

KRZYSZTOF KOWALKE

The effectiveness of the contrarian and momentum strategies on the US REIT market

1. Introduction

Making an investment decision on capital markets is a complex process that requires extensive knowledge and skills. When allocating capital, investors use various investment strategies. The traditional ones include the contrarian strategy and the momentum strategy (Schiereck et al. 1999). The first assumes investing in shares of companies that in the period preceding the investment generated the lowest rates of return, the so-called loser companies, and short selling companies with the highest rate of return, the so-called winner companies. It is believed that there is an overreaction in the market, both winners and losers, are respectively undervalued and overestimated by investors. In the following period, the incorrect reaction of the market is corrected and equities return to equilibrium (Mun et al. 2000). The opposite of the contrarian strategy is the momentum strategy. It consists in taking a long position in the case of stocks of companies with the highest rates of return in the past and short selling in the case of companies with the lowest rates of return (Balvers and Wu, 2006). Therefore, this

Krzysztof Kowalke Ph.D.,
Department of Investment
and Real Estate,
Faculty of Management University
of Gdansk,
Poland,
ORCID: 0000-0002-8519-0311.

strategy assumes that the upward and downward trend in the prices of financial instruments will continue, and not reverse, as is the case with the contrarian strategy (Chakrabarti and Sen, 2020). The results of research conducted on various markets show that the use of both contrarian and momentum strategies can be profitable and bring above-average rates of return. The use of which is more profitable depends on the type of financial instrument, the specificity of a given market, as well as on the ranking period on the basis of which the selection of financial instruments for the investment portfolio is made. For example, analyses of the US stock market indicate a reversal of returns in the ranking period of 3 years (De Bondt and Thaler, 1985) and the maintenance of returns in the period of up to 12 months (Jegadeesh and Titman, 1993). Other studies analyzing the investment fund market indicate that rates of return are maintained both in the short term (Hendricks et al. 1993) and in the long term (Grinblatt and Titman, 1992).

In recent years, the REIT market has been an extremely dynamically developing segment of the financial market in the US. Its capitalization, calculated only for public REITs, increased in 1992-2001 from USD 15.9 billion to USD 1,740.3 billion (REITWatch, 2022). The literature on the subject lacks studies that would address the effectiveness of using the contrarian strategy and the momentum strategy on this market. REITs combine both the features of classic companies and investment funds. For this reason, this study attempted to answer the question whether in their case capital allocation strategies should be used convergent with the stock market (a momentum strategy over a period of 12 months and a contrarian strategy over a period of more than 3 years) or the same as in the case of the mutual funds market investments (momentum strategy). Therefore, the purpose of this article is to compare the effectiveness of using the contrarian strategy and the momentum strategy on the US REIT market. For the purposes of the article, a research hypothesis was formulated and tested, which assumes that the effectiveness of the contrarian strategy on the American REIT market is statistically significantly higher than the effectiveness of the momentum strategy. The time range of this research covers the years 1992-2021. Deductive reasoning and statistical methods were used to achieve the aim of the article and verify the research hypothesis. The significance of differences between the rates of return of individual investment strategies was analyzed on the basis of standard t-tests.

The structure of the rest of the article is as follows: section 1 presents a review of the literature concerning the analyzed problem. This was followed by a description of the methodology (section 2) and results of the research

(section 3). The last element of the article is section 4, which presents the discussion and conclusions.

2. Literature review

A number of studies are available in the literature on the occurrence of regularities in the rates of return of financial instruments over the years. Selected ones will be briefly presented.

