The Effects of Peer Performance, Future Competitive Performance, and Factors of Correlation with Peer Companies on the Manipulation of Abnormal Real Operations

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ABSTRACT

The present study aimed to evaluate the effects of peer performance, future competitive performance, and factors of correlation with peer companies on the manipulation of abnormal real operations. The research units included the listed companies in Tehran Stock Exchange during 2013-2017. In total, 128 companies were selected as the sample population using the systematic elimination approach. Peer performance, future competitive performance, and factors of correlation with peer companies were the independent variables of the research, and the manipulation of abnormal real operations was considered the dependent variable. This was an applied research in terms of use and a correlational study regarding the methodology. Data were collected using the library method, and the explanatory notes, financial statements, and stock exchange monthly journal were considered in the data section. Descriptive and inferential statistics were used to describe and summarize the collected data. Data analysis was performed using variance heterogeneity tests, F-Limer, Hausman, and Jarque and Bera tests, and multiple regression test for confirming or rejecting the research hypotheses in the EViews software. According to the results, peer performance, future competitive performance, and factors of correlation with peer companies affected the manipulation of abnormal real operations.

1 Introduction

According to the literature, no prior studies have been conducted with the objectives proposed in the current research in Iran. Evidently, there is a research gap regarding the impact of peer performance on financial factors. Previous findings have indicated that managers have great incentives to manipulate earnings when the company's earnings are diverted from the earnings of the industry. Furthermore, several empirical studies in the literature of strategic management have demonstrated that companies constantly consider superior operational performance to be the result of achieving a sustainable competitive advantage. Therefore, future competitive performance could be a timely signal about the competitive advantages of companies as deduced from the company's financial statements. In this regard, Peasnell [16] has claimed that the company's discretionary accruals are calculated by dividing the earnings into the average income. On the other hand, Lee [15] has asserted that the literature of

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relative earnings performance (REP) primarily focuses on the use of the industry's relative profitability to compensate for management damage or decide about other matters. In this regard, there has been inattention to determining whether investors carry out in-industry comparisons when reviewing profitability and making decisions about their assessments. In the present study, peer performance, future competitive performance, and factors of correlation with peer companies were considered as the solutions affecting the manipulation of abnormal real operations. It is expected that investors pay special attention to REP.

The market classifies and compares revenue performance with peer performance without the comparison of the company performance with its comparisons with an analyst or past performance expectations. The companies working in the same industry deal with similar risks, opportunities, and shocks, and peer performance measurement could eliminate common factors from performance to demonstrate a specific component of performance [18]. The specific performance of a company enables investors to better assess the business strategies and managerial capabilities of the corporation, thereby evaluating its success opportunities in the future. In addition, companies could continuously achieve superior performance as a result of gaining competitive advantage. As such, peer performance could present a timely signal on the competitive advantage over its peers in the same industry [15]. The individuals and organizations involved in this issue include investors, shareholders, managers, researchers, the students interested in conducting similar research, and other companies and organizations as investors are provided with peer performance, the ability of successful competition in the industry, and unique individual information presented by peer performance. Through the analysis of the actual information received from Tehran Stock Exchange and the Central Bank of the Islamic Republic of Iran, some criteria could be extracted to guide investors in terms of investment and purchasing shares with confidence, which in turn contributes to the research literature regarding the effects of peer performance on the methods of financial reporting, particularly management. In addition, the current research completes the REP literature that is mainly focused on the use of industrial peer performance to compensate for the executive damages and decisions associated with work termination. The main research question in the present study was whether peer performance, future competitive performance, and factors of correlation with peer companies could affect the manipulation of abnormal real operations.

