

CAPITAL ALLOCATION IN THE REIT MARKET IN LIGHT OF THEIR CHARACTERISTICS

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Purpose: This paper aims to evaluate the profitability of capital allocation in the U.S. REIT market, in light of selected characteristics of these entities.

Design/methodology/approach: Based on selected characteristics of individual REITs listed on U.S. public capital markets, hypothetical investment portfolios were constructed, and their rates of return were subsequently estimated. The characteristics analyzed included market capitalization, length of time on the market, and past performance prior to the investment period. The study covers the years 2015-2024. To verify the statistical significance of differences in REIT portfolio returns, standard t-tests were used.

Findings: The findings suggest that investors may benefit from allocating capital to REITs that: (1) have the highest market capitalization; (2) have been active in the market the longest; and (3) achieved the highest rates of return in the period preceding the investment. However, it is important to note that in most of the analyzed cases, the differences in returns between portfolios composed of REITs with extreme values of a given characteristic were not statistically significant.

Research limitations/implications: The present analyses focused on selected sectors of the U.S. REIT market and a relatively short, ten-year period. Future studies could expand the scope by including other sectors, international REIT markets, or strategies based on market ratios and fundamental metrics to verify the consistency of the findings.

Practical implications: The findings of this study highlight the REIT characteristics that investors should take into account when constructing investment portfolios to enhance their effectiveness

Originality/value: The literature review demonstrates that the relationship between investment fund characteristics and their rates of return has been extensively examined. However, there remains a noticeable gap in the research concerning the dynamically developing U.S. REIT market in recent years. Furthermore, the research aims to assess the profitability of using selected fund characteristics as a foundation for constructing an investment strategy.

Keywords: REIT, capital allocation, investment strategies.

Category of the paper: Research paper.

1. Introduction

Efficient capital allocation in the real estate market is a complex process that requires investors to possess extensive knowledge and expertise. Investments can be made either directly or indirectly. However, direct investments are typically characterized by low liquidity and are generally feasible only when significant capital resources are available. These limitations do not apply to indirect real estate investments, particularly those made through various forms of real estate investment funds, including Real Estate Investment Trusts (REITs). In recent years, the REIT market - especially in the United States - has experienced rapid growth. In the U.S., the market capitalization of public REITs increased from USD 330 billion in 2005 to USD 1,424 billion in 2024 (REITWatch, January 2025). These entities raise capital from both individual and institutional investors in order to invest in real estate assets. A key feature of REITs is their favorable tax status - REIT earnings are exempt from federal and state income taxes. To qualify for this status, REITs must meet several requirements, including a widely dispersed shareholder base (with at least 100 shareholders, and no more than 50% of shares held by five or fewer investors) and the obligation to distribute at least 90% of their taxable income as dividends (Gim, Jung, 2020). Although REITs operating within the same real estate segment often share similar business models, their rates of return can vary significantly. For this reason, it is so important for investors to properly select individual entities for the investment portfolio.

REITs share many characteristics with traditional investment funds. Numerous studies in the literature have examined the relationship between specific features of investment funds and the rates of return they generate (Chen et al., 2004; Babalos et al., 2012; Grinblatt, Titman, 1992). The findings of such studies are valuable, as they can serve as a foundation for developing investment strategies and improving portfolio performance. However, similar analyses are largely absent from the literature on REITs. Given the similarities between REITs and traditional funds, it can be assumed that relationships observed in the investment fund market may also apply to the REIT market. This may serve as a basis for enhancing portfolio efficiency within this market.

This paper aims to evaluate the profitability of capital allocation in the U.S. REIT market, in light of selected characteristics of these entities. The study also seeks to demonstrate how investors can apply findings on fund characteristics in the portfolio construction process, and what rates of return can be achieved through strategies based on those characteristics.

The features used to construct the investment portfolios include: market capitalization, length of market activity, and past performance prior to the investment period. For each of these characteristics, two portfolios were created, consisting of REITs representing the extreme values of the given feature. This approach made it possible to assess whether statistically and economically significant differences in performance exist between portfolios composed of REITs with high and low values of a given characteristic.