Analyses conducted by De Bondt and Thaler (1985) indicated the existence of an overreaction of stock prices in the American market. The authors constructed two investment portfolios. The first consisted of 35 shares with the highest rates of return (winners), while the second consisted of 35 shares of companies with the lowest rates of return (losers). The results of their research conducted over 50 years for a 3-year ranking period showed that the rates of return of the portfolio of losing companies, thirty-six months after its creation, exceeded the rate of return of the market portfolio by 19.6 pp. on average. On the other hand, the rates of return on the winners portfolio were lower than the market ones by approximately 5.0 pp. This means that the differences between the rates of return on losers portfolios and winners portfolios amounted to 24.6 pp. The conducted analyses also indicated that the phenomenon of market overreaction took place especially in the second and third year. Jegadeesh and Titman (1993) analyzed the recurrence of stock returns over a shorter period. Their research for the ranking period from 3 to 12 months showed the persistence of rates of return (the momentum effect), i.e. a phenomenon opposite to that observed by De Bondt and Thaler (1985). For the ranking period of 6 months, the portfolio of winner companies brought a higher rate of return than the portfolio of losers by 9.5 pp on average over the next 12 months. The authors of the study, however, emphasized that the additional return over the next 24 months decreased by more than half, because after 12 months it was the portfolio of losers that achieved a higher return than the portfolio of winners. The results of the conducted research were mostly confirmed by other analyses, which showed the occurrence of the momentum effect in the period of up to 12 months (in the case of the ranking period from 2 to 12 months), as well as the reversal of the rates of return in the long period of 2-5 years (Lee and Swaminathan, 2000; Jegadeesh and Titman, 2001; Shen et al. 2005; Alwathainani, 2012; Li, 2016). The effectiveness of using the contrarian strategy on the American and Canadian markets was also confirmed by studies conducted by Mun et al. (2000). They have shown risk-adjusted above-average returns for a ranking period of one

to three years. The results of the analyses suggested the disappearance of overreaction over time and no significant differences between the rates of return of portfolios of loser and winner companies.

The literature on the subject also includes a number of studies on the overreaction of stock markets other than the US market. Analyses of the winners-losers reversals on the Tokyo Stock Exchange were conducted by Iihara and Kato (2004) and Chou et al. (2007). Their analyses in the years 1975-1997 showed a reversal in the rates of return for one-month periods, even after adjusting them for risk and specificity of the company, and also for longer periods, up to 3 years. Thus, the research results are different from those for the American market (Jegadeesh and Titman, 1993) and other highly developed markets (Rouwenhorst, 1998; Griffin et al. 2003; Chui et al. 2010; Stork 2011), where in the short term the rates of return were most often maintained from 3 months to 1 year - the momentum effect. Analyses of the Japanese market indicate that the overreaction of the market may be partly related to the low volume of losers' shares and is not sensitive to changes in the economic situation on the stock market. The next research, the results of which will be presented, concerns the Tunisian stock exchange and was carried out by Boussaidi (2017). It showed a reversal of returns in the years 1974-2013 and the occurrence of a significant winners-losers effect of stocks over 12 months. The author emphasized, however, that the reason for this was compensation for the risk incurred, related to, among others, company size and price/book value ratio. Therefore, the occurrence of market overreaction in the case of the Tunisian stock exchange could not be indicated. Also, research on the Chinese capital market by Yu et al. (2019) showed a higher profitability of investing in loser companies rather than winners ones in a ranking period of a week. In addition, the authors pointed out that if the ranking period is extended or the holding period for losers' stocks is shortened, the rates of return resulting from the use of the strategy increase. The research showed that from the analyzed strategies, the most profitable on the Chinese market was the strategy based on the ranking period of more than 3 weeks and the holding period of shares in the portfolio of more than a week. The occurrence of reversals in rates of return was also confirmed by research on the Korean stock exchange (Chae and Eom, 2009; Lee and Cho, 2014). The results of analyses conducted by Eom and Park (2021) suggest that the reason for the overreaction of the Korean market may have been specific factors and the associated risk premium, rather than systematic factors. It should be emphasized that the results of their analyses

were independent of the changes made in the construction of the empirical study, taking into account the ownership structure, market dynamics or the situation on the Japanese stock exchange. Extensive research on the reasons for the reversal of returns in the capital markets of MENA countries was carried out by Boussaidi and AlSaggaf (2020). Their analysis showed that in four of the seven analyzed markets where the contrarian strategy was effective, the reason for it was the representativeness heuristic. Investors overreacted to the positive news about corporate earnings. In the case of other stock exchanges, the conducted research did not explain the reasons for the profitability of using the contrarian strategy. Analyses of the Brazilian (Da Costa, 1994), German (Schierreck et al. 1999) and Australian (Gaunt 2000) markets also showed a reversal of returns. On the Brazilian stock exchange, in the two-year ranking period, this effect was stronger especially in the period of extreme volatility, but it also occurred in other periods, and it was not caused by differences in the level of risk. On the other hand, on the German market, analyses showed that not only the use of the contrarian strategy brought higher rates of return than the passive strategy, but also the strategy using the momentum effect generated rates of return higher than market indices. In the case of the Australian market, reversals of returns were identified in the monthly ranking period, even after risk adjustments. The results of analyses of the Australian market also suggest that the reason for the overreaction could be the small firm effect, as small capitalization companies dominated in the losing portfolio.