2 Theoretical Foundation and Research Background

The earnings management theory was considered as the underlying theory of the present study, in which earnings might increase, decrease or be leveled depending on various management goals [3]. Peer companies affect the policies of each other through different channels (e.g., competition and learning). In case of severe competition among peer companies, they have no desire for paying dividends and prefer increasing the level of cash holding in order to increase and develop their financial flexibility [8]. Moreover, the management reward theory assumes that if managers receive rewards based on performance criteria (e.g., accounting earnings), they will make greater efforts to use accounting methods, so that the earnings and subsequent rewards would increase. High-performance companies are also eager to manipulate earnings for its reduction. However, the amount of earnings management in the portfolios with positive cash flows is generally low. According to the representation theory, managers seek the maximization of their personal benefits similar to other community members, while they might fail to focus on the improvement of the real business unit performance due to conflicts of interest, which in turn urges them to seek the manipulation of operations, results or

reports. On the other hand, the big bath accounting assumes that bath accounting occurs when former managers are replaced with the new managers who establish fundamental bath accounting to demonstrate a good performance. In addition, managers follow various strategic innovations (e.g., real earnings management) so as to create competitive advantage and distinguish themselves from their peers. In this section of the article, we have reviewed some of the domestic and international studies conducted in this regard. For instance, Davallou and Payesye [4] reported that earnings management had a positive and significant effect on short-term performance, as well as a negative impact on one-year performance. Meanwhile, short-term performance (one, two or three years) was weakened due to market timing. In another study, Sadeghipanah [19] reported negative, significant correlations between earnings management, financial leverage, and performance in the basic metals industry of Tehran Stock Exchange, where earnings management also affected the correlation between financial leverage and corporation performance as a moderator. In addition, Haghighat [7] demonstrated that REP significantly affected the applied discretionary accruals, while Salehi Kordabadi and Yousefi [21] observed a negative, significant correlation between corporate governance and earnings management, while reporting no significant association between ownership concentration and earnings management. In the mentioned study, significant, direct correlations were also denoted between the duration of the CEO tenure, duality of tasks, and earnings management. The findings of Ansari [1] indicated a positive and significant correlation between earnings management based on accruals and Amihud illiquidity measure, as well as a negative and significant association with company value criterion and no significant correlations with real earnings management and the dependent variables. According to Hosseini Nasab [9], while earnings management affects the return on assets and net profit margin, it has no impact on the return on equity and Tobin's q. In addition, Saeedi [20] has stated that the manipulation of real operations in the current period decreases the future performance of the corporation. In a foreign study, Du and Shen [5] reported that the use of accruals could increase simultaneously with increased peer performance. On the same note, Lee [15] observed that investors react more strongly to the unexpected earnings of the companies that have strong revenue correlations with peers and corporations with fewer growth options in their operations compared to their peers in the industry. Furthermore, a positive association has been reported between the current unexpected relative earnings performance and future growth in sales rate, market share, and revenue performance. According to Cupertino and Martinezb [3], earnings manipulation is carried out through the management of real operations, indicating that the market cannot assess the effects of earnings management through specific types of the manipulation of real operations.

In another research, Laksmana and Yang [13] reported that corporations with a higher desire for competition are more eager to carry out earnings management based on accruals compared to less competitive companies. According to Karuna [10], industrial factors play a pivotal role in the earnings management of firms, and there is a positive association between earnings management and competition. On the other hand, Cohen and Zarowin [2] claimed that upon seasonal stock supply, managers mostly deal with actual earnings management, and reduced performance during this time is mainly due to earnings management through real operations rather than through accruals since the manipulation of real operations yields actual economic results. In a study by Kim and Sohn [12], positive correlations were observed between the costs of capital, real earnings management, and earnings accounting management, which suggested that large American companies manipulate real operations and accruals in order to attract investors and increase their capital. However, the associations were more significant with the actual earnings management. In the study by Ramzi [17], the agencies with poor relative

earnings performance were reported to be eager to increase the level of accruals in the long run, while the companies with good relative earnings performance were willing to do the opposite.

3 Methodology

The current research hypotheses are defined as follows:
H1: Peer performance affects the manipulation of abnormal real operations.
H2: Future competitive performance affects the manipulation of abnormal real operations.
H3: Factors of correlation with peer companies affect the manipulation of abnormal real operations.

The current research was an applied, descriptive, and correlational study in terms of use, nature, and methodology, respectively. Data were collected using the library method, and the financial statements, exploratory notes, and stock exchange monthly journals were applied in the section of the research data. In addition, descriptive and inferential statistics were used to describe and allocate the collected data. Data analysis was performed in the EViews software using the pretest of variance heterogeneity, F-Limer, Hausman, and Jarque and Bera tests, and multiple regression test to confirm or reject the research hypotheses. The sample population of the current research included the listed companies in Tehran Stock Exchange, which were present in this organization during 2013-2017. Via targeted sampling, 128 corporations and 640 data years were selected for each variable to evaluate the hypotheses. In the current research, model one was designed to evaluate the first hypothesis, as follows:

$$DA_{it}=\alpha+\beta_1 \text{ Pshock}_{it}+\beta_2 \text{ Ishock}_{it}+\beta_3 \text{ MTB}_{it}+\beta_4 \text{ Size}_{it}+\beta_5 \text{ ROA}_{it}+\beta_6 \text{ Asset Growth Rate}_{it}+\beta_7 \text{ Cash Flow Volatily}_{it}+\beta_8 \text{ Leverage}_{it}+\beta_9 \text{ Institutional Holding}_{it}+e_{it} \tag{1}$$

Model two was also proposed to assess the second hypothesis of the research, as follows:

$$DA_{it}=\alpha+\beta_1 \text{ PERFk }_{it}+\beta_2 \text{ Ishock}_{it}+\beta_3 \text{ MTB}_{it}+\beta_4 \text{ Size}_{it}+\beta_5 \text{ ROA}_{it}+\beta_6 \text{ Asset Growth Rate}_{it}+\beta_7 \text{ Cash Flow Volatily}_{it}+\beta_8 \text{ Leverage}_{it}+\beta_9 \text{ Institutional Holding}_{it}+e_{it} \tag{2}$$

Model three was presented to assess the third hypothesis, as follows:

$$DA_{it}=\alpha+\beta_1 \text{ FACTORk}_{it}+\beta_2 \text{ Ishock}_{it}+\beta_3 \text{ MTB}_{it}+\beta_4 \text{ Size}_{it}+\beta_5 \text{ ROA}_{it}+\beta_6 \text{ Asset Growth Rate}_{it}+\beta_7 \text{ Cash Flow Volatily}_{it}+\beta_8 \text{ Leverage}_{it}+\beta_9 \text{ Institutional Holding}_{it}+e_{it} \tag{3}$$

In the mentioned models, DA is the manipulation of the abnormal real operations of the ith company in the tth round, Pshock shows the peer performance of the ith company in the tth period, PERFk represents the future competitive performance of the ith company in the tth period, FACTORk shows the factors of correlation with the peer companies of the ith company in the tth period, Ishock is the special returns of the ith company in the tth period, MTB denotes the ratio of the market value to the book value of the ith company in the tth period, size shows the size of the ith company in the tth period, ROA is the return on the assets of the ith company in the tth period, asset growth rate represents the asset growth rate of the ith company in the tth period, cash flow volatility denotes the cash flow fluctuations of the ith company in the tth period, leverage is the financial leverage of the ith company in the tth period, and institutional holding shows the institutional shareholders of the ith company in the tth period [5]. The measurement method of the research variables has been presented in the following section. Manipulation of abnormal real operations: After estimating the following three factors based on the analysis of the main components, the final value was calculated for the manipulation of real operations and applied in the regression model instead of the DA value.

- Abnormal operating cash was estimated by model four.

Abnormal CFO it=α+β1 SIZEit+β2 MTBit+ β3 NETINCOMit +eit   (4)

- Abnormal discretionary expenses were estimated by model five.

Abnormal Disexp it=α+β1 SIZEit+β2 MTBit +β3 NETINCOMit +eit   (5)

- Abnormal production costs were estimated by model six.

Abnormal PROD it=α+β1 SIZEit+β2 MTBit +β3 NