
Back-test Scenario	:	4 main Simulations (based on all 4 combination mentioned above, i.e. Holding Period and 8.8 Years)
Results Tabled	:	Summary based on 8.8 Years data
Period Start	:	01-Jan-2009
Period End	:	31-October-2017
Index Observed	:	1 – FBM KLCI Index
INDEX Observed	:	8 – KLCON Index, KLCSU Index, KLFIN Index, KLPLN Index, KLPRO Index, KLPRP Index, KLSER Index, KLTEC Index
No. of observations	:	6,464
Ave. observation Sector/Index	:	719

OVERALL FINDINGS : This sector rotation strategy is built on the premise that certain sectors will outperform in any point of time and investing in these sectors will outperform the market overall.

Below are summaries of the various rebalancing periods and returns. The portfolio were rebalanced 1, 3, 6, and 12 month for the 8.8 years back tested. It was **observed that regardless of rebalancing period, the relative strength strategy adopted for sector rotation which is seeking to invest in Malaysian sectors showing the strongest return performance over a specific timeframe is very profitable**.

1. Returns for Rebalancing Periods in Periods Reviewed

	Rebalancing Period	1 Mth	3 Mth	6 Mth	12 Mth	
FBMKLCI Index	FTSE Bursa Malaysia KLCI	0.69	2.18	4.47	9.20	
% Allocation	Portfolio Strategy	Average Return	Average Return	Average Return	Average Return	
100.00	Top 1	4.91	11.26	19.64	25.52	
50.00	Top 2	3.81	8.60	15.30	20.80	
33.33	Top 3	3.21	7.23	12.65	18.53	
25.00	Top 4	2.69	6.12	10.98	15.30	
20.00	Top 5	2.26	5.33	9.58	14.38	
16.67	Top 6	1.89	4.52	8.27	12.78	
14.29	Top 7	1.56	3.88	7.40	11.72	
12.50	Top 8	1.23	3.30	6.46	10.54	
	Portfolio Strategy	% Outper-form Index	% Outper-form Index	% Outper-form Index	% Outper-form Index	
	Top 1	4.22	9.09	15.17	16.32	
	Top 2	3.13	6.42	10.83	11.60	Recomemded for Risk Management to diversify portfolio holdings
	Top 3	2.52	5.05	8.18	9.33	
	Top 4	2.00	3.95	6.51	6.10	

From the table it can be observed that for the period reviewed, there was consistent out performance for all rebalancing periods. The 1 month rebalancing outperformance was 4.22% (Top 1: 4.91% minus Index: 0.69%) for top 1 (invest only in 1 sector) and the lowest was still a hefty 2% in Top 4 portfolio (invest in top 4 sectors). This same pattern is also observed in the other 3 rebalancing strategy. For risk management purposes let's take the top 3 portfolio (investing equally in top 3 performing sectors), it is observed that the remainder 3 balancing periods still gave a hefty out performance at 5.05% (3 months rebalancing), 8.18% (6 months rebalancing) and 9.33% (12 months rebalancing).

2. Risks Return Reward

	Rebalancing Period	1 Mths			3 Mths			6 Mths			12 Mths		
FBMKLCI Index	FTSE Bursa Malaysia KLCI	0.69	2.84	0.24	2.18	6.00	0.36	4.47	7.70	0.58	9.20	15.86	0.58
% Allocation	Portfolio Strategy	Average Return	Period Std Dev	Retn to Volatility	Average Return	Period Std Dev	Retn to Volatility	Average Return	Period Std Dev	Retn to Volatility	Average Return	Period Std Dev	Retn to Volatility
100.00	Top 1	4.91	5.43	0.90	11.26	10.86	1.04	19.64	15.51	1.27	25.52	20.52	1.24
50.00	Top 2	3.81	4.40	0.87	8.60	8.78	0.98	15.30	12.12	1.26	20.80	18.67	1.11
33.33	Top 3	3.21	3.96	0.81	7.23	7.80	0.93	12.65	9.99	1.27	18.53	17.43	1.06
25.00	Top 4	2.69	3.64	0.74	6.12	7.34	0.83	10.98	9.45	1.16	15.30	13.79	1.11
20.00	Top 5	2.26	3.36	0.67	5.33	7.09	0.75	9.58	8.82	1.09	14.38	13.59	1.06
16.67	Top 6	1.89	3.21	0.59	4.52	6.54	0.69	8.27	8.09	1.02	12.78	13.18	0.97
14.29	Top 7	1.56	3.11	0.50	3.88	6.32	0.61	7.40	7.88	0.94	11.72	13.18	0.89
12.50	Top 8	1.23	3.08	0.40	3.30	6.38	0.52	6.46	7.72	0.84	10.54	13.34	0.79

The risk return rewards as measured by the return risk ratio was also conclusive. The strategy gave strong returns with less risk compared to the FBMKLCI Index risk. The table above shows the risk reward in terms of the Return to Volatility Ratio. Column 3, 6, 9 and 12 are the average returns for the period reviewed and columns 4, 7, 10 and 13 are the volatility of returns during the period. The coloured columns are Return to Volatility Ratio for the index and all the 8 portfolios. **Green denotes a very positive risk reward relationship as the higher the figure the better**. It is observed that the **FBMKLCI Index Return** to Volatility Ratio has a red colour for all rebalancing periods as it **underperforms all strategic portfolios** even the Top 8 strategic portfolio.

Again for **risk management purposes taking the Top 3 and Top 4 strategic portfolios for comparison to FBMKLCI Index risk**, it is observed that for all rebalancing period **both portfolios outperform the index by a comfortable wide margin**.

	Return to Volatility Ratio			
Portfolio Strategy	**1 Month**	**3 month**	**6 Month**	**12 Month**
FBMKLCI Index	0.24	0.36	0.58	0.58
Top 3	0.81	0.93	1.27	1.06
Top 4	0.74	0.83	1.16	1.11

The **highest the FBMKLCI Index could muster for Return to Volatility Ratio was 0.58** (6 & 12 Mths Rebalancing) whereas the **at the Minimum the Top 3 strategic portfolio was 0.81** and the **Top 4 was 0.74** indicating that less risk with better rewards than the KLCI Index

3. Detail performance of Sector Rotation strategy and various Rebalancing period.

3.1 Sector Rotation Strategy 1 Month Rebalancing

Monthly Rebalanced - Jan 2009 to Oct 2017						
Sector & Index Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	0.69	2.84	0.24	**7**	**4**
Ticker	**Short Name**	**Average Return**	**Period Std Dev**	**Retn to Volatility**	**Return Ranking**	**Risk Reward Ranking**
KLCON Index	Bursa Malaysia Construct	**0.75**	4.54	0.17	6	9
KLCSU Index	Bursa Malaysia Consumer	**0.79**	2.65	0.30	5	1
KLFIN Index	Bursa Malaysia Finance	**0.88**	3.44	0.26	4	2
KLPLN Index	Bursa Malaysia Plantatio	0.68	3.42	0.20	8	6
KLPRO Index	Bursa Malaysia IndusProd	**0.92**	3.58	0.26	3	3
KLPRP Index	Bursa Malaysia Property	**0.96**	5.34	0.18	2	7
KLSER Index	Bursa Malaysia Trad/Svc	0.67	2.97	0.22	9	5
KLTEC Index	Bursa Malaysia Technolog	**1.26**	7.41	0.17	1	8
Note : 1. **Blue** Colored Outperform Index, 2. in **Purple** highest						
	Max	1.26	7.41	0.30		
	Min	0.67	2.65	0.17		

Sector Rotation Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	0.69	2.84	0.24	9	9
% Allocation	Portfolio Strategy	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
100.00	Top 1	4.91	5.43	0.90	1	1
50.00	Top 2	3.81	4.40	0.87	2	2
33.33	Top 3	3.21	3.96	0.81	3	3
25.00	Top 4	2.69	3.64	0.74	4	4
20.00	Top 5	2.26	3.36	0.67	5	5
16.67	Top 6	1.89	3.21	0.59	6	6
14.29	Top 7	1.56	3.11	0.50	7	7
12.50	Top 8	1.23	3.08	0.40	8	8

Portfolio Strategy	% Outper-form Index	
Top 1	4.22	
Top 2	3.13	Recomemded for Risk Management to diversify portfolio holdings
Top 3	2.52	
Top 4	2.00	

The top table shows the performance of the sectors every month for the period reviewed. Thus, the best sector for period reviewed was KLTEC Index with an average return of 1.26%. Outperforming the FBMKLCI Index by a mere 0.57% (1.26%-0.69%).

However, from the bottom table, it can be observed that had a fund manager switch sectors every month based on relative strength or momentum, the return would be 4.91% a hefty 4.22% (Top 1 strategic Portfolio return 4.91% minus FBMKLCI Index return 0.69%) outperformance. It may not be prudent to be just invested in 1 sector risk wise, so by investing in the top 3 sectors on an equal weighted basis the return 3.21% albeit slightly lower but outperformance is still healthy at 2.52%.

3.2 Sector Rotation Strategy 3 Month Rebalancing

3 Monthly Rebalanced - Jan 2009 to Oct 2017

Sector & Index Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	2.18	6.00	0.36	7	4
Ticker	Short Name	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
KLCON Index	Bursa Malaysia Construct	2.30	8.08	0.29	6	8
KLCSU Index	Bursa Malaysia Consumer	2.42	4.89	0.49	5	1
KLFIN Index	Bursa Malaysia Finance	2.85	7.83	0.36	3	3
KLPLN Index	Bursa Malaysia Plantatio	2.09	7.08	0.30	9	6
KLPRO Index	Bursa Malaysia IndusProd	2.79	7.48	0.37	4	2
KLPRP Index	Bursa Malaysia Property	3.07	10.47	0.29	2	7
KLSER Index	Bursa Malaysia Trad/Svc	2.09	5.81	0.36	8	5
KLTEC Index	Bursa Malaysia Technolog	4.02	15.35	0.26	1	9
Note : 1. **Blue** Colored Outperform Index, 2. in **Purple** highest						
	Max	4.02	15.35	0.49		
	Min	2.09	4.89	0.26		

Sector Rotation Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	2.18	6.00	0.36	9	9
% Allocation	Portfolio Strategy	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
100.00	Top 1	11.26	10.86	1.04	1	1
50.00	Top 2	8.60	8.78	0.98	2	2
33.33	Top 3	7.23	7.80	0.93	3	3
25.00	Top 4	6.12	7.34	0.83	4	4
20.00	Top 5	5.33	7.09	0.75	5	5
16.67	Top 6	4.52	6.54	0.69	6	6
14.29	Top 7	3.88	6.32	0.61	7	7
12.50	Top 8	3.30	6.38	0.52	8	8

Portfolio Strategy	% Outper-form Index	
Top 1	9.09	
Top 2	6.42	Recomemded for Risk Management to diversify portfolio holdings
Top 3	5.05	
Top 4	3.95	

The top table shows the performance of the sectors every 3 months for the period reviewed. Thus, the best sector for this period reviewed was again KLTEC Index with an average return of 4.02%. Outperforming the FBMKLCI Index by a 1.84% (4.02%- 2.18%).

However, from the bottom table, it can be observed that had a fund manager switch sectors every month based on relative strength or momentum, the return would be 11.26%, again a hefty 9.09% (Top 1 strategic Portfolio return 11.26% minus FBMKLCI Index return 2.18%) outperformance. It may not be prudent to be just invested in 1 sector risk wise, so by investing in the top 3 sectors on an equal weighted basis the return was 7.23% albeit slightly lower but outperformance is still very healthy at 5.05%.

3.3 Sector Rotation Strategy 6 Month Rebalancing

6 Monthly Rebalanced - Jan 2009 to Oct 2017

Sector & Index Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	4.47	7.70	0.58	7	4
Ticker	Short Name	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
KLCON Index	Bursa Malaysia Construct	4.86	10.21	0.48	6	6
KLCSU Index	Bursa Malaysia Consumer	5.02	5.83	0.86	5	1
KLFIN Index	Bursa Malaysia Finance	5.99	10.76	0.56	3	5
KLPLN Index	Bursa Malaysia Plantatio	4.45	11.25	0.40	8	8
KLPRO Index	Bursa Malaysia IndusProd	5.47	8.96	0.61	4	3
KLPRP Index	Bursa Malaysia Property	6.47	14.18	0.46	2	7
KLSER Index	Bursa Malaysia Trad/Svc	4.24	6.92	0.61	9	2
KLTEC Index	Bursa Malaysia Technolog	7.91	21.71	0.36	1	9
Note : 1. **Blue** Colored Outperform Index, 2. in Purple highest						
	Max	7.91	21.71	0.86		
	Min	4.24	5.83	0.36		

Sector Rotation Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	4.47	7.70	0.58	9	9
% Allocation	Portfolio Strategy	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
100.00	Top 1	19.64	15.51	1.27	1	1
50.00	Top 2	15.30	12.12	1.26	2	3
33.33	Top 3	12.65	9.99	1.27	3	2
25.00	Top 4	10.98	9.45	1.16	4	4
20.00	Top 5	9.58	8.82	1.09	5	5
16.67	Top 6	8.27	8.09	1.02	6	6
14.29	Top 7	7.40	7.88	0.94	7	7
12.50	Top 8	6.46	7.72	0.84	8	8

Portfolio Strategy	% Outperform Index
Top 1	15.17
Top 2	10.83
Top 3	8.18
Top 4	6.51

Recomemded for Risk Management to diversify portfolio holdings

The top table shows the performance of the sectors every 6 months for the period reviewed. Thus, the best sector for this period reviewed was again KLTEC Index with an average return of 7.91%. Outperforming the FBMKLCI Index by a decent 3.44% (KLTEC Index Return of 7.91% minus FBMKLCI Index return of 4.47%).

However, again from the bottom table, it can be observed that had a fund manager switch sectors every 6 months based on relative strength or momentum, the return would be resounding 19.64%, again a very hefty 15.17% (Top 1 strategic Portfolio return 19.64% minus FBMKLCI Index return 4.47%) outperformance. Again, it may not be prudent to be just invested in 1 sector risk wise, so by investing in the top 3 sectors on an equal weighted basis the return was 12.65% albeit slightly lower but outperformance is still very healthy at 8.18%.

3.4 Sector Rotation Strategy 12 Month Rebalancing

12 Monthly Rebalanced - Jan 2009 to Oct 2017

Sector & Index Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	9.20	15.86	0.58	6	5
Ticker	Short Name	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
KLCON Index	Bursa Malaysia Construct	8.25	15.97	0.52	9	7
KLCSU Index	Bursa Malaysia Consumer	9.92	11.33	0.88	4	1
KLFIN Index	Bursa Malaysia Finance	11.73	22.05	0.53	2	6
KLPLN Index	Bursa Malaysia Plantatio	9.67	19.47	0.50	5	8
KLPRO Index	Bursa Malaysia IndusProd	11.17	15.67	0.71	3	2
KLPRP Index	Bursa Malaysia Property	11.88	19.70	0.60	1	4
KLSER Index	Bursa Malaysia Trad/Svc	8.85	13.36	0.66	8	3
KLTEC Index	Bursa Malaysia Technolog	8.86	24.59	0.36	7	9
Note : 1. **Blue** Colored Outperform Index, 2. in **Purple** highest						
	Max	11.88	24.59	0.88		
	Min	8.25	11.33	0.36		

Sector Rotation Performance		All Periods				
FBMKLCI Index	FTSE Bursa Malaysia KLCI	9.20	15.86	0.58	9	9
% Allocation	Portfolio Strategy	Average Return	Period Std Dev	Retn to Volatility	Return Ranking	Risk Reward Ranking
100.00	Top 1	25.52	20.52	1.24	1	1
50.00	Top 2	20.80	18.67	1.11	2	2
33.33	Top 3	18.53	17.43	1.06	3	4
25.00	Top 4	15.30	13.79	1.11	4	3
20.00	Top 5	14.38	13.59	1.06	5	5
16.67	Top 6	12.78	13.18	0.97	6	6
14.29	Top 7	11.72	13.18	0.89	7	7
12.50	Top 8	10.54	13.34	0.79	8	8

Portfolio Strategy	% Outper-form Index	
Top 1	16.32	
Top 2	11.60	Recomemded for Risk Management to diversify portfolio holdings
Top 3	9.33	
Top 4	6.10	

The top table shows the performance of the sectors every 12 months for the period reviewed. Thus, the best sector for this period reviewed was again KLPRP Index with an average return of 11.88%. Outperforming the FBMKLCI Index by a meagre 2.68% (KLPRP Index Return of 11.88% minus FBMKLCI Index return of 9.20%).

However, again from the bottom table, it can be observed that had a fund manager switch sectors every 12 months based on relative strength or momentum, the return would be resounding 25.52%, again a very hefty 16.32% (Top 1 strategic Portfolio return 25.52% minus FBMKLCI Index return 9.2%) outperformance. Again, it may not be prudent to be just invested in 1 sector risk wise, so by investing in the top 3 sectors on an equal weighted basis the return was 18.53% albeit slightly lower but outperformance is still very healthy at 9.33%.

CONCLUSIONS

1. As mentioned earlier, **the goal of this strategy is to outperform simple buy and hold of equity index and the results above attest to this outperformance**.
2. The **results in this study met the good factor or strategy where the top 1 model portfolio outperforms the top 2 model portfolio**, **met the linearity of returns among the top model portfolios against the lower model portfolios over the period tested**, and the **strategy consistently outperform the market index over time**. Consistent outperformance is defined when the top models outperforms the market (FBM KLCI Index) portfolio 60% or more of the time.
3. This sector rotation strategy is built on the premise that certain sectors will outperform at any time and investing in these sectors a portfolio will outperform the index overall. As per the original study, even though an 80+ year backtest confirms this assumption, and in this study 8.8 years, caution should be taken as **with any strategy, self-discipline and strict adherence to the strategy is imperative and are paramount**. There will be bad periods, however, long-term evidence suggests that the good periods will outweigh the bad periods as in this study.
4. This **strategy can also be used as a first filter for stock selection**. The persistence of the momentum strategy by decades goes to show that this was not simply a property of markets 80 years ago, but continues to work today (last 8.8 years).
5. This **helps Fund Managers save some time as they can just focus their efforts on stocks in the top sectors and avoid stocks in the bottom sectors**.
6. This **strategy can be extended to sector funds such as ETFs**, mutual funds and closed-end funds.

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MIDF AMANAH INVESTMENT BANK : GUIDE TO RECOMMENDATIONS	
STOCK RECOMMENDATIONS	
BUY	Total return is expected to be >10% over the next 12 months.
TRADING BUY	Stock price is expected to *rise* by >10% within 3-months after a Trading Buy rating has been assigned due to positive newsflow.
NEUTRAL	Total return is expected to be between -10% and +10% over the next 12 months.
SELL	Total return is expected to be <-10% over the next 12 months.
TRADING SELL	Stock price is expected to *fall* by >-10% within 3-months after a Trading Sell rating has been assigned due to negative newsflow.
SECTOR RECOMMENDATIONS	
POSITIVE	The sector is expected to outperform the overall market over the next 12 months.
NEUTRAL	The sector is to perform in line with the overall market over the next 12 months.
NEGATIVE	The sector is expected to underperform the overall market over the next 12 months.