Many authors analyze the occurrence of momentum and contrarian strategies based on stock indices, not individual stocks. Studies by Richards (1995 and 1997) and Balvers et al. (2000) confirmed the existence of the winner-loser reversals, especially in the three-year ranking period in which it was possible to generate a statistically significant excess of the rate of return at the level of 6 pp. The research did not find grounds to accept the hypothesis that the reason for above-average rates of return were differences in risk. Other analyses based on stock market indices (Asness, 1997; Balvers and Wu, 2006) confirmed the persistence of rates of return in the short period of 6 to 12 months. K. Chan et al. (2000) showed, however, that the strongest effect of momentum takes place in the period shorter than 4 weeks and is higher in the case of markets where the volume increased during the ranking period. A comprehensive analysis of the overreaction of stock index returns in developed and emerging markets was conducted by Alves and Carvalho (2020). Their research on 49 MSCI indices between 1970 and 2018 showed statistically significant reversals of returns over the three- and five-

year periods. In developed markets, overreaction was lower than in the entire sample. The research also showed that losers portfolios not only brought higher rates of return, but also had lower risk. For the three-year period, the use of the contrarian strategy brought an additional rate of return of 24 pp., while for the five-year period it was 51.11 pp. The conducted research also showed that the market overreaction is not stable over time.

The occurrence of overreactions in the currency market was shown by research conducted by Parikakis and Syriopoulos (2008). It concerned the US dollar, Brazilian real and Turkish lira markets. However, in the case of the British pound, the authors observed an insufficient response. The results of the analyses also showed that the use of the contrarian strategy in relation to the extreme one-day change in the exchange rate is effective for all the analyzed currencies. The reason for this is that within 2 days of the event, the rates of return on the currency market change in the opposite direction than on the day of the event. In the conducted research, the base currency was the euro.

One of the currents of research on the repeatability of returns on financial instruments are analyses of investment funds. Research conducted by Grinblatt and Titman (1992) in the years 1974-1984 showed that the highest rates of return in the period of 5 years were generated by the funds which achieved the highest rates of return in the preceding 5-year period. Maintaining rates of return concerned not only funds with the highest rates of return, but also those that generated the lowest rates of return. On the other hand, in the short term, the phenomenon of the persistence of return rates of investment funds was demonstrated by research conducted by Hendricks et al. (1993). Their analyses of the American market in the years 1974-1988 showed that funds with the highest rates of return in the annual period worked out high rates of return in the next few quarters (from 1 to 8). A similar situation took place in the case of funds with the lowest rates of return. Their low rates of return also persisted in subsequent periods. The differences between the rates of return of funds with the highest and lowest rates of return amounted to approximately 6-8 pp. Also studies by Otten and Thevissen (2011) and Cuthbertson et al. (2022) confirm the persistence of investment fund returns. The first of the analyses indicated that the strategy of buying winner funds and selling loser funds leads to higher returns, both economically and statistically, in the period of 6-12 months. On the other hand, studies by Cuthbertson et al. (2022) indicated that the rates of return on investment portfolios of winner funds persisted for up to 6 months for portfolios consisting of a maximum of 50 entities. The momentum effect also

took place in the Australian equity pension funds market, as indicated by research by Liu et al. (2016).

The presented review of research mostly confirms the persistence of the rates of return of stocks and stock exchange indices in the ranking period of less than a year, and the reversal of rates of return over the period of more than 2-3 years. The situation is different in the case of investment funds. In their case, both in the short and long term, the research results indicate that the rates of return are maintained. The literature on the subject lacks research that would focus on the REIT market, which has been dynamically developing in recent years, which is why this article addresses this topic.

3. Methods

For the purposes of this article, the contrarian and momentum strategy were analyzed for three different ranking periods of one year, two years and three years. This means that the basis for the selection of companies for the portfolio were REITs with the highest and lowest rates of return, respectively, in the one-year, two-year and three-year periods preceding the investments. American public REITs whose shares were traded on the NYSE or NASDAQ were analysed. In individual rankings, on the basis of which the composition of the investment portfolio was built, entities operating on the market throughout the period for which the ranking was constructed were taken into account. For each ranking period, two alternative investment portfolios were created, each consisting of five entities. This means that for the first ranking periods, each portfolio comprised approximately 15% of REITs listed on the US public market. The first portfolio, of winner companies, was made up of REITs that generated the highest rates of return in the ranking period, while the second portfolio, of loser companies, was made up of entities with the lowest rate of return in the ranking period.

The rates of return of the constructed investment portfolios were compared with the results of the FTSE Nareit All REITs stock market index. It is an index that includes all US REITs that are publicly traded. This index is estimated as both a price index and an income index (FTSE Russell, 2021). For the purposes of these analyses, the income index was used, which takes into account both price changes and the value of dividends paid out, which in the case of investments in REITs are often of key importance for assessing the profitability of the investment.

In order to assess whether the differences in the rates of return of the winners' and losers' portfolios are statistically significant the following data were

calculated for individual ranking periods: the excess of the rates of return on portfolios of winners ($CAR_{W,n,t}$) and losers ($CAR_{L,n,t}$) in relation to the FTSE Nareit All REITs and arithmetic means excess returns of portfolios ($ACAR_{W,t}$ i $ACAR_{L,t}$). They were used to estimate the cumulative variance of the CAR_t population and the t-statistic (De Bondt and Thaler, 1985):

$$S_t^2 = \frac{\sum_{n=1}^N (CAR_{W,n,t} - ACAR_{W,t})^2 + \sum_{n=1}^N (CAR_{L,n,t} - ACAR_{L,t})^2}{2 \times (N-1)} \quad (1)$$

$$T_t = \frac{ACAR_{W,t} - ACAR_{L,t}}{\sqrt{\frac{2 \times S_t^2}{N}}} \quad (2)$$

The time range of the research covered the years 1992-2021, i.e. the period of dynamic development of the REIT market in the USA, which began with the entry into force of the Omnibus Budget Reconciliation Act of 1993 (OBRA, 1993). The act made it easier for institutional investors (especially pension funds) to invest in REITs and contributed to increasing their market share (Ebrahim and Mathur, 2013). For the purpose of the article, it was assumed that in each of the ranking periods, investments were started on 1.01.1992, and the basis for the selection of entities for the portfolio was the ranking of rates of return from the period preceding 1992. The composition of investment portfolios was changed in accordance with the ranking period. Therefore, for the one-year ranking period, the composition of the portfolio was adjusted thirty times, for the two-year period fifteen times, and for the three-year period ten times. It should be emphasized that with each successive ranking, and with the increase in the number of REITs listed on the public market, the number of entities included in the ranking increased. In the case of the first rankings, which were the basis for building investment portfolios in 1991, their number for the one-year (1991) and two-year (1990-1991) ranking period was 33, and for the three-year period (1989-1991) 31 REITs. For the last ranking period, 209 (2020), 204 (2019-2020) and 201 (2018-2020) entities were analyzed, respectively.

4. Results

The effectiveness of applying the analyzed strategies differed significantly, depending on the adopted ranking period. Differences were visible both in rates of return and in risk measured by standard deviation. The results of using the examined strategies for the annual ranking period are presented in table 1.

Table 1. The results of using the contrarian and momentum strategy for REITs in the US market in the annual ranking period in the years 1992-2021

Year	Winner REITs portfolio	Loser REITs portfolio	Portfolio of all REITs	FTSE Nareit All REITs
One-year arithmetic average rate of return	19.68%	33.96%	16.57%	12.46%
Standard deviation	30.87%	85.00%	20.74%	18.41%
Coefficient of variation	156.90%	250.27%	125.12%	147.80%

Source: own study

In the years 1992-2001, investing in loser REITs brought an average rate of return of 33.96% one year after starting the investment, while in winner REITs it was 19.68%. The difference in rates of return amounted to 14.28 pp. The result generated by both analyzed portfolios exceeded both the average for all REITs and the average rate of return for the FTSE Nareit All REITs index. Attention should also be paid to the rates of return obtained in particular annual sub-periods by the tested investment portfolios. In seventeen periods out of thirty, the winner REITs portfolio performed a higher return than the losers REITs portfolio. On the other hand, in eight periods, both the winner and loser portfolios' rates of return were higher than those for the REIT index. The opposite situation, when the index brought higher rates of return than both portfolios constructed, was observed in five annual periods. However, it should be emphasized that the analysis of the statistical significance of the difference in the rates of return on REITs portfolios of winners and losers showed that they did not differ significantly (t-statistics: 0.9325).

