US Investors Rationality, Evidence from Momentum Approach in Trading Strategies

Carol Wang
Department of Finance and Financial Services,
Raj Soin College of Business
Wright State University
Ohio, OH
Phone: 937-775-3185
Email: carol.wang@wright.edu

Wei Rowe
Department of Finance, Banking & Real Estate
University of Nebraska, Omaha
Omaha, NE 68182-0048
Phone: 402-554-2812
Email: wrowe@unomaha.edu

Matthew Rowe
Boston College
140 Commonwealth Avenue, Chestnut Hill,
Boston, MA 02467
Phone: 402-672-0712
Email: rowemg@bc.edu

Abstract

The American Association of Individual Investors (AAII) is a non-profit organization that provides a series of popular trading strategies for individual investors to follow for their personal stock portfolio management. In this study, we focus on the momentum effects based performance of different strategies provided by AAII. Our research results demonstrate that (1) the momentum effects are significantly and economically strong based on both prior two-month return and prior two-month Sharpe ratio; (2) On average, the Sharpe ratio-based momentum approach dominates the return-based momentum approach; (3) There is an incremental gap between the momentums effects of the two different approaches over time, with a sudden spike in 2009. Our findings suggest that US individual investors have learned to be more rational by considering the tradeoff between risks and returns in making investment decisions since 2001. Our study provides additional evidence to support the behavioral finance theory and sheds light on investors rationality in the U.S. markets.

JEL Classification: G11, G14, G41

Keywords: investor rationality, momentum approach, trading strategy, behavior finance, US market

1. Introduction

American Association of Individual Investors (AAII), a nonprofit investment education organization provides a number of trading techniques to the public through their website (www.aaii.com). Through these trading techniques, AAII shows its members on how to manage a stock portfolio and capitalize on these methods without having to commit a great deal of time and effort to day-to-day monitoring and analysis.

In this study, we focus on the momentum effect based on performance of different trading strategies provided by AAII. Traditional momentum studies cover the momentum effects on performances of individual stocks. The benefit of focusing on trading strategies instead of focusing on single stocks is because the trading strategies are purely derived from the outcome of a quantitative screening method. For single stocks, the financial fundamentals are specific across different companies and markets, therefore the momentum effects based on the performance of single stocks are likely to contain confounding factors and create noises to pure momentum effects.

We investigate the predictive effects using two different momentum indicators. One is based on the past average portfolio returns, and the other is based on the past Sharpe ratio of the portfolios, a risk adjusted return. We examine the difference of the predictability by the momentum effect under the two types of measurement for momentum indicators. By comparing the difference, we investigate which indicator drives up the momentum effect more dominantly. We associate the dominance of predictability with the level of rationality of investor composition in the U.S markets.

In the following section, we review prior literature relevant to the issues addressed in this research. Later sections describe the hypothesis development, data and methods, and analyze the test results. The final section summarizes our findings and concludes.

2. Literature Review

Momentum investing is a trading strategy that yields positive returns on average by buying and holding the past stock winners and selling or shorting the past stock losers. There is a rich literature in academia and in industry documenting the momentum efficacy across different time periods (Jegadeesh and Titman (1993) and Asness (1994), Jegadeesh and Titman

(2001), Israel and Moskowitz (2013)); across different countries (Rouwenhorst (1998, 1999), Asness, Liew, and Stevens (1997)); and across different markets and asset classes (Moskowitz and Grinblatt (1999), Okunev and White (2003), Moskowitz, Ooi, and Pedersen (2012), Asness, Moskowitz, and Pedersen (2013), Barroso and Santa-Clara (2015), and Gao et al.(2018).

Obviously, the robustness of the momentum efficacy found in these studies challenge the efficient market hypothesis (Fama, 1970) (Researchers have provided evidence of other market anomalies, including the P/E ratio (Basu, 1977; Campbell and Shiller, 1988b; Fama and French, 1988), dividend yield (Fama and French, 1988), book-to-market ratio (Kothari and Shanken, 1997), dividend-price ratio (Campbell and Shiller, 1988a), and equity share (Baker and Wurgler (2000), to name a few). These market anomalies have inspired two popular explanations that provide different perspectives on the subject. One is based on implications of the traditional efficient market hypothesis. The other is based on the emerged behavioral hypothesis that allows for irrational behaviors on the part of investors.

Proponents of the efficient market hypothesis assume that investors are rational and any over-reaction or under-reaction of investors tends to offset or cancel out any mispricing. Hence, prices normally reflect true asset value (Fama, 1998). According to Black (1993), some of the anomalous evidence is purely a result of data mining or statistical artifacts. Davis et al. (2000) reason that due to the limits of currently developed theories and models, some unobserved risks of the assets cannot be fully captured by the Capital Asset Pricing Model and, therefore, the market anomalies are a result of investors' biased perception of true asset value. Fama and French (1993; 1995; 1996) propose multi-factor models that appear to explain the average returns on a full scale.

The behavioral camp, on the other hand, relaxes the assumption of investor rationality. Proponents of behavioral finance suggest that equilibrium prices reflect the weighted average of the beliefs of both rational and irrational traders (Hirchleifer, 2001). Albert Einstein once said "Only two things are infinite, the Universe and Human Stupidity and I'm not sure about the former." The behaviorists believe that investors are subject to various cognitive errors and can make illogical and irrational investment decisions. According to Barber and Odean (1999), people's deviations from rationality are often systematic. Systematic over-reaction to information is common among investors. When the over-reaction is eventually corrected, over-

adjusted stock returns converge or reverse. Hogarth and Reder (1986); Einhorn and Hogarth (1986); Kleidon (1986); De Bondt et al. (1987) and Lakonishok et al. (1994) are among the group that support the behavioral hypothesis.

Our study contributes to the literature in the following aspects:

First, the traditional studies of momentum effects are mainly implemented on individual stocks or market indices. This paper develops an innovative approach by examining the momentum effects on different trading strategies. In general, trading stocks or indices involves investors' perception of a large variety of firm specific, industry specific and macro-economic variables, therefore momentum study on stock or indices is subject to significant confounding disturbance and may create spurious results. However, portfolios formed on trading strategy are determined by quantitative models, thus studying the strategy momentum facilitates a cleaner data set for our research interest by eliminating the fundamental aspects of the securities as well as investors' sentiments in their investment decisions.

Second, unlike prior research design, we apply two types of momentum trading approach. One is based on average past returns as used in previous studies. The second is based on past Sharpe ratios of the portfolios. By comparing differences in the momentous power between the two measurements, we can capture the source of momentum effects by answering question on whether the momentum is driven by naïve investors who make judgment purely on raw returns or by more sophisticated investors who weigh both the returns and the risks of an investment opportunity in forming their portfolios. The finding of this study provides a different perspective to better understand the nature of the well-documented momentum phenomena and an additional empirical evidence to the growing behavioral finance literature.

Third, prior research (Frederick and Brett, 2008) on the performance of AAII trading strategies covers the year of 1998 through 2005. Our study extends the sample period to the more current year (May 2012). A longer time horizon can capture the impact from the post-financial crisis during 2008 and 2009 and deserves an updated test of the effectiveness of AAII strategies.

The empirical results from this study provides a new investment alternative for individual investors and has practical implications to the investment community, academia researchers and educators.

3. Hypothesis Development

Since the behavioral finance has brought into the main stream of the academic research, one central argument of this line of study focuses on various irrational and cognitive bias that plague the public investors when they make investment decisions. We argue that investors cannot be, probably will never be rational enough to make perfect judgments as the information available to the public is increasing exponentially and is impossible for one individual to absorb and to process completely on a timely basis unless he/she is a robot. The journey to the full rationality is a dynamic, continuous, and infinite course as the human economic world develops.

Inexperienced investors tend to think linearly. This manner of thinking is common among individual investors and is mainly determined by the limited amount of time on a daily basis and the limited vigor of brain power due to a lack of quantitative training, compared to institutional investors. We study and compare the momentum effects based on two different levels of dimension of considerations by investors respectively. The one dimension consideration is based on the past average return only. Naïve investors tend to focus on the raw returns to chase capital gains only given their linear thinking habit. Unless this type of investor encounters dramatic negative losses by taking excessive risks and suffered from the pain of the losses, these individuals are typically blind to risk factors since risks are invisible and add an additional dimension of thinking to them. The two-dimension consideration is based on a balance of risk and return, such as a risk adjusted return measured by Sharpe ratio. More educated or more experienced investors understand the huge impact on their wealth by taking excessive type I risk. They normally choose to take a more conservative approach by weighing both risk and return in forming their portfolios.

We study the predictability of the momentum trading between the one dimension approach and the two-dimension approach based on the monthly returns of the AAII portfolios. By comparing the different levels of the predictive power by the two different approaches, we

can tackle the issue on whether the public investors of U.S. are composed of more naïve investors or more sophisticated investors.

4. Data and Methods

The AAII was founded in 1978 in Chicago. In its website, it reports the monthly returns on a total of 82 portfolios based on different trading screening methods beginning with January 1998. It also updates the descriptive statistics on the portfolio characteristics including Sharpe Ratio, standard deviation, average return, return range, largest monthly gain and loss for each calendar year. Table 1 presents a complete list of the portfolios in AAII report.

Table 1 – List of AAII Portfolio

#	Portfolio Names
1	S&P 500 p+B1:W1rice chg
2	S&P MidCap 400 price chg
3	S&P SmallCap 600 price chg
4	NASDAQ 100 price chg
5	Dow Jones 30 price chg
6	T-Bills price chg
7	S&P 500 (TR)
8	S&P 500 Growth (TR)
9	S&P 500 Value (TR)
10	S&P MidCap 400 (TR)
11	S&P MidCap 400 Growth (TR)
12	S&P MidCap 400 Value (TR)
13	S&P SmallCap 600 (TR)
14	S&P SmallCap 600 Growth (TR)
15	S&P SmallCap 600 Value (TR)

16	All Exchange-Listed Stocks price chg
17	ADR Screen price chg
18	All ADRs price chg
19	Buffett: Hagstrom price chg
20	Buffettology: EPS Growth price chg
21	Buffettology: Sustainable Growth price chg
22	O'Neil's CAN SLIM price chg
23	O'Neil's CAN SLIM Revised 3rd Edition price chg
24	Cash Rich Firms price chg
25	Dual Cash Flow price chg
26	Dividend (High Relative Yield) price chg
27	Dogs of the Dow price chg
28	Dogs of the Dow: Low Priced 5 price chg
29	Dreman price chg
30	Dreman With Est Revisions price chg
31	Driehaus price chg
32	Dividend Screen: DRPs price chg
33	Dividend Screen: Non-DRPs price chg
34	Est Rev: Lowest 30 Down price chg
35	Est Rev: Down 5% price chg
36	Est Rev: Top 30 Up price chg
37	Est Rev: Up 5% price chg
38	Fisher (Philip) price chg
39	Foolish Small Cap 8 price chg
40	Foolish Small Cap 8 Revised price chg
41	Price-to-Free-Cash-Flow price chg
42	Fundamental Rule of Thumb price chg
43	Graham--Defensive Investor (Non-Utility) price chg
44	Graham--Defensive Investor (Utility) price chg
45	Graham--Enterprising Investor price chg
46	IBD Stable 70 price chg
47	Insider Net Purchases price chg
48	Inve$tWare Quality Growth price chg
49	Kirkpatrick Bargain price chg
50	Kirkpatrick Growth price chg
51	Kirkpatrick Value price chg
52	Lakonishok price chg
53	Lynch price chg
54	Magic Formula price chg
55	MAGNET Complex price chg
56	MAGNET Simple price chg
57	Muhlenkamp price chg
58	Murphy Technology price chg
59	Neff price chg
60	O'Shaughnessy: All Cap price chg

61	O'Shaughnessy: Growth Market Leaders price chg
62	O'Shaughnessy: Growth price chg
63	O'Shaughnessy: Small Cap Growth & Value price chg
64	O'Shaughnessy: Tiny Titans price chg
65	O'Shaughnessy: Value price chg
66	Oberweis Octagon price chg
67	P/E Relative price chg
68	Value on the Move--PEG With Est Growth price chg
69	Value on the Move--PEG With Hist Growth price chg
70	Piotroski: High F-Score price chg
71	Piotroski 9 price chg
72	Price-to-Sales price chg
73	Return on Equity price chg
74	Rule #1 Investing price chg
75	Schloss price chg
76	Shadow Stock Screen price chg
77	T. Rowe Price price chg
78	Templeton price chg
79	Wanger (Revised) price chg
80	Weiss Blue Chip Div Yield price chg
81	Stock Market Winners price chg
82	Zweig price chg

Specifically, we obtain the monthly returns of 82 different popular trading strategies provided by the American Association of Individual Investors (AAII) from January 1998 through May 2012. Furthermore, we identify the best performing strategy based on past two-month average returns and past two-month Sharpe ratios respectively at the end of each month starting from January 1998. Then we start with $1 investment in the identified best strategy for the following month, i.e. March 1998, and rebalance the funds every month until May 2012. Subsequently, we calculate the cumulative return and the terminal value of the $1 initial investment of the constructed momentum portfolio. We compare the return performance with the S&P 500 index return on a risk-adjusted basis over the sample period. Table 2 reports the

terminal values under the two approaches, the return based approach and the Sharpe ratio based approach over time, in comparison with the S&P terminal value. Figure 1 is a graphic expression of Table 2 figures.

Table 2 – Terminal value of $1 invested at the end of each month over sample period (1998 – 2012)

Month	Terminal Value on Returns	Terminal Value on Sharpe Ratio	Terminal Value of S&P Index Return
2/28/1998	$1.11		
3/31/1998	$1.26	$1.05	**$ 1.12**
4/30/1998	$1.34	$1.07	**$ 1.13**
5/31/1998	$1.19	$1.04	**$ 1.11**
6/30/1998	$1.18	$1.04	**$ 1.16**
7/31/1998	$1.16	$0.94	**$ 1.14**
8/31/1998	$1.03	$0.94	**$ 0.98**
9/30/1998	$1.03	$0.95	**$ 1.04**
10/31/1998	$1.02	$0.95	**$ 1.12**
11/30/1998	$1.03	$0.97	**$ 1.19**
12/31/1998	$1.06	$0.99	**$ 1.25**
1/31/1999	$1.16	$1.08	**$ 1.31**
2/28/1999	$1.22	$0.98	**$ 1.26**
3/31/1999	$1.16	$0.94	**$ 1.31**
4/30/1999	$1.19	$0.96	**$ 1.36**
5/31/1999	$1.46	$1.18	**$ 1.01**
6/30/1999	$1.52	$1.16	**$ 1.40**
7/31/1999	$1.52	$1.16	**$ 1.36**
8/31/1999	$1.67	$1.21	**$ 1.35**
9/30/1999	$1.68	$1.21	**$ 1.31**
10/31/1999	$1.62	$1.17	**$ 1.39**
11/30/1999	$2.64	$1.91	**$ 1.42**
12/31/1999	$2.83	$2.19	**$ 1.50**
1/31/2000	$2.74	$2.12	**$ 1.42**
2/29/2000	$2.95	$2.28	**$ 1.39**

3/31/2000	$2.49	$1.92	**$ 1.53**
4/30/2000	$2.29	$1.77	**$ 1.48**
5/31/2000	$2.22	$1.82	**$ 1.45**
6/30/2000	$2.30	$1.83	**$ 1.48**
7/31/2000	$1.84	$1.72	**$ 1.46**
8/31/2000	$1.83	$1.71	**$ 1.55**
9/30/2000	$1.74	$1.73	**$ 1.47**
10/31/2000	$1.71	$1.70	**$ 1.46**
11/30/2000	$1.66	$1.66	**$ 1.34**
12/31/2000	$2.08	$2.07	**$ 1.35**
1/31/2001	$1.94	$1.93	**$ 1.39**
2/28/2001	$1.52	$1.96	**$ 1.26**
3/31/2001	$1.40	$1.95	**$ 1.18**
4/30/2001	$1.53	$2.13	**$ 1.27**
5/31/2001	$1.60	$2.23	**$ 1.28**
6/30/2001	$1.80	$2.22	**$ 1.25**
7/31/2001	$1.55	$1.92	**$ 1.24**
8/31/2001	$1.40	$1.92	**$ 1.16**
9/30/2001	$1.20	$1.65	**$ 1.06**
10/31/2001	$1.21	$1.65	**$ 1.08**
11/30/2001	$1.46	$1.99	**$ 1.16**
12/31/2001	$1.68	$2.29	**$ 1.17**
1/31/2002	$1.52	$2.18	**$ 1.15**
2/28/2002	$1.53	$2.21	**$ 1.13**
3/31/2002	$1.63	$2.35	**$ 1.17**
4/30/2002	$1.52	$2.58	**$ 1.10**
5/31/2002	$1.55	$2.62	**$ 1.09**
6/30/2002	$1.55	$2.40	**$ 1.01**
7/31/2002	$1.37	$2.03	**$ 0.93**
8/31/2002	$1.37	$2.04	**$ 0.93**
9/30/2002	$1.22	$1.82	**$ 0.83**
10/31/2002	$1.27	$1.82	**$ 0.90**
11/30/2002	$1.43	$1.78	**$ 0.96**
12/31/2002	$1.27	$1.59	**$ 0.90**
1/31/2003	$1.23	$1.54	**$ 0.87**
2/28/2003	$1.12	$1.40	**$ 0.86**
3/31/2003	$1.15	$1.44	**$ 0.87**
4/30/2003	$1.29	$1.61	**$ 0.94**
5/31/2003	$1.05	$1.75	**$ 0.98**

6/30/2003	$1.07	$1.81	**$ 0.99**
7/31/2003	$1.10	$1.87	**$ 1.01**
8/31/2003	$1.19	$2.02	**$ 1.03**
9/30/2003	$1.25	$2.12	**$ 1.02**
10/31/2003	$1.43	$2.44	**$ 1.07**
11/30/2003	$1.43	$2.97	**$ 1.08**
12/31/2003	$1.40	$2.91	**$ 1.13**
1/31/2004	$1.54	$3.20	**$ 1.15**
2/29/2004	$1.50	$3.23	**$ 1.17**
3/31/2004	$1.57	$3.37	**$ 1.15**
4/30/2004	$1.32	$3.44	**$ 1.13**
5/31/2004	$1.17	$3.32	**$ 1.14**
6/30/2004	$1.24	$3.51	**$ 1.16**
7/31/2004	$1.21	$3.42	**$ 1.12**
8/31/2004	$1.11	$3.13	**$ 1.13**
9/30/2004	$1.17	$3.46	**$ 1.14**
10/31/2004	$1.30	$3.55	**$ 1.15**
11/30/2004	$1.32	$4.10	**$ 1.20**
12/31/2004	$1.10	$4.64	**$ 1.24**
1/31/2005	$1.12	$4.97	**$ 1.21**
2/28/2005	$1.12	$5.18	**$ 1.23**
3/31/2005	$1.06	$4.87	**$ 1.20**
4/30/2005	$1.03	$4.73	**$ 1.18**
5/31/2005	$1.06	$4.87	**$ 1.22**
6/30/2005	$1.04	$4.76	**$ 1.22**
7/31/2005	$1.21	$5.52	**$ 1.26**
8/31/2005	$1.20	$5.58	**$ 1.25**
9/30/2005	$1.20	$5.58	**$ 1.25**
10/31/2005	$1.22	$5.69	**$ 1.23**
11/30/2005	$1.66	$7.74	**$ 1.27**
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5/31/2006	$2.14	$8.11	**$ 1.30**
6/30/2006	$2.07	$7.92	**$ 1.30**
7/31/2006	$2.18	$8.34	**$ 1.30**
8/31/2006	$2.22	$8.43	**$ 1.33**

9/30/2006	$2.29	$8.08	**$ 1.36**
10/31/2006	$2.42	$8.51	**$ 1.41**
11/30/2006	$2.53	$8.80	**$ 1.43**
12/31/2006	$2.39	$9.23	**$ 1.45**
1/31/2007	$2.76	$8.57	**$ 1.47**
2/28/2007	$2.76	$8.57	**$ 1.44**
3/31/2007	$2.79	$7.99	**$ 1.45**
4/30/2007	$2.79	$8.40	**$ 1.51**
5/31/2007	$3.18	$9.57	**$ 1.56**
6/30/2007	$3.10	$9.53	**$ 1.53**
7/31/2007	$3.18	$9.76	**$ 1.48**
8/31/2007	$2.85	$8.74	**$ 1.50**
9/30/2007	$2.99	$8.89	**$ 1.56**
10/31/2007	$3.45	$9.03	**$ 1.58**
11/30/2007	$3.06	$8.00	**$ 1.51**
12/31/2007	$3.02	$7.92	**$ 1.50**
1/31/2008	$2.59	$7.27	**$ 1.41**
2/29/2008	$2.46	$6.90	**$ 1.36**
3/31/2008	$2.55	$7.14	**$ 1.35**
4/30/2008	$2.65	$7.43	**$ 1.41**
5/31/2008	$2.76	$7.80	**$ 1.43**
6/30/2008	$2.66	$7.53	**$ 1.31**
7/31/2008	$2.55	$7.19	**$ 1.29**
8/31/2008	$2.85	$8.06	**$ 1.31**
9/30/2008	$2.59	$7.32	**$ 1.19**
10/31/2008	$2.14	$6.06	**$ 0.99**
11/30/2008	$2.20	$6.21	**$ 0.91**
12/31/2008	$2.29	$6.47	**$ 0.92**
1/30/2009	$2.09	$6.47	**$ 0.84**
2/28/2009	$1.95	$6.05	**$ 0.75**
3/31/2009	$1.95	$6.05	**$ 0.81**
4/30/2009	$2.43	$6.64	**$ 0.89**
5/31/2009	$2.72	$7.43	**$ 0.94**
6/30/2009	$3.80	$10.39	**$ 0.94**
7/31/2009	$4.43	$12.10	**$ 1.01**
8/31/2009	$4.45	$12.17	**$ 1.04**
9/30/2009	$4.86	$12.90	**$ 1.08**
10/31/2009	$4.22	$11.19	**$ 1.06**
11/30/2009	$4.37	$11.60	**$ 1.12**

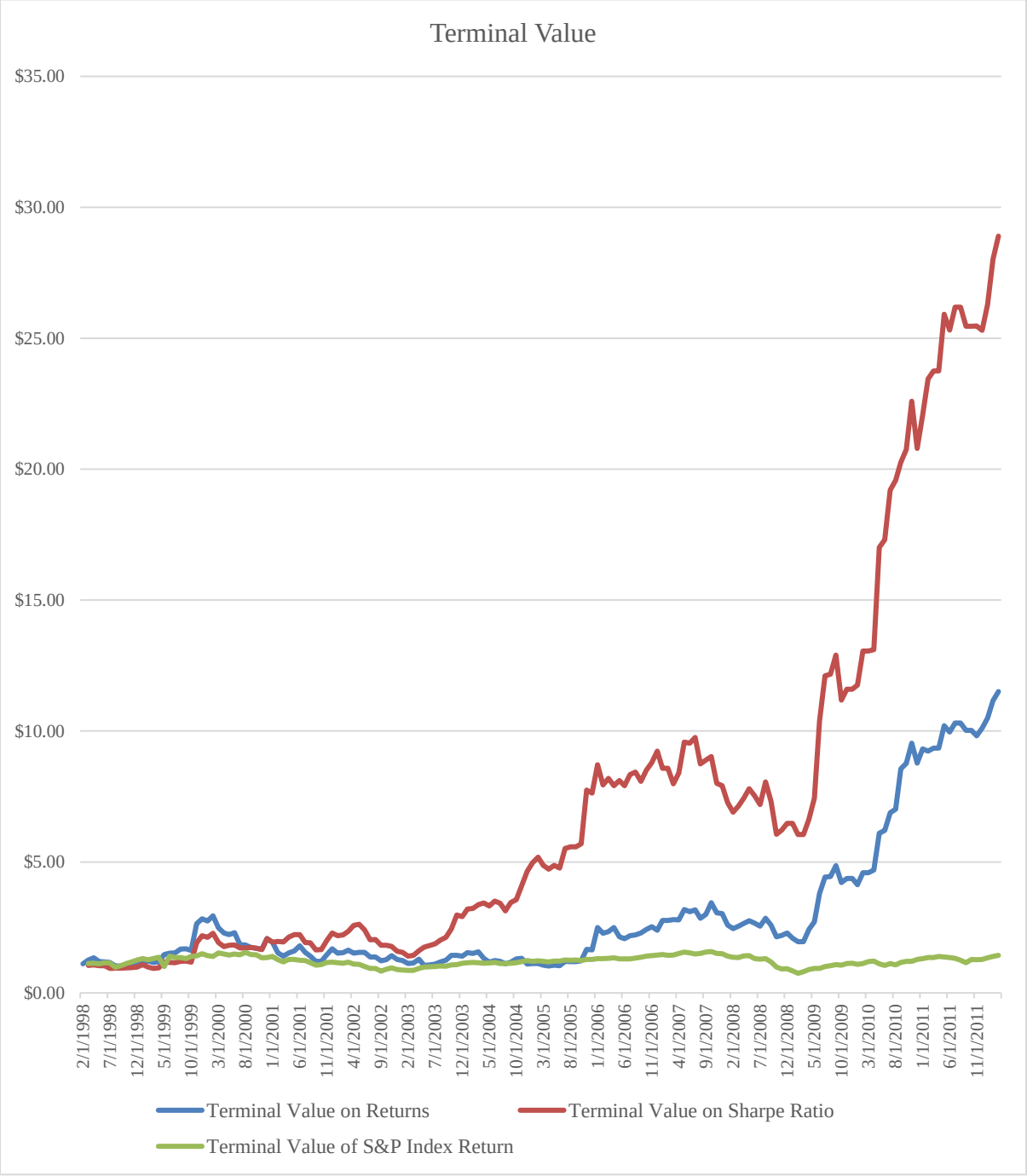
12/31/2009	$4.37	$11.60	**$ 1.14**
1/31/2010	$4.13	$11.76	**$ 1.10**
2/28/2010	$4.59	$13.06	**$ 1.13**
3/31/2010	$4.59	$13.06	**$ 1.19**
4/30/2010	$4.70	$13.11	**$ 1.21**
5/31/2010	$6.10	$17.01	**$ 1.11**
6/30/2010	$6.20	$17.30	**$ 1.05**
7/31/2010	$6.89	$19.21	**$ 1.12**
8/31/2010	$7.02	$19.57	**$ 1.07**
9/30/2010	$8.56	$20.26	**$ 1.16**
10/31/2010	$8.76	$20.75	**$ 1.21**
11/30/2010	$9.54	$22.60	**$ 1.20**
12/31/2010	$8.78	$20.79	**$ 1.28**
1/31/2011	$9.32	$22.07	**$ 1.31**
2/28/2011	$9.23	$23.45	**$ 1.35**
3/31/2011	$9.35	$23.75	**$ 1.35**
4/30/2011	$9.35	$23.75	**$ 1.39**
5/31/2011	$10.20	$25.91	**$ 1.37**
6/30/2011	$9.97	$25.32	**$ 1.35**
7/31/2011	$10.31	$26.19	**$ 1.32**
8/31/2011	$10.31	$26.19	**$ 1.24**
9/30/2011	$10.02	$25.46	**$ 1.15**
10/31/2011	$10.02	$25.46	**$ 1.28**
11/30/2011	$9.82	$25.47	**$ 1.27**
12/31/2011	$10.10	$25.30	**$ 1.28**
1/31/2012	$10.49	$26.28	**$ 1.34**
2/29/2012	$11.16	$28.03	**$ 1.39**
3/31/2012	$11.51	$28.90	**$ 1.44**

5. Empirical Results

Figure 1 demonstrates that from early 1998 to March 2012, the terminal value of the initially invested $1 based on the Sharpe momentum approach is significantly greater than the terminal value of both the return momentum approach and the S&P index over time ($28.9 vs $11.5 and $1.44). The differences of the three portfolios are less discernable between 1998 and early 2003 than later period. The return based momentum trading method starts to outperform the S&P index since the end of 2005 and continues till the end of the sample period, suggesting

that investors' behavioral sentiments begin to influence the market. The excessive predictive power of the Sharpe-based momentum starts since early 2001 and overwhelmingly beats the returned based momentum approach and the S&P500 since early 2003.

Figure 1 – Comparative Terminal Value of Return Based Momentum, Sharpe Ratio Based Momentum, and S&P Index.

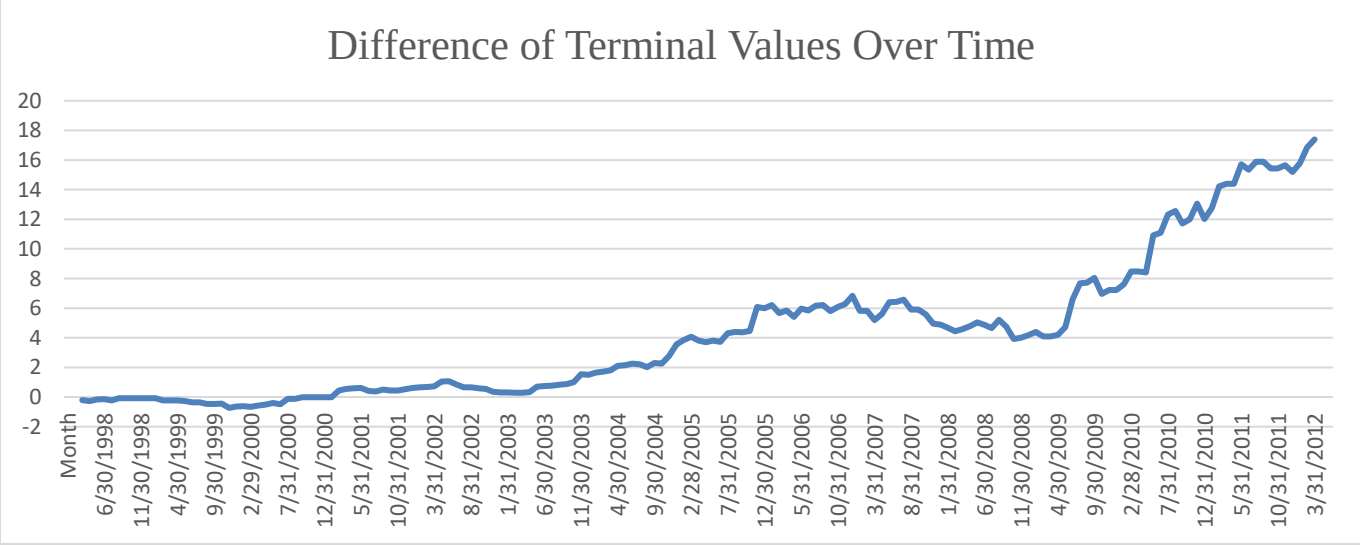


By comparing the differences in terminal value between the two momentum approaches over time in Figure 2, an overall increasing trend prevails, with an early period of negative values during 1998 and early 2001. It suggests that investors before 2001 are mainly composed of naïve investors who rely on the prior return in their investment consideration only. After 2001 till the end of the sample period, investors on average are more rational than before, as they start to incorporate the risk factor in the momentum trading, given the positive differences of terminal values between the Sharpe based approach and the return based approach.

During early 2007 and early 2009 the growth of the difference slows down reflected in the downward slope for that segment of time. It suggests that investors are growing more rationally but at a decreasing rate. The reason for the pattern is probably because more irrational investors join the market activities since 2007 after a long period of bull market cycle after the tech bubble in 2001, or because investors become more relaxed from risk assumption as time moves along away from the market crash in 2001 (A Chinese saying goes, people forget the pain after the scar heals)

After early 2009, a big jump in the gap of the two momentum effects appears and the gap continuously widens till the end of the sample period. Obviously, the financial crisis in 2008 and 2009 raises the awareness among investors on risk consideration.

Figure 2 – Difference in Terminal Values between Return Based and Sharpe Ratio Based Momentum Effects over Time (TV of Sharpe based momentum – TV of return based momentum, 1998 - 2012)



6. Conclusion

Our study finds strong momentum effects of the AAII portfolios under both return-based and Sharpe ratio-based indicator. In addition, we find that the abnormal returns based on past Sharpe ratio of the AAII portfolios are significantly greater than those based on the past average return of the portfolios.

The fact that the risk adjusted consideration measured by Sharpe ratio is stronger in the momentum effects over time in these trading strategies shows that investors begin to include the risks factors into their decision making. This evidence suggests that either the investors become more sophisticated than before, or probably more sophisticated investors come to participate in the financial trading activities. Investors used to think only on one dimension, i.e. the return only. Now investors have learned to base their judgment on two dimensions, both risk and return in their asset management, a significant improvement.

The increasing trend continues and the gap in the momentum effects between the two approaches becomes wider and wider over the sample period, especially right after each major financial crisis. This suggests that the US individual investors on average have grown more rational as a group. The improved rationality of investor pool is a result of combined efforts from education and from lessons of financial losses. Our results confirm the proposition of behavioral finance theory on the momentum study, and sheds additional light on how the financial market evolves in the future given the nature of investors thinking capacity.

Ultimately, the best returns for investors come from considering the risk of an overall portfolio. Our study provides valuable information to investors, academic researchers, and practitioners.

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