The analysis covers the years 2015-2024 and focuses on publicly traded U.S. REITs operating in three sectors: industrial, office, and retail. These represent the core sectors of commercial REITs, which in recent years - due in part to the COVID-19 pandemic - have experienced relatively high price volatility in public markets. The performance of the investment strategies was analyzed both for the combined group of REITs from all three sectors and for each sector individually.

The remainder of this paper is structured as follows: the next section provides a review of the relevant literature, followed by a description of the research methodology. The results of the analysis are then presented and discussed individually for each characteristic. Finally, the paper concludes with a summary of the main conclusions.

2. Literature Review

The core activities of REITs, as previously mentioned, are comparable to those of traditional investment funds. The literature in this field includes numerous studies aimed at identifying factors that influence the rates of return generated by investment funds. Among these, particular attention has been paid to the role of fund-specific characteristics and their impact on performance. The following section provides an overview of the key trends and findings in this area of research.

One of the main directions in this area of research concerns the relationship between the size of investment funds and their efficiency. A study on this phenomenon in the U.S. market was conducted by Chen et al. (2004). They demonstrated that as the size of investment funds increased, the rates of return they generated decreased. These findings were confirmed by subsequent studies conducted by Yan (2008), Ferreira et al. (2013), Pástor et al. (2020), and González et al. (2024). The causes of this phenomenon are attributed to the investment policies of funds, which compel them to allocate capital domestically and invest in smaller, less liquid companies. Moreover, the results suggest that this phenomenon is particularly prevalent in the U.S. market. In other markets, where there are fewer constraints, this effect is not observed (Ferreira et al., 2013). The relationship between fund size and performance in emerging markets was studied by Ding et al. (2015) and Laes, da Silva (2014). The former found that in Asian emerging markets, the highest rates of return were achieved by both the largest and the smallest funds, compared to medium-sized ones. In contrast, the study by Laes and da Silva, focused on the Brazilian market, showed that the highest rates of return were generated by the largest entities.

Interesting research on the efficiency of investment funds was also conducted by Babalos et al. (2012). Their analysis focused on the Greek market and revealed a negative relationship between fund size and efficiency. Thus, the results were consistent with those observed in the

U.S. market, as discussed above. Additionally, and notably, their findings indicated a positive relationship between fund age and efficiency. The authors argue that this may be attributed to older funds having a more efficient organizational structure and a deeper understanding of the financial environment. They also point to the use of more effective management techniques, in contrast to younger, less experienced funds. However, it should be noted that these findings were not consistent with those obtained in a study of the Australian fund market by Heaney (2008), which showed that younger funds generated higher rates of return. The author emphasized that the age effect in the Australian market was particularly pronounced in risk-adjusted returns.

Analyses that have attracted considerable interest among researchers are those examining the persistence of investment fund returns over subsequent periods, or conversely, the phenomenon of return reversal. The study by Grinblatt and Titman (1992) demonstrated that over a five-year horizon, the performance of investment funds tended to persist for the following five years. This applied to both the highest- and lowest-performing funds. Similar patterns were confirmed in the U.S. market over shorter time frames-specifically annual and semi-annual periods - in studies conducted by Hendricks et al. (1993), Otten, Thevissen (2011), and Cuthbertson et al. (2022). Persistence in fund performance was also observed in the Australian market in research conducted by Liu et al. (2016). The results of these studies suggest that, during the analyzed periods, a momentum strategy - allocating capital to funds that generated the highest returns in the preceding period - would have been appropriate in the investment fund market. It is worth noting that the findings related to investment funds differ from those observed in developed stock markets. Most of the studies conducted on these markets indicate the occurrence of return repeatability over periods of up to 12 months and a reversal in the 2-3-year period (De Bondt, Thaler, 1985; Jegadeesh, Titman, 1993; Rouwenhorst, 1998; Lee, Swaminathan, 2000; Mun et al., 2000; Jegadeesh, Titman, 2001; Shen et al., 2005; Alwathainani, 2012; Li, 2016).