Relatively high levels of average rates of return of the analyzed investment portfolios were accompanied by their high volatility in particular sub-periods.

The standard deviation of the returns of the portfolio of losers amounted to 85%, and the portfolio of winners - 30.87%. For comparison, the level of deviation for the stock market index and for the average rate of return of the entire REIT market was much lower and amounted to 18.41% and 20.74%, respectively. The analyzed portfolios were also characterized by the highest level of co-efficient of variation. In the case of the portfolio of REITs with the highest rates of return in the period preceding the investments, it was 156.90%, and the portfolio with the lowest rate of return was 250.27%. This means that the higher rates of return generated by the analyzed portfolios did not compensate for the higher risk measured by the standard deviation of these portfolios.

The next ranking period that was examined was the two-year period (table 2.).

Table 2. The results of using the contrarian and momentum strategy for REITs in the US market in the two-year ranking period in the years 1992-2021

Year	Winner REITs portfolio	Loser REITs portfolio	Portfolio of all REITs	FTSE Nareit All REITs
Two-year arithmetic average rate of return	49.62%	59.54%	32.12%	25.13%
Standard deviation	75.71%	67.17%	26.39%	23.04%
Coefficient of variation	152.60%	112.83%	82.16%	91.70%

Source: own study

In the two-year period, the highest rates of return were generated by the portfolio which included REITs with the lowest rate of return in the preceding period. The two-year arithmetic average rate of return of the loser REITs portfolio was 59.54% and was higher than the rate of return of the winner REITs portfolio by 9.92 pp. The rate of return generated by the portfolio of REITs, with the lowest rates of return in the ranking period, was more than twice as high as the rate of return of the FTSE Nareit All REITs index (25.13%) and significantly exceeded the average rate of return for the market (32.12%). It is worth noting here that also the portfolio of winner REITs in the two-year ranking period, similarly to the one-year ranking period, two years after building the investment portfolio brought an average rate of return exceeding the average for all analyzed REITs and the rate of return of the index REITs. The analysis of the rates of return in individual two-year investment sub-periods shows that the portfolio of loser

REITs in ten out of fifteen periods generated a rate of return higher than the portfolio of winner REITs. Moreover, in six periods, the rates of return generated by both analyzed portfolios were higher than the rates of return of the FTSE Nareit All REITs index. The opposite situation, when the index showed a higher rate of return than the analyzed portfolios of winners and losers, took place in three sub-periods. As in the case of the annual ranking period, the study of the statistical significance of the differences between the rates of return on the portfolio of losers and winners showed that they do not differ significantly from the statistical point of view (t-statistic: 0.9325).

The rates of return on REIT investment portfolios of winners and losers were characterized by higher volatility measured by standard deviation than the stock market index and the portfolio built for all REITs. The standard deviation of the loser REITs portfolio was 67.17% in the analyzed period. This means that it was lower than the standard deviation level for the portfolio of winner REITs (75.71%), but much higher than that recorded for benchmarks (index - 23.04%, average REIT - 26.39%). Similar conclusions can be drawn when analyzing the coefficient of variation. The highest level of this measure was found in the portfolio of winner REITs (152.60%) and loser REITs (112.83%). Ratio levels for these portfolios significantly exceeded those of the FTSE Nareit All REITs Index (91.70%) and portfolio of all REITs (82.16%).

The last ranking period analyzed was the three-year period (table 3.).

