

# **The Timing and Industry Picking in Taiwan Stock Market – the Application of Momentum Strategy**

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## **ABSTRACT**

This study investigates the industry momentum effect in Taiwan. We contribute on the literature by combining the dynamic strategy of only buying winners and the timing strategy of moving average. The results show that the risk adjusted performance after the transaction cost is raised and is better than that of the buy and hold strategy which can be observed from the efficient frontier.

Keywords: industry momentum, only buying winners, moving average, buy and hold

## **INTRODUCTION**

Jegadeesh and Titman [5] propose momentum strategy. They find that investors can make profits by buying past ( 3 to 12 months) winners and selling past (3 to 12 months) losers. Several later studies investigating the momentum effect of different periods (Jegadeesh and Titman, [6] and Lewellen, [7]) and of different countries (Rouwenhorst, [10]) find the profitability of momentum strategy. Besides stock momentum effect, some literature focuses on the industry momentum effect. Rouwenhorst [10] find that six countries out of twenty have the mid-term price momentum effect in their emerging markets. Chui et al. [2] investigates the

momentum effect of eight Asian stock markets. And the result demonstrates that all the eight Asian stock markets except Hong Kong show no significant industry momentum effect. Bacmann, Dubois, and Isakov [1] investigating the momentum effect of G7 countries find that all the G7 countries except Japan show the industry momentum effect. Moreover, the result of Swinkels [12] indicates that there exists the industry momentum effect in America and Europe, except Japan.

The existence of momentum effect provides investors an easy strategy to pick stocks. Besides the momentum strategy, the moving average is also another simple strategy providing investors an easy method for timing. Hinich and Peterson [4] found that MA can make a prediction of Dow Jones Indexes. Ratner and Leal [9] find that the technical trading is significantly profitable in Thailand, Taiwan and Mexico. Moreover, Gunasekarage and Power [3] confirming that MA can beat the market in these four South Asian emerging markets. Furthermore, behavioral finance scholars have found that investors have behavioral biases such as disposition effect (ex: Shefrin and Statman [11]) and overconfidence (ex: Odean [8]) when making investment decisions. Thus definite entrance and exit points are a feature of technical analysis, and can help investors follow a trading discipline and avoid making incorrect decisions influenced by irrational emotions.

Most of the studies that investigate the momentum effect and the technical analysis only focus on one of these two issues. This study combines the only buying winners strategy as the industry selecting strategy and the moving average strategy as the timing strategy to investigate their prediction power. This study fills the gap of investment strategy to investigate whether the combination of these two strategies can promote the investment performance.

## **DATA AND METHODOLOGY**

Daily Data of nineteen industry stocks in Taiwan was obtained from the Taiwan Economic Journal (TEJ). Taiwan Stock Exchange Corporation had added to its database the nineteen industry stocks since Jan, 1995, and thus the sample period ran from January, 1995 through December, 2007.

Following the research of Jegadeesh and Titman [5], this study adopts the same method to investigate the industry momentum effect. The relatively less industries (nineteen industries)

in Taiwan limit our grouping to divide sample industries into five groups rather than ten groups. We employ the simple moving average trading rule as the method of timing. The closing index level is used as the trading price when buying and selling signals appear.

This study adopts dynamic buying the winner strategy. The dynamic buying the winner strategy (DBW thereafter) is different from the original momentum strategy not only in that it does not sell the losers but also in that it only constructs one portfolio in the study period. If we adopt the original momentum strategy, we should hold many zero-cost portfolios at the same time. What we should do when we adopt DBW strategy is to add industries which become winners into the portfolio and to take away industries which are no longer winners. When we combine the DBW strategy and the moving average strategy, the industries are included in the portfolio only when the industries should be in the winner group and its closing index should be higher than moving average.

## **EMPERICAL RESULTS**

Table 1 is the test results of industry momentum effect. The results show that most of the cases demonstrate the significant industry momentum phenomenon. Thus we further separate the momentum strategy into two strategies: only buying winners and only selling losers. Most of the returns of the only buying winners strategy are significantly positive in Table 2. However, most of the statistics in Table 3 are not significantly positive, indicating most the positive returns of the momentum strategy are attributed to buying winners rather than selling losers. For robustness, we re-test the profits of only buying winners strategy by setting the transaction cost to be 5/1000. Unreported table shows that the only buying winners strategy is still significantly profitable after the deduction of the transaction cost.

