



A Study on the Performance of the Momentum Strategy in the Tehran Stock Exchange

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ARTICLE INFO	ABSTRACT
<p>Article History: Received 5 March 2022 Received in revised form 26 April 2022 Accepted 10 May 2022 Available online 15 May 2022</p>	<p>Modern portfolio theory, which is based on the efficient market hypothesis and rational economic behavior, suggests that stock prices undergo random changes and that it is not possible to achieve predictable returns through a specific strategy. However, recent studies have challenged many of the hypotheses and theories on which financial experts have based their research for many years. One of the most challenging observations in financial markets is the momentum investment strategy. This strategy proposes that stocks which have demonstrated strong performance in the past will continue to do so in the future, while those that have performed poorly will continue to underperform. It is important to note that this is not a guarantee and that past performance is not always indicative of future results. This contradicts the efficient market hypothesis, as common stock returns exhibit specific behaviors in various intervals. This study examines the accuracy of the momentum investment strategy's profitability in the Tehran Stock Exchange over various periods, including one-month, three-month, six-month, one-year, and two-year periods. The study confirms the superiority of the momentum strategy's performance over the contrarian strategy and market performance, but only in the one-month period.</p>
<p>Keywords: Momentum Strategy, Contrarian Strategy, Formation Period, Holding Period, Winner Portfolio, Loser Portfolio.</p>	

1. INTRODUCTION

In investing, individuals often seek high returns while maintaining their original capital, indicating a preference for risk aversion. However, according to modern portfolio theory, achieving returns higher than the market average is not possible without taking on higher risk, which is a fundamental principle of the efficient market hypothesis. One of the most challenging observations in financial markets is that, unlike the efficient market hypothesis, common stock returns exhibit specific behaviors in various intervals. By using an appropriate investment strategy according to the specific time horizon, it is possible to obtain a return that is higher than the market returns. This means that by evaluating and monitoring previous stock prices, investment returns can be increased.

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The momentum investment strategy and contrarian strategy are both branches of technical analysis. Momentum is based on the principle that a moving object tends to maintain its momentum unless acted upon by an external force. In the context of the stock market, this means that positive or negative stock returns are likely to continue in the next period. Therefore, it is believed that investments should align with the market. However, a contrarian strategy suggests that the majority of the market may be mistaken and that price trends will eventually reverse. Therefore, in order to achieve higher returns, one should act bravely against the market's direction.

According to some financial experts, modern portfolio theory may not fully account for the profitability of investment strategies. Specifically, they argue that momentum portfolios can achieve higher returns without necessarily incurring higher risks. This approach recognizes that in order to solve empirical puzzles, it may be necessary to assume that some factors in the economy are not the result of fully rational behavior. While some economists have attributed abnormalities to irrational decision-making, it is important to remain objective and avoid subjective evaluations. It is believed that the continuation of returns in the medium-term is due to behavioral biases of investors in the market.

The profitability of the momentum investment strategy has been proven in many developed and some emerging markets. This study evaluates the validity of the profitability of the momentum investment strategy in the Tehran Stock Exchange.

2. REVIEW OF LITERATURE

In this section, we initially study the effect market and challenges it is faced with. Then we express contrarian and momentum investment strategies, and finally we represent domestic and foreign studies on momentum strategy.

2.1. Effect market

Traditional economics assumes that investors behave rationally and that securities prices reflect their intrinsic value. The intrinsic value of stocks is obtained by discounting expected cash dividends, provided that investor expectations are accurately formed based on available information [1]. Changes in fundamental news cause fluctuations in the price of securities, and investors react quickly to new information about the intrinsic value of securities [2]. According to the efficient market hypothesis, all new information is immediately reflected in prices, leaving no opportunity for unusual profits [3].

This theory suggests that in financial and investment markets, stock prices reflect all available information at any given time, and there is no predictable pattern for price changes [4].

2.2. Challenges faced to effect market hypothesis

A large amount of financial data of recent years have shown that cross-section returns of stock can be predicted on the basis of past returns. These studies have challenged effect market hypothesis seriously. Recent studies indicate that securities price in market has specific behavior, therefore, investment strategies which are appropriated to the behavior of stock prices can lead to abnormal returns.

2.3. Investment strategies

Currently, two widely used trading strategies for portfolio management in the world capital markets are momentum and contrarian strategies. Several recent studies have confirmed their usefulness in creating excess returns. These strategies have traditionally been associated with technical analysis, but they are now being embraced by fundamentalist investors and even the academic community. There is a vast amount of literature on this topic, with numerous studies addressing it. These strategies rely on psychology, population behavior, and market conditions.

The momentum strategy is recommended when investors have a low response to new information. This strategy involves purchasing stocks with positive performance and high returns and holding them for a short period. Conversely, stocks with poor performance and low returns are sold [5]

The contrarian strategy posits that ordinary people and the majority of the market make mistakes, and that recent price trends will eventually revert to their previous state. Therefore, in order to achieve excess returns, one should patiently and bravely persevere in the opposite direction of the market [6].

The momentum strategy is an approach applied in the capital market that recommends buying stocks with the highest past returns and selling those with the lowest past returns [7].

2.4. Foreign studies

Growth strategies involve using short-term stock data (between three months to one year) to predict future returns. This includes selling stocks with low returns in a specific short-term period and purchasing stocks that had high returns during the same period [8].

Grinblatt and Markowitz discovered a strong momentum effect in the industry. According to Grinblatt and Markowitz (1999), excess returns were confirmed by purchasing from previous winner industries and selling previous loser industries [9].

Grundy and Martin (2001) confirmed the profitability of the momentum strategy from 1966 to 1995 using an adjusted return model based on the Fama-French three-factor risk [10]. Kharazi and Foster (n.d.) examined the return behavior of fifty active companies in the Tehran stock exchange from 1997 to 2002. Based on weekly data, it was concluded that there was a continuation of returns in the Tehran stock exchange during this period. Therefore, the momentum investment strategy was found to be profitable [11].

Ming Lui et al. evaluated the 52-week momentum and found a strong momentum profit in international markets. In their sample, 18 out of 20 markets showed the efficiency of the 52-week momentum strategy [12]. Similarly, ten of the companies had significant positive profits according to Ming, Qianqiu, and Tongshu (2010). Pan et al. (year) provided a momentum strategy using cross-sectional stock returns. They tested this approach in the Chinese stock market and found significant momentum profits in weekly returns. However, they did not observe such profits in monthly returns. Pan, Tang, and Xu (2012) applied this approach to stock markets in several Asian countries and found significant weekly momentum in Hong Kong, Taiwan, Korea, Thailand, and Indonesia. Their findings suggest that different markets exhibit various types of momentum [13].

2.5. Domestic studies

Shafie and Bidgoli evaluated the performance of the momentum strategy in the Tehran Stock Exchange from 1999 to 2004. They confirmed the efficiency of the momentum strategy in a range of three to twelve months by examining a sample of 48 subjects [7,14].

Fadaie-Nejad and Sadeghi studied the performance of momentum and contrarian strategies in the Tehran Stock Exchange from 2001 to 2005 over a 5-year interval. The research conducted by Fadaie-Nejad and Sadeghi (2006) demonstrated that a momentum strategy can generate excess returns in one-month, three-month, and six-month time horizons. However, for longer time horizons, a contrarian strategy is more profitable [6].

Mehrani and Nonahal-Nahr evaluated the under-reaction hypothesis of investors by analyzing the short-term returns of accepted stocks in the Tehran Stock Exchange from 1999 to 2006 [15]. The research results indicate that there is no slow or under-reaction of investors in six-month periods. Therefore, it is not possible to achieve significant excess returns through the use of momentum investment strategy in the Tehran stock exchange in 6-month periods [15]. Bidgoli et al. (2010) also examined the profitability of momentum strategy in the Tehran stock exchange from 2004 to 2009. Bidgoli et al. (2010) investigated the performance of winner portfolios compared to loser portfolios and the market in formation periods, as well as holding periods of three, six, nine, and twelve months. Their results indicated that the momentum strategy outperformed in all investigated periods [7].

3. METHODOLOGY

In this section we first describe the research question and then we identify statistical population and sample. Finally, we present research hypotheses and their procedures.

3.1. Research Question

A significant amount of financial literature in recent years suggests that past stock behavior can predict future behavior. However, this idea contradicts the modern portfolio hypothesis, which asserts that there is no specific trend or pattern in securities prices and returns. Despite the scientific explanation for this claim, empirical evidence indicates the profitability of applying momentum strategies in investment. However, many economists use psychological concepts to justify it.

In this study, we evaluate the profitability of the momentum strategy in the Tehran Stock Exchange in recent years.

3.2. Statistical population

In this study, statistical population includes all listed companies in Tehran stock exchange in a 5-year period which is from 21th March 2007 to 20th march 2012.

3.3. The Sample

In this study, an exclusion method is used for choosing sample. Thus, if the existing companies follow these criteria, they are eligible for our sample:

To be available from the outset to the end of investigation period and not be omitted.

Have Trading Continuity. For this purpose, the securities which have not trade more than 3 months, will eliminate.

Finally, based on these criteria and elimination of any securities which lacked the above-mentioned conditions, remained a sample of 124 stocks.

3.4. Research hypotheses

This study evaluates the efficiency of the momentum strategy in the Tehran stock exchange, an emerging market. The aim is to compare the performance of the momentum strategy with that of the contrarian strategy and the market. The research hypotheses to be evaluated are as follows:

The first main hypothesis is that in the holding period, the return of the winner portfolios is higher than that of the loser portfolios.

The second main hypothesis is... During the holding period, the returns of the winning portfolios are higher than the market return.

3.5. The research procedure involves

selecting an appropriate sample and constructing and holding sample portfolios for evaluating the momentum strategy performance. Therefore, various formation and holding periods can be considered within a specific period of time. In this study, formation and holding periods are symmetrically considered in 1-month, 3-month, 6-month, 12-month, and 24-month periods. Initially, we calculate the returns of sample stocks in the formation periods. We use the following equation for calculating returns:

$$r_{i,t} = \frac{P_{i,t}(1+\alpha+\beta)+Div-(P_{i,t-1}+C\alpha)}{P_{i,t-1}+C\alpha} \quad (1)$$

In this equation:

- $r_{i,t}$, total return of stock i in period t
- $P_{i,t}$, stock price i at the end of period t
- $P_{i,(t-1)}$, stock price i at the beginning of period t
- $Div_{i,t}$, cash dividend of stock i in period t
- α , the percentage of capital increase from receivables and shareholders' cash
- β , the percentage of capital increase from savings
- C , nominal amount paid by shareholders for capital increase

After calculating stock returns during formation periods, we sort them in descending order. The stocks in the first decile are considered the winner portfolio, while those in the last decile are considered the loser portfolio. To examine the first hypothesis of the research, we calculate the returns of the winner and loser portfolios during holding periods. Finally, we calculate and compare the average returns of the winner and loser portfolios during the holding period. If the average return of winning portfolios is significantly higher than that of losing portfolios, our first hypothesis is confirmed. This suggests that in the future, winning portfolios will outperform losing portfolios.

To test the second hypothesis, we must first calculate the stock returns during the formation periods and then sort them in descending order. The returns of the existing stocks in the first decile, which is our winner portfolio in the holding period, are calculated. Subsequently, the average returns of the winner portfolio in the holding period are compared to the average market return during the same period. The Tehran Stock Exchange Dividend & Price Index (TEDPIX) is used as a representative of the market. In this comparison, if the momentum portfolio return is significantly higher than the market return, it can be interpreted that the momentum strategy is more profitable than the market. It is important to note that this study used Excel software for calculations and SPSS software for statistical tests. Additionally, based on the sample of 124 stocks, each decile of winners and losers is categorized based on 13 stocks. Formation and holding periods which are investigated in this study are illustrated in the following table:

Table 1. Time intervals of formation and holding periods

One-month	Formation	2007/21/3 to 2007/20/4	2007/21/4 to 2007/21/5	2011/22/12 to 2012/20/01	2012/21/01 to 2012/19/02
	Holding	2007/21/04 to 2007/21/05	2007/22/05 to 2007/21/06	2012/21/01 to 2012/19/02	2012/20/02 to 2012/19/03
Three-month	Formation	2007/21/03 to 2007/21/06	2007/21/04 to 2007/22/07	2011/23/08 to 2011/21/11	2011/23/09 to 2011/21/12
	Holding	2007/22/06 to 2007/22/09	2007/23/07 to 2007/22/10	2011/22/11 to 2012/19/02	2011/22/12 to 2012/19/03
Six-month	Formation	2007/21/03 to 2007/22/09	2007/21/04 to 2007/22/10	2011/20/02 to 2011/22/08	2011/21/03 to 2011/22/09
	Holding	2007/23/09 to 2008/20/03	2007/23/10 to 2008/19/04	2011/23/08 to 2012/19/02	2011/23/09 to 2012/19/03
One-year	Formation	2007/21/03 to 2008/20/03	2007/21/04 to 2008/19/04	2010/20/02 to 2011/19/02	2010/21/03 to 2011/20/03
	Holding	2008/20/03 to 2009/20/03	2008/20/04 to 2009/20/04	2011/20/02 to 2012/19/02	2011/21/03 to 2012/19/03
Two-year	Formation	2007/21/03 to 2009/20/03	2007/21/04 to 2009/20/04	2008/20/02 to 2010/19/02	2008/20/03 to 2010/20/03
	Holding	2009/21/03 to 2011/21/03	2009/21/04 to 2011/20/04	2010/20/02 to 2012/19/02	2010/21/03 to 2012/19/03

As it can be calculated from table 1, one-month period includes 59 winner and loser portfolios, three-month period includes 55 winner and loser portfolios, six-month period includes 49 winner and loser portfolios, one-year period includes 37 winner and loser portfolios, and two-year period includes 13 winner and loser portfolios.

4. IMPLEMENTATION AND ANALYSIS

In this section we initially calculate return of portfolios in their holding periods and compare them with each other and then we will examine main hypotheses in specific periods.

4.1. Calculating portfolios return

After the portfolios formation we calculate and compare portfolios return. The following table briefly shows us the average of portfolios return in specific holding periods.

Table 2. Winner and loser portfolios return in holding period

Holding periods	Average of winner portfolios return	Average of loser portfolios return	Average of market portfolio return
One-month	4.51	1.39	1.98
Three-month	2.88	7.63	6.19
Six-month	12.86	15.4	13.54
One-year	35.84	43.47	34.58
Two-year	108.40	141.98	112.00

Table 2 shows that the average return of winner portfolios is lower than that of loser portfolios and the market portfolio in three-month, six-month, and two-year periods. Additionally, the average return of winner portfolios is lower than that of loser portfolios in the one-year period. Therefore, the claim's assumption is rejected, and there is no need to run a t-test during these periods. We only examine the hypotheses of a one-month period and the second hypothesis of a one-year period to determine whether the winner portfolios are significantly superior or not.

4.2. One-month period

Now we examine the hypotheses of this period which were mentioned before.

4.3. The first hypothesis examination

In one-month period, the winner portfolios return is higher than that of losers.
$$\begin{cases} H_0 : R_{w,h(1,1)} \leq R_{L,h(1,1)} \\ H_1 : R_{w,h(1,1)} > R_{L,h(1,1)} \end{cases}$$

$R_{w,h(1,1)}$ is the average of winner portfolios return in one-month holding period, and $R_{L,h(1,1)}$ is the average of loser portfolios return in one-month holding period. In this period the number of winner and loser portfolios is 59. In the following table, descriptive statistics data related to the winner and loser portfolios in holding period is shown:

Table 3. Descriptive statistics of winner and loser portfolios in one-month holding period

One-month period	Portfolio	Number of portfolios	Average	SD	Medium deviation of average
	Winner	59	4.510679	8.4238289	1.0966891
	Loser	59	1.388247	5.5511079	0.7226927

Table 3 shows that in a one-month holding period, the average return of winner portfolios is 4.51 and that of loser portfolios is 1.30. To determine the significance of this difference and accept or reject the hypothesis, a two-sample independent t-test was performed, and the results are presented in Table 4.

Table 4. Comparison of the average of winner and loser portfolios return in one-month holding period

	Levine's test of the equality of variances		t-test for equality of averages				
	F-statistic	Level of significance	t-statistic	degree of freedom	Two-tailed significance level	Average difference	SD of average difference
Due to the lack of equality of variances	6.341	0.013	2.377	100.381	0.019	3.1224312	1.3133970

Table 4 shows that, at a significance level of 95 percent, the average return of winner portfolios is higher than that of loser portfolios. This confirms our hypothesis that the momentum strategy outperforms the contrarian strategy in a one-month period with a confidence level of 95 percent.

4.4. Second hypothesis examination

In one-month period, the average of winner portfolios return is higher than market return.

$$\begin{cases} H_0 : R_{w,h(1,1)} \leq R_{M,h(1)} \\ H_1 : R_{w,h(1,1)} > R_{M,h(1)} \end{cases}$$

$R_{w,h(1,1)}$ is the average of winner portfolios return in one-month holding period and $R_{M,h(1)}$ is the average of market return in one-month holding period. In the following table, descriptive statistics data related to winner and loser portfolios in one-month period is shown:

Table 5. Descriptive statistics of winner and market portfolios in one-month holding period

One-month period	Portfolio	Average	SD	Medium average deviation
	Winner	4.510679	8.4238289	1.0966891
	Market	1.975234	4.0506844	0.5273542

Table 5 shows that over a one-month period, the average return of winner portfolios was 4.51, while the average return of market portfolios was 1.97. To determine the significance of this difference and accept or reject the hypothesis, a two-sample independent t-test was performed, and the results are presented in Table 6.

Table 6. Comparison of the average of winner and market portfolios return in one-month holding period

	Levine's test of the equality of variances		t-test for equality of averages				
	F-statistic	Level of significance	t-statistic	degree of freedom	Two-tailed significance level	Average difference	SD of average difference
Due to the lack of equality of variances	19.765	0.000	2.084	83.461	0.040	2.5354445	1.2168934

Table 6 shows that, at a significance level of 95 percent, the average return of winner portfolios is higher than that of market portfolios. Therefore, our hypothesis is confirmed, and we can state with confidence that the momentum strategy outperforms the market in a one-month period.

4.5. One-year period

In this period, regarding to the information provided in table 2, and according to the average of winner portfolios return is less than that of loser, we will only examine the second main hypothesis.

4.6. Second hypothesis Examination

In one-year period, winner portfolios return is higher than market return.

$$\begin{cases} H_0 : R_{w,h(12,12)} \leq R_{M,h(12)} \\ H_1 : R_{w,h(12,12)} > R_{M,h(12)} \end{cases}$$

$R_{w,h(12,12)}$ is the average of winner portfolios return in one-year holding period, and $R_{M,h(12)}$ is the average of market return in one-year holding period. In the following table, descriptive statistics related to winner and market portfolios in one-year holding period is showed:

Table 7. Descriptive statistics of winner and market portfolio in one-year holding period

One-year period	Portfolio	Average	SD	Medium average deviation
	Winner	35.8378	26.24017	4.31386
	Market	34.5792	20.73992	3.40962

As it can be observed in table 7, in one-year period, the average of winner portfolio is 35.84 and the average of market portfolio is 34.58. It seems that the winner portfolios return is higher than market portfolios return. But we should statistically compare the average difference of them. Following table shows this comparison:

Table 8. Comparison of the average of winner and market portfolio returns in one-year holding period

	Levine's test of the equality of variances		t-test for equality of averages				
	F-statistic	Level of significance	t-statistic	degree of freedom	Two-tailed significance level	Average difference	SD of average difference
Due to the lack of equality of variances	1.997	0.162	0.229	72	0.820	1.2586	5.49863

According to table 8, at the significance level of 95 percent, in one-year period, the average winner portfolios return is not higher than the average of market portfolios return; therefore, our hypothesis is not confirmed.

5. CONCLUSION

Conclusions are briefly showed in the following table:

Table 9. Descriptive statistics of different periods and the results of the study

Period	Type of portfolio	Average	SD	Momentum strategy superiority
One-month	Winner	4.51	8.42	Confirmation
	Loser	1.39	5.55	
	Market	1.98	4.05	
Three-month	Winner	2.88	11.03	Rejection
	Loser	7.63	12.2	
	Market	6.19	10.21	
Six-month	Winner	12.86	17.69	Rejection
	Loser	15.4	21.87	
	Market	13.54	15.87	
One-year	Winner	35.84	26.24	Rejection
	Loser	43.47	41.01	
	Market	34.58	20.74	
Two-year	Winner	108.4	19.46	Rejection
	Loser	141.98	78.12	
	Market	112	22.05	

Table 9 shows that the momentum strategy outperformed the contrarian strategy and market performance in the one-month period, indicating that this strategy can yield higher returns than the market. However, the superiority of momentum strategy performance was not confirmed in other periods. It is important to note that the rejection of momentum strategy superiority in other periods does not necessarily indicate the superiority of the contrarian strategy or market performance. Making such a claim without proper examination and study is incorrect.

6. SUGGESTIONS FOR FUTURE STUDIES

Since no research is able to provide comprehensive information on any specific subject, and as there are only a few studies conducted in this field in Iran, so further researches in this case is recommended. Some research proposals are:

1. Conducting this research in more varied periods with more varied formation and holding periods.
2. Examining the performance of momentum strategy in various industries.
3. Comparing the performance of momentum strategy through applying buy and sell fees.
4. Omitting multidisciplinary investment companies and reviewing the research results.
5. Comprehensive studies on the profitability of momentum and contrarian strategies (studying the effects of various factors, including behavioural finance etc.)
6. Evaluating the performance of momentum strategy during booms and recessions.

Transparency Statement

The data supporting this study are available upon reasonable request to the corresponding author, subject to ethical and confidentiality considerations.

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Declaration of Interest

The authors declare that they have no competing interests.

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REFERENCES

- [1] Korlat, S., Kollmayer, M., Holzer, J., Lüftenegger, M., Pelikan, E., Schober, B., & Spiel, C. (2021). Gender differences in digital learning during COVID-19: Competence beliefs, intrinsic value, learning engagement, and perceived teacher support. *Frontiers in Psychology*, 12, 637776. <https://doi.org/10.3389/fpsyg.2021.637776>
- [2] Bosch, D. (2016). The information content of fundamental news vs. traders' positions in grain futures markets: Evidence from WASDE and COT reports. *ERN: Other Econometric Modeling: Commodity Markets (Topic)*. <https://doi.org/10.2139/ssrn.3334880>
- [3] Kang, H., Lee, S.-G., & Park, S. (2021). Information efficiency in the cryptocurrency market: The efficient-market hypothesis. *Journal of Computational Information Systems*, 62, 1–12.

<https://doi.org/10.1080/08874417.2021.1872046>

- [4] Jahankhani, A., & Abdeh-Tabrizi, H. (1993). Capital market efficiency theory [in Persian]. *Financial Researches*, 1, 7–23.
- [5] Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance*, 48(1), 65–91. <https://doi.org/10.1111/j.1540-6261.1993.tb04702.x>
- [6] Fadaie-Nejad, M., & Sadeghi, M. (2006). Investigating the profitability of momentum and contrarian strategies [in Persian]. *Payam-e-Modiriat*, 17–18, 7–31.
- [7] Islami Bidgoli, G., Nabavi Chashmi, A., Yahya-Zadehfar, M., & Ikani, S. (2010). Investigating the profitability of momentum investment strategy at Tehran Stock Exchange [in Persian]. *Journal of Quantitative Studies in Management*, 1, 49–78.
- [8] Chan, L. K. C., Jegadeesh, N., & Lakonishok, J. (1996). Momentum strategies. *The Journal of Finance*, 51(5), 1681–1713. <https://doi.org/10.2307/2329534>
- [9] Grinblatt, M., & Moskowitz, T. J. (1999). Does industry explain momentum? *The Journal of Finance*, 54(4), 1249–1290. <https://doi.org/10.1111/0022-1082.00146>
- [10] Grundy, B. D., & Martin, J. S. (2001). Understanding the nature of risks and the sources of rewards to momentum investing. *The Review of Financial Studies*, 14(1), 29–78. <https://doi.org/10.1093/rfs/14.1.29>
- [11] Foster, K., & Kharazi, A. (2007). Contrarian and momentum returns on Iran's Tehran Stock Exchange. *Journal of International Financial Markets, Institutions and Money*, 17(1), 1–15. <https://doi.org/10.1016/j.intfin.2006.05.003>
- [12] Liu, M., Liu, Q., & Ma, T. (2010). The 52-week high momentum strategy in international stock markets. *Journal of International Money and Finance*, 29(3), 740–757. <https://doi.org/10.1016/j.jimonfin.2009.12.003>
- [13] Pan, L., Tang, Y., & Xu, J. (2012). Weekly momentum by return interval ranking. *Pacific-Basin Finance Journal*, 20(3), 574–594. <https://doi.org/10.1016/j.pacfin.2012.06.001>
- [14] Shafie, A. (2007). Investigating the profitability of momentum investment strategy in Tehran Stock Exchange [Master's thesis, University of Tehran]. (In Persian).
- [15] Mehrani, S., & Nonahal-Nahr, A. (2008). Evaluation of the investors' under-reaction in Tehran Stock Exchange [in Persian]. *Studies in Accounting and Auditing*, 15(54), 117–136.