Another important group of studies focuses on the impact of fund manager skills on rates of return, as well as the influence of the management model they employ on fund effectiveness. Research conducted by Berk and Green (2004), Berk, van Binsbergen (2015), and Dong, Doukas (2020) indicated that above-average returns achieved by investment funds are primarily influenced by the skills and qualifications of fund managers, rather than by luck. These findings stand in contrast to the results of analyses by Fama and French (2010), which suggested that it is not the managers' skills, but rather their luck, that accounts for the generation of above-average returns by some funds. In turn, studies by Hornstein, Hounsell (2016) showed that individually managed entities tended to generate higher returns than those in which decisions were made collectively. Additionally, research by Prather et al. (2004) and Berkowitz et al. (2017) demonstrated that entities managed by managers overseeing multiple funds were less effective, and that changes in management boards did not improve fund efficiency.

There is also a body of literature on the impact of outsourcing asset management services on fund performance. Investment funds can manage their assets internally or outsource the management function to independent firms that, for example, may have more experience in managing a specific asset class. Research conducted on the global investment fund market (Chuprinin et al., 2015; Massa, Schumacher, 2020) and the U.S. market (Chen et al., 2013; Moreno et al., 2018) suggests that funds managed internally, within a group, tend to be more effective than those managed externally. However, different conclusions can be drawn from research conducted by Gajewski and Dieu (2021) on the European market, which showed no significant difference in performance between internally and externally managed funds. Moreover, their analyses found that, in the short term, externally managed funds typically achieved higher rates of return.

Another stream of research in the literature concerns the level of fund operating costs and their impact on the rates of return generated by these entities. In the U.S. market, this issue was examined by Prather et al. (2004), whose findings indicated that higher expenditures on research, personnel management, marketing, and administration do not lead to increased fund efficiency. Similarly, the results of Berkowitz et al. (2017), as well as those of Gil-Bazo, Ruiz-Verdu (2009), suggest that funds with higher management fees tend to generate lower rates of return for their shareholders.

Interesting research on the impact of higher cash holdings by funds on their rates of return was conducted by Graefe et al. (2018). Their analysis of investment funds in European Union countries showed that entities holding above-average levels of cash achieved higher risk-adjusted returns compared to those maintaining below-average cash levels.

The findings of the reviewed studies indicate that investment fund returns are positively associated with the skills and qualifications of fund managers, as well as with higher levels of cash holdings. In contrast, returns are negatively or insignificantly affected by above-average management fees and elevated expenditures on research, marketing, and related activities. Moreover, the literature provides evidence of return persistence in the fund market over both short- and long-term ranking periods. It should be emphasized, however, that some of the reported results are inconclusive, with conclusions varying depending on market characteristics. This applies, in particular, to studies examining the influence of fund size, duration of market presence, and the outsourcing of management services on performance outcomes.

The presented literature review demonstrates that the relationship between investment fund characteristics and their rates of return has been extensively examined. However, there remains a noticeable gap in the research concerning the dynamically developing U.S. REIT market in recent years. This study seeks to address this gap, at least to some extent. Furthermore, the research aims to assess the profitability of using selected fund characteristics as a foundation for constructing an investment strategy. Notably, most existing studies have not assessed

returns from investing based on individual fund characteristics from the investor's perspective. Additionally, they have not focused on the construction of specific investment portfolios.

3. Methodology

The research conducted for the purposes of this study focused on publicly traded REITs operating in the U.S. market, whose shares were listed on either the NYSE or NASDAQ. The analysis covered the rates of return that could have been achieved by investing in the shares of entities active between 2015 and 2024 in one of three REIT sectors, namely industrial, office, and retail (REITWatch, January 2024). These sectors represent the most traditional segments of commercial real estate leasing in which U.S. REITs typically operate.