The above analysis demonstrates that the only buying industry winners strategy can make profits. Thus this study proposes the dynamic buying winners strategy (DBW) to approach the real investment situation. Because there is no specific holding period for the industries in portfolio of the DBW strategy, the different DBW strategy is formed with the different formation period. The average daily returns of the DBW strategy without transaction cost are 0.046%, 0.042%, 0.033%, 0.045%, 0.038% and 0.025% when the formation periods are 20, 60, 120, 180, 240 and 480 days respectively. Generally, the performance of the DBW strategy is better than the only buying winners strategy in Table 2 which has the average daily returns of 0.009%, 0.012%, 0.012%, 0.012%, 0.0003% and -0.0003% respectively.

Table 1 The industry momentum effect in Taiwan

		holding period					
		20	60	120	180	240	480
formation period	20	0.01% (1.95*)	0.02% (7.17*)	0.02% (8.48*)	0.02% (9.75*)	0.01% (6.88*)	0.00% (-2.33)
	60	0.02% (4.65*)	0.02% (6.62*)	0.02% (10.78*)	0.02% (10.79*)	0.01% (7.55*)	0.00% (-2.54)
	120	0.02% (3.22*)	0.02% (8.26*)	0.03% (11.7*)	0.02% (10.05*)	0.01% (3.43*)	-0.01% (-4.92)
	180	0.03% (6.95*)	0.03% (11.32*)	0.03% (12.15*)	0.01% (7.1*)	0.00% (-0.32)	-0.01% (-5.83)
	240	0.02% (4.41*)	0.02% (6.34*)	0.01% (5.29*)	0.00% (-0.25)	-0.01% (-6.82)	-0.01% (-10.10)
	480	0.00% (0.54)	0.00% (0.28)	0.00% (-0.81)	0.00% (-3.17)	-0.01% (-7.03)	-0.01% (-16.41)

\*significantly positive at 0.05 level

Table 2 The performance of the only buying winners strategy

		holding period					
		20	60	120	180	240	480
formation period	20	0.01% (1.15)	0.02% (4.20*)	0.02% (5.37*)	0.01% (4.77*)	0.01% (3.13*)	-0.01% (-3.34)
	60	0.02% (2.84*)	0.02% (4.76*)	0.02% (6.10*)	0.01% (4.83*)	0.01% (3.20*)	-0.01% (-3.71)
	120	0.02% (2.10*)	0.02% (5.31*)	0.02% (6.49*)	0.01% (5.26*)	0.00% (1.70*)	-0.01% (-4.37)
	180	0.02% (3.16*)	0.03% (5.95*)	0.02% (6.66*)	0.01% (3.96*)	0.00% (0.08)	-0.01% (-6.16)
	240	0.01% (1.82*)	0.01% (2.98*)	0.01% (3.06*)	0.00% (-0.17)	-0.01% (-3.52)	-0.01% (-8.58)
	480	0.01% (0.81)	0.00% (0.93)	0.00% (-0.28)	-0.01% (-2.46)	-0.01% (-3.60)	-0.02% (-10.83)

\*significantly positive at 0.05 level

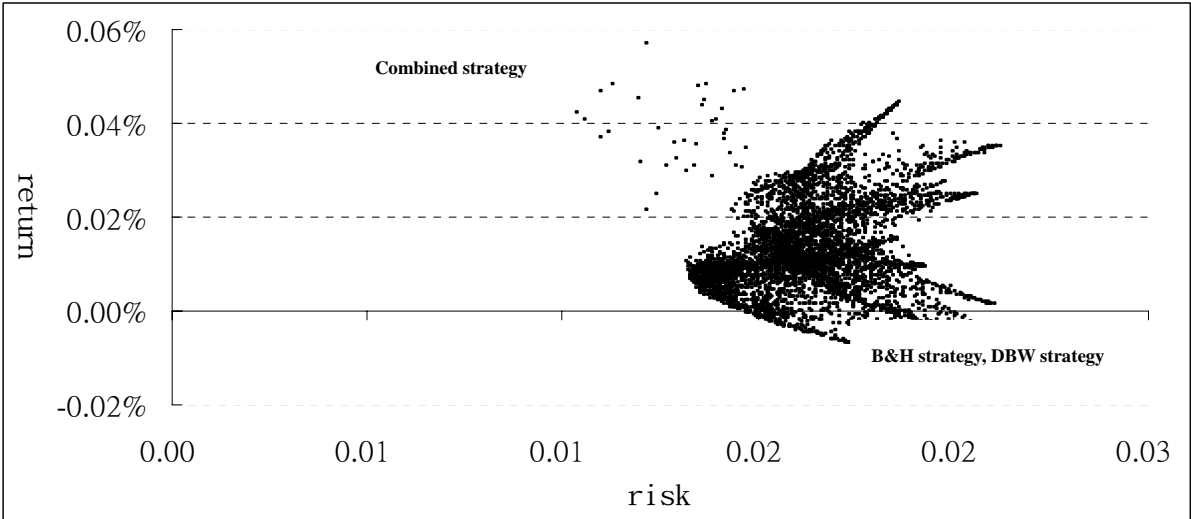
Table 3 The performance of only selling losers strategy

		holding period					
		20	60	120	180	240	480
formation period	20	0.00% (-0.03)	0.00% (0.23)	0.00% (0.14)	0.00% (1.47)	0.00% (1.35)	0.00% (1.96* )
	60	0.00% (0.18)	0.00% (-0.36)	0.00% (1.44)	0.01% (2.58* )	0.00% (2.05* )	0.00% (2.05* )
	120	0.00% (0.03)	0.00% (0.40)	0.00% (1.62)	0.01% (2.24* )	0.00% (0.80)	0.00% (0.92)
	180	0.01% (1.30)	0.01% (1.57)	0.01% (1.92* )	0.00% (0.99)	0.00% (-0.31)	0.00% (1.98* )
	240	0.01% (1.04)	0.00% (1.04)	0.00% (0.52)	0.00% (-0.01)	0.00% (-1.31)	0.00% (1.65)
	480	0.00% (-0.45)	0.00% (-0.68)	0.00% (-0.22)	0.00% (0.48)	0.00% (-0.90)	0.00% (0.67)

\*significantly positive at 0.05 level

This study further takes the performance of the buy-and-hold strategy as a benchmark and considers the transaction cost and risk factor. The purpose is to investigate whether the DBW strategy performs better than the buy and hold strategy. For comparison, we plot the portfolio opportunity set of return and risk of every investment strategy in Figure 1. The portfolio opportunity set of the DBW strategy and the buy-and-hold strategy is distributed in the lower-right region. The risk-adjusted performance of the DBW strategy is not better than that of the buy-and-hold strategy. Furthermore, this study further combines six DBW strategies with six MA strategies. Thus there are thirty six new investment strategies. Figure 1 shows that the return-risk spots of this new investment strategy are distributed in the upper-left part of the buy-and-hold investment efficient frontier. Thus the performance is raised after adopting the combined strategy because the risk decreases and the return increases.

Figure 1 The efficient frontier comparison between buy and hold strategy and the combination strategy of DBW strategy and the moving average strategy



**CONCLUSION**

This study contributes on the literature by proposing a combination strategy which has the character of MA timing and momentum stock picking. The results show that the significant industry momentum effect appears in Taiwan when employing the daily data. The most of the profits of the industry momentum strategy come from the only buying winners strategy rather than from the only selling losers strategy. The dynamic buying the winner strategy (DBW) was adopted to investigate whether such strategy can make more profits than only buying winners strategy. The results show that the return of the DBW is twice as much as the original

only buying winners strategy. At last, this study combines the DBW strategy and the moving average strategy to consider timing and industry picking simultaneously. The result shows that after the deduction of the transaction cost the performance is raised and is superior to the efficient frontier of the buy-and-hold strategy. Investors can make abnormal return if they employ the momentum strategy for industry picking and employ the moving average strategy for timing.

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