Table 3. The results of using the contrarian and momentum strategy for REITs in the US market in the three-year ranking period in the years 1992-2021

Year	Winner REITs portfolio	Loser REITs portfolio	Portfolio of all REITs	FTSE Nareit All REITs
Three-year arithmetic average rate of return	38.69%	134.23%	54.51%	42.60%
Standard deviation	50.91%	119.74%	45.55%	41.41%
Coefficient of variation	131.59%	89.21%	83.57%	97.22%

Source: own study

In the analyzed period, loser REITs portfolios, after three years from construction, brought an average rate of return of 134.23%. After the same period, portfolios which included REITs with the highest rate of return in the ranking period allowed to generate an average of 38.69%. The rates of return on portfolios

of loser REITs were also, on average, significantly higher than those for the index and the portfolio including all REITs. The situation was different in the case of the portfolio of winner REITs, which were characterized by a lower rate of return than the FTSE Nareit index and the average rate of return for all REITs. It can therefore be concluded that in the case of the three-year ranking period, as opposed to the one-year and two-year periods, the rates of return reversed. After a period of high rates of return, the portfolio of winner REITs generated lower rates of return than the market average, and the portfolio of loser REITs generated high rates of return, exceeding the market average. Interesting conclusions can also be drawn based on the analysis of the rates of return in individual 3-year sub-periods. In 9 periods out of 10, the portfolio of loser REITs generated higher rates of return than the portfolio of winning companies. Only in the years 2013-2015 the opposite situation took place. It was also the only period in which the loser REITs portfolio yielded a lower return than the FTSE Nareit All REITs index. However, the difference in rates of return was minimal and amounted to 1 pp. Moreover, in 3 periods, the REIT index brought a lower rate of return on both the portfolio of losers and winners. Contrary to the one-year and two-year ranking period, the rates of return on winners and losers portfolios in the three-year ranking period significantly differed statistically (statistic t: 3.4504).

The rates of return generated by the portfolio of loser REITs in individual three-year sub-periods were characterized by a relatively high volatility measured by standard deviation. Its level amounted to 119.74% and was much higher than the portfolio of winner REITs (50.91%), the portfolio of all REITs (45.55%) or the FTSE Nareit index (41.41%). However, it should be emphasized that in the case of the portfolio of loser REITs, the high level of standard deviation was compensated by the high level of the average rate of return, as indicated the coefficient of variation. It amounted to 89.21% and was lower than that for the portfolio of winner REITs (131.59%) and the FTSE Nareit All REITs index (97.22%). A slightly lower level of this measure was recorded only in the portfolio comprising all REITs (83.57%).

The results of the presented analyses showed how different the effectiveness of individual investment portfolios was. Table 4. shows all the analyzed portfolios and their annual geometric average rates of return, which take into account the change in the value of the investment portfolio throughout the investment period, and not only the average changes in value in the intermediate periods, as does the arithmetic mean. Thanks to this, it was possible to compare the effectiveness of using the contrarian strategy and momentum strategy over the entire thirty-year period.

Table 4. Comparing the results of using the contrarian and momentum strategy for REITs in the US market in different ranking periods

Ranking Period	The annual geometric average rate of return
Winner REITs portfolio	
One year period	15.94%
Two-year period	17.15%
Three-year period	8.66%
Loser REITs portfolio	
One year period	14.78%
Two-year period	21.02%
Three-year period	27.08%
Index	
FTSE Nareit All REITs	10.83%

Source: own study

Among the analyzed investment portfolios, the highest profitability, at the level of 27.08% per annum, was characteristic of the loser REITs portfolio built in the three-year ranking period. A high rate of return of 21.02% was also brought by the loser REITs portfolio in the two-year ranking period. In general, in the case of using the contrarian strategy, there was a dependence that the rate of return increased with the increase in the ranking period. Moreover, in each of the analyzed periods, the rate of return of loser REITs portfolios was higher than the average rate of return for the FTSE Nareit All REITs index (10.83%). When it comes to winners portfolios, the most profitable was the one for the two-year ranking period, when its average rate of return was 17.15% and was higher than that of the REITs index. The portfolio of winner REITs also brought a high rate of return in the annual ranking period. It amounted to 15.94% and was also higher than that of the FTSE Nareit All REITs index. It was also the only ranking period when the return of the winner REITs portfolio was higher than the return of the losers portfolio. It is worth emphasizing that in the case of the previously presented arithmetic average rate of return, the results were different and it was the loser REITs portfolio that had a higher average than the winner

REITs portfolio. The differences result from the different specificity of the two averages, which was mentioned earlier.

To sum up, it can be said that for the one-year and two-year ranking period, it was profitable to use both the contrarian and momentum strategies, because in the analyzed period both allowed to generate a rate of return higher than the market. A different situation occurred in the case of the three-year ranking period, when only the application of the contrarian strategy allowed to generate a rate of return higher than the market. In the case of the momentum strategy, the rate of return was 8.66% and was significantly lower than the rate of return of the FTSE Nareit All REITs index.

5. Discussion and conclusions

The results of the analyses carried out for the purposes of this article were not unambiguous. In the case of the one-year and two-year ranking periods, the differences between the rates of return on REIT portfolios of losers and winners were not statistically significant. Both portfolios performed rate of return above the market average and the FTSE Nareit All REITs index. Taking into account the average rates of return in the intermediate periods (arithmetic means), the portfolio of loser REITs, both for the one-year and two-year ranking period, generated higher rates of return on average than the portfolio of winner REITs. Slightly different conclusions could be drawn considering the change in the value of investment portfolios over the entire thirty-year period. In the one-year ranking period, the portfolio of winner REITs allowed to achieve a higher geometric average rate of return than the portfolio of losers. On the other hand, in the two-year ranking period, the portfolio of loser REITs brought a higher rate of return.

In the case of the three-year ranking period, the differences in the rates of return of the loser REITs portfolio and the winner REITs portfolio were substantial and statistically significant. It is worth noting that the loser REITs portfolio achieved an average rate of return (both at the level of the arithmetic and geometric mean) considerably exceeding the average for all analyzed REITs and the FTSE Nareit All REITs index. On the other hand, the portfolio of winner REITs generated a much lower rate of return than the market ones. Thus, it can be concluded that in the case of the three-year ranking period, the reversal of returns on the REITs market took place and the use of the contrarian strategy was profitable.

Therefore, for the three-year ranking period, no grounds were found to reject the research hypothesis that the effectiveness of the contrarian strategy on the

REIT market is statistically significantly higher than the effectiveness of the momentum strategy. In the case of the remaining ranking periods, the differences in the rates of return between the two portfolios were too low, which made them statistically insignificant. The results of the conducted analyses suggest that it is more profitable to use the contrarian strategy on the REITs market, which, according to the literature, is highly effective on the stock market in the three-year ranking period, than the momentum strategy, which is highly effective on the investment fund market (Lee and Swaminathan, 2000; Jegadeesh and Titman, 2001, Shen et al. 2005, Alwathainani, 2012). The results of the analyses carried out and their use in the process of building an investment portfolio should, of course, be approached with great caution, as they are based on historical data. Therefore, there is no guarantee that the phenomena observed in the past will also persist in the future.

In subsequent analyses on this topic, one could be tempted to examine how shortening or extending the ranking period or increasing the number of entities in individual investment portfolios would affect the effectiveness of the analyzed portfolios. One could also consider extending the study period to 50 years and compare how this would influence the effectiveness of both strategies. Future research could also attempt to identify the reasons for the higher effectiveness of using the contrarian strategy over the moment strategy in the three-year ranking period.

Abstract

When making investment decisions in financial markets, investors use various investment strategies. The traditional ones include the contrarian strategy and the moment strategy. In recent years, one of the dynamically developing segments of the global financial market has been the American REIT market. The literature on the subject lacks research on the effectiveness of investment strategies in this market. The aim of the article is therefore to compare the effectiveness of the contrarian strategy and momentum strategy on the US REIT market in different ranking periods. Based on the data on the rates of return of individual REITs listed on public capital markets in the US, the rates of return resulting from the application of the contrarian and momentum strategies were estimated. The results of the conducted analyses showed that for the three-year ranking period, the rates of return of the portfolio composed

of loser REITs significantly exceeded the rates of return of the portfolio of winner REITs. This means that during this period the use of the contrarian strategy was more effective than the use of the momentum strategy. For other analysed ranking periods, the differences in rates of return were not statistically significant. The results of the conducted analyses may help investors in choosing the most effective investment strategy on the REIT market. This research also answers the question whether the REIT market should use investment strategies that, according to research, are effective on the broad stock market, or strategies that work well on the investment fund market.

Keywords: *contrarian strategies, momentum strategies, REIT, US stock market.*

JEL Codes: G11; G15; G23.

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