The study included only those entities whose shares were publicly listed on the last day of portfolio selection, i.e., December 31, 2023. It is important to note that the number of entities analyzed varied over the study period, as some REITs classified within the selected sectors as of December 31, 2023, were not yet public in 2014 or operated in a different REIT sector at that time. As a result, the number of REITs included in the analysis increased from 41 in the first year (6 industrial, 17 office, 18 retail) to 63 in the final year (11 industrial, 22 office, 30 retail).

For the purposes of this study, the profitability of three different investment strategies was examined, each based on a distinct characteristic of REITs. These characteristics were: market capitalization, length of time active in the REIT market, and the rate of return generated in the period preceding the investment. These are characteristics that investors can relatively easily access and take into account when constructing their investment portfolios.

In order to analyze the profitability of the investment strategies, two hypothetical alternative investment portfolios were constructed for each of the three specified characteristics. The first portfolio consisted of entities with the highest value of a given characteristic, while the second portfolio consisted of entities with the lowest value of the same characteristic. The analysis of the profitability of each strategy was conducted both for all REITs selected for analysis, as well as separately for individual sectors (industrial, office, retail). Each investment portfolio consisted of five entities, meaning that, in the first period of entity selection for the portfolio (the so-called ranking period), the portfolio included approximately 12% of the 41 REITs analyzed.

It should be noted that, in the case of the industrial sector, only six entities operated during the early years of the analysis, making it impossible to construct two extreme portfolios of five REITs each. As a result, the number of entities in the portfolios was reduced accordingly, with only three REITs classified into each investment portfolio during the first period. In subsequent periods, as the number of REITs in the industrial sector increased, the number of

entities in the investment portfolios also increased, up to the aforementioned level of five per portfolio.

Furthermore, investment strategies were tested for two ranking periods: one year and two years. This means that the composition of individual portfolios was updated either once a year or once every two years. Therefore, in the one-year ranking period, the portfolio composition was updated ten times, while in the two-year period, it was updated five times. It is also important to note that changes to portfolio composition were always made on January 1.

The first characteristic of REITs, based on which entities were selected for the investment portfolio, was their market capitalization. In each ranking period, an investment portfolio was constructed, including 5 entities with the highest market capitalization, and an alternative portfolio, which included 5 entities with the lowest capitalization on the day of selecting REITs for the portfolio. The portfolio composition was then adjusted annually (for the annual ranking period) or every two years (for the two-year ranking period). The principles for selecting entities for the investment portfolios remained the same throughout the period. By constructing two portfolios consisting of entities with extreme values of the characteristic, it was possible to compare the rates of return resulting from the use of two opposing investment strategies. This approach allowed for determining whether investing in REITs with the highest or lowest capitalization was more profitable during the period under review.

Another characteristic used to build the REIT investment portfolios was the length of time they had been active on the market. In this case, the first portfolio consisted of REITs with the longest period of operation on the market, while the second portfolio consisted of those that had just started their operations. It is worth emphasizing that the composition of the REIT portfolio with the longest period of operation remained constant and did not change during the individual ranking periods. The only exception was the industrial sector. In this case, at the beginning of the investment period in 2015, only six entities operated in this sector-not at least 10, which would have allowed the construction of two five-entity investment portfolios. In the following years, more entities joined the sector, which allowed for the expansion of the investment portfolio composition. However, in the one-year ranking period, the portfolio composition could only be updated after one year, while in the two-year ranking period, it could only be updated after two years. This resulted in differences in the composition of the two portfolios built for this sector. On the other hand, the composition of the REIT portfolio with the shortest period of operation was adjusted during the ranking periods. This involved adding new entities that appeared on the market to the portfolio and replacing REITs with the longest period of operation. These analyses allowed for a comparison of the profitability of investing in portfolios consisting of entities with the greatest market experience and the least.

The last characteristic used to construct the investment portfolios was the rate of return generated by the analyzed REITs in the period preceding the investment period. The first portfolio consisted of 5 REITs that generated the highest rates of return in the period preceding the ranking period (the so-called "winners" portfolio), while the second included 5 REITs with

the lowest rates of return (the so-called "losers" portfolio). As with the previous strategies, adjustments to the portfolio composition were made every year and every two years, based on the ranking of annual and two-year rates of return, respectively. The analyses conducted allowed for a comparison of whether, during the period under review and for the selected ranking periods, higher rates of return were generated by investing in REITs with the highest rates of return, or, conversely, in REITs with the lowest rates of return.

In order to estimate whether the differences in rates of return between the two extreme portfolios constructed for individual characteristics were statistically significant, annual excess rates of return of the portfolios were calculated in relation to the benchmark, which was the average annual value of rates of return for all REITs in a given group. These excess returns were designated as $CAR_{W,n,t}$ and $CAR_{L,n,t}$. Additionally, arithmetic averages of the excess rates of return for the portfolios over the entire analysis period were calculated - $ACAR_{W,t}$ and $ACAR_{L,t}$. These data were then used to estimate the pooled variance of the population CAR_t and the t-statistic (De Bondt, Thaler, 1985):

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

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

In summary, the analysis conducted for the purposes of this study involved the calculation of the following metrics for hypothetical investment portfolios: annual rates of return for individual sub-periods, average annual geometric rates of return for the years 2015-2024, total rates of return for the same period, and t-statistics. The obtained results were compared with the respective average values for all analyzed REITs, as well as with the metrics estimated for the FTSE Nareit All REITs Income Index. Return rates were calculated based on the share prices of individual REITs, taking into account dividends paid, subscription rights, and stock splits. Price data were sourced from the financial platforms Stooq (Stooq website, 2025) and Yahoo Finance (Yahoo Finance website, 2025). Additional information on individual REITs and their characteristics was gathered from monthly REITWatch reports published on the Nareit portal (Nareit website, 2025) and from the official websites of the respective REITs.

4. Results and discussion

The analyses conducted revealed significant differences in the profitability of the individual investment strategies, both across the entire group of analyzed REITs and within specific sectors. The performance of these strategies over the study period is presented in Tables 1-3. Table 1 displays the results of investing in REITs with the highest and lowest market capitalizations.

Table 1.

Results of the application of the investment strategy in REITs with the highest and lowest capitalization, 2015-2024

| REIT portfolio type | Average annual geometric rate of return | Total rate of return | Ranking period | t-statistic |
|--------------------------------------|---|----------------------|----------------|-------------|
| All analyzed REITs | | | | |
| Highest market cap portfolio | 4.75% | 59.12% | Annual | 0.8712 |
| Lowest market cap portfolio | -1.30% | -12.25% | | |
| Highest market cap portfolio | 4.19% | 50.70% | Two-year | 0.7062 |
| Lowest market cap portfolio | -3.16% | -27.44% | | |
| FTSE Nareit All REITs | 5.58% | 72.08% | - | - |
| Average for all REITs in the sectors | 3.36% | 39.17% | - | - |
| Industrial sector | | | | |
| Highest market cap portfolio | 10.73% | 177.13% | Annual | 0.6411 |
| Lowest market cap portfolio | 10.27% | 165.76% | | |
| Highest market cap portfolio | 10.71% | 176.61% | Two-year | 0.5169 |
| Lowest market cap portfolio | 7.29% | 102.13% | | |
| Sector average | 10.53% | 172.17% | - | - |
| Office sector | | | | |
| Highest market cap portfolio | 1.14% | 12.01% | Annual | 2.2662 |
| Lowest market cap portfolio | -7.87% | -55.93% | | |
| Highest market cap portfolio | 1.00% | 10.48% | Two-year | 2.0345 |
| Lowest market cap portfolio | -12.41% | -73.43% | | |
| Sector average | -2.40% | -21.56% | - | - |
| Retail sector | | | | |
| Highest market cap portfolio | 2.87% | 32.65% | Annual | 0.1491 |
| Lowest market cap portfolio | 3.74% | 44.38% | | |
| Highest market cap portfolio | 3.15% | 36.39% | Two-year | 0.1462 |
| Lowest market cap portfolio | 3.90% | 46.60% | | |
| Sector average | 4.17% | 50.42% | - | - |

Source: Author's own work.

An analysis of the data reveals that, over the period under review, the highest rates of return were generated by REIT portfolios composed of entities with the largest market capitalizations. This pattern is evident not only in the portfolios constructed from all analyzed REITs but also within the portfolios created for each individual sector. The only exception was the retail sector, where portfolios of REITs with the lowest capitalization outperformed those with the highest. However, for this sector, the average returns of both strategies were lower than the overall sector average. It should be noted that, in most cases, the differences in returns between portfolios consisting of REITs with the highest and lowest capitalization were not statistically significant. The sole exception was the office sector, where the return differential between the two portfolios amounted to 9.01 percentage points for the one-year ranking period and 13.41 percentage points for the two-year period (t-statistics: 2.27 and 2.03, respectively).

Another REIT characteristic that shaped the investment strategy was the length of time the entities had been active in the market. The results of investing in REITs with the longest and shortest operating histories are presented in Table 2.

Table 2.

Results of the application of the investment strategy in REITs with the longest and shortest operating activity on the US market, 2015-2024

| REIT Portfolio Type | Average annual geometric rate of return | Total rate of return | Ranking period | t-statistic |
|--------------------------------------|---|----------------------|----------------|-------------|
| All analyzed REITs | | | | |
| Portfolio of the longest operating | 7.73% | 110.51% | Annual | 0.2207 |
| Portfolio of the shortest operating | 8.61% | 128.37% | | |
| Portfolio of the longest operating | 7.73% | 110.51% | Two-year | 0.2278 |
| Portfolio of the shortest operating | 6.83% | 93.67% | | |
| FTSE Nareit All REITs | 5.58% | 72.08% | - | - |
| Average for all REITs in the sectors | 3.36% | 39.17% | - | - |
| Industrial sector | | | | |
| Portfolio of the longest operating | 11.90% | 207.87% | Annual | 0.7365 |
| Portfolio of the shortest operating | 8.24% | 120.84% | | |
| Portfolio of the longest operating | 12.00% | 210.66% | Two-year | 1.5888 |
| Portfolio of the shortest operating | 6.49% | 87.50% | | |
| Sector average | 10.53% | 172.17% | - | - |
| Office sector | | | | |
| Portfolio of the longest operating | 1.30% | 13.80% | Annual | 1.1931 |
| Portfolio of the shortest operating | -2.09% | -19.03% | | |
| Portfolio of the longest operating | 1.30% | 13.80% | Two-year | 1.4866 |
| Portfolio of the shortest operating | -3.20% | -27.79% | | |
| Sector average | -2.40% | -21.56% | - | - |
| Retail sector | | | | |
| Portfolio of the longest operating | 6.20% | 82.48% | Annual | 0.6641 |
| Portfolio of the shortest operating | 3.41% | 39.82% | | |
| Portfolio of the longest operating | 6.20% | 82.48% | Two-year | 1.1395 |
| Portfolio of the shortest operating | 1.44% | 15.39% | | |
| Sector average | 4.17% | 50.42% | - | - |

Source: Author's own work.

The results of the investment strategy based on the length of REIT market activity, as presented in Table 2, indicate that portfolios composed of REITs with the longest operating histories generally outperformed those consisting of the newest market entrants (in 7 out of 8 analyzed cases). The only exception was the portfolio comprising all analyzed REITs (across the three sectors) under the one-year ranking period, where the portfolio of newer REITs achieved a slightly higher average annual return than that of the more established entities. The relative advantage of the long-operating REITs became more pronounced when the ranking period was extended from one year to two years. Notably, in every variant of the strategy, the portfolio of REITs with the longest market presence achieved a higher rate of return than the average for the respective group. However, none of the observed differences in returns between the two portfolios proved statistically significant. The largest return differential was recorded in the industrial sector with the two-year ranking period, amounting to 5.51 percentage points (t-statistic: 1.59).

The last investment strategy analyzed was based on investing in REITs that had generated either the highest ("winners") or the lowest ("losers") rates of return in the period preceding the investment. These approaches correspond to the well-known momentum and contrarian

strategies, respectively. The results of applying these strategies to the selected group of REITs over the analyzed period are presented in Table 3.

Table 3.

Results of the application of the contrarian and momentum investment strategies on the US REIT market, 2015-2024

| REIT Portfolio Type | Average annual geometric rate of return | Total rate of return | Ranking period | t-statistic |
|--------------------------------------|---|----------------------|----------------|-------------|
| All analyzed REITs | | | | |
| "Winners" portfolio | 7.95% | 114.89% | Annual | 1.1964 |
| "Losers" portfolio | -8.20% | -57.50% | | |
| "Winners" portfolio | 12.27% | 214.34% | Two-year | 2.4831 |
| "Losers" portfolio | -8.55% | -59.08% | | |
| FTSE Nareit All REITs | 5.58% | 72.08% | - | |
| Average for all REITs in the sectors | 3.36% | 39.17% | - | |
| Industrial sector | | | | |
| "Winners" portfolio | 10.36% | 168.01% | Annual | 0.5115 |
| "Losers" portfolio | 10.21% | 164.39% | | |
| "Winners" portfolio | 11.58% | 199.12% | Two-year | 1.8977 |
| "Losers" portfolio | 7.28% | 101.95% | | |
| Sector average | 10.53% | 172.17% | - | |
| Office sector | | | | |
| "Winners" portfolio | -1.96% | -17.93% | Annual | 0.4154 |
| "Losers" portfolio | -4.05% | -33.88% | | |
| "Winners" portfolio | 1.71% | 18.47% | Two-year | 1.7859 |
| "Losers" portfolio | -5.45% | -42.91% | | |
| Sector average | -2.40% | -21.56% | - | |
| Retail sector | | | | |
| "Winners" portfolio | 4.56% | 56.21% | Annual | 0.4946 |
| "Losers" portfolio | -1.32% | -12.40% | | |
| "Winners" portfolio | 8.34% | 122.72% | Two-year | 1.3198 |
| "Losers" portfolio | -5.74% | -44.61% | | |
| Sector average | 4.17% | 50.42% | - | |

Source: Author's own work.

The analysis of the results reveals some clear patterns. During the examined period, the portfolio consisting of 5 REITs with the highest rate of return in the pre-investment period outperformed the portfolio of 5 REITs with the lowest rate of return in every variant analyzed. This indicates that the momentum strategy generated higher returns than the contrarian strategy. Moreover, the differences between the "winners" and "losers" REIT portfolios grew as the ranking period was extended from one to two years. The only exception occurred in the industrial sector, where, for the annual ranking period, the "winners" portfolio's average annual return was lower than the average return for all entities in the group analyzed. Similar to the previous strategies, the differences in return rates between portfolios of REITs with the highest and lowest growth rates during the ranking period were not statistically significant in most cases. The only statistically significant difference was observed in portfolios constructed for the entire group of REITs, across all three analyzed sectors, during the two-year ranking period (t-statistic: 2.48). In this case, the difference in average annual returns between the "winners" and "losers" portfolios amounted to 20.81 percentage points. Additionally, for this particular

variant, the "winners" portfolio outperformed the "losers" portfolio in 7 out of the 10 annual sub-periods.

Analyzing the results of applying the presented strategies for individual variants, certain regularities can also be observed. In the case of portfolios built from all three REIT sectors, the highest rate of return was achieved by the portfolio consisting of entities with the highest return in the period preceding the two-year ranking period. This portfolio generated a geometric mean annual rate of return of 12.27%. However, in the case of individual sectors, the results were not identical. For the industrial sector, the highest rate of return of 12.00% was brought by the portfolio of REITs operating the longest on the market in the two-year ranking period. In turn, for the office and retail sectors, the highest investment profitability was demonstrated, as for all REITs, by the portfolio consisting of entities with the highest rate of return during the two-year ranking period. These portfolios generated average annual rates of return of 1.71% and 8.34%, respectively. Therefore, it can be concluded that in the analyzed period and with the presented assumptions, the highest profitability was demonstrated by investing in the REIT portfolio of "winners" in the two-year ranking period. The only exception was the aforementioned industrial sector.

In summary, the results of the analyses indicate that, among the investment portfolios constructed based on REIT capitalization, the portfolios of entities with the highest capitalization generally yielded higher rates of return compared to those constructed from entities with the lowest capitalization. Conversely, among the portfolios formed based on the length of market activity, the highest return during the analyzed period was generated by portfolios consisting of REITs with the longest operational histories, compared to those formed from REITs with the shortest market histories. Regarding the final characteristic analyzed - the return rate during the period preceding the investment - the "winners" REIT portfolios outperformed those of the "losers" REIT portfolios. When comparing the results across all the analyzed portfolio groups, the highest rates of return during the studied period were also observed in the "winners" REIT portfolios.

It is important to note, however, that this study did not examine the potential returns of a portfolio constructed by combining all the analyzed characteristics. In such a scenario, investors might allocate funds exclusively to REITs with the highest capitalization, longest market presence, and the highest returns during the pre-investment period. While it can be assumed that the return on such an investment portfolio would likely be the highest, this hypothesis was not analyzed in detail.

5. Summary

Based on the conducted analyses and their results, it appears justified to conclude that constructing an investment strategy grounded in specific characteristics of REITs can be profitable and enhance portfolio performance. The findings suggest that investors may benefit from allocating capital to REITs that: (1) have the highest market capitalization; (2) have been active in the market the longest; and (3) achieved the highest rates of return in the period preceding the investment.

However, it is important to note that in most of the analyzed cases, the differences in returns between portfolios composed of REITs with extreme values of a given characteristic were not statistically significant. Nevertheless, it seems that investors should take these analyzed characteristics of REITs into account when constructing their investment portfolios, as doing so may help improve portfolio performance - especially if all of the considered characteristics are taken into account collectively rather than individually.

The results of these analyses may be valuable for both individual and institutional investors in the stock market who allocate funds to the public market of American REITs. They highlight specific characteristics of REITs that investors should consider when selecting entities for their investment portfolios. Given the vastness of the REIT market, selecting appropriate entities for an investment portfolio can be a complex task. Therefore, studies of this nature aim to simplify this process, at least to some extent, for portfolio managers.

It is also worth relating the results of this study to those conducted on the broad market of investment funds, which were presented in the literature review. The results of the analyses concerning the impact of REIT size on their rates of return were not consistent with those conducted on the broad market of American investment funds. In the case of the REIT market, contrary to the investment fund market, higher rates of return were generated by the largest entities, not the smallest ones. On the other hand, this study suggests, like the research conducted by Babalos et al. (2012) on the Greek market, that the profitability of investment funds may increase with their age. The results of this study also indicate that higher rates of return are generated from investing in "winners" portfolios than "losers" ones on the REIT market, which is consistent with the results of the research conducted on the broad market of American investment funds.

In conclusion, it should be emphasized that far-reaching conclusions should not be drawn from the analyses conducted for the purposes of this article, as they focus on selected sectors of the U.S. REIT market and a relatively short, ten-year period. Future research could explore other REIT sectors, as well as the REIT market in other countries. This would help determine whether the profitability of the strategies presented in this study is repeatable in the capital allocation process across different markets. Future analyses could also investigate the profitability of alternative investment strategies in the REIT market, such as those based on

market indicators like the price-to-earnings ratio, price-to-book value, or other fundamental metrics. Additionally, it may be worthwhile to consider examining the profitability of strategies that combine multiple characteristic features of REITs simultaneously. Such research could enhance the efficiency of capital allocation for investors in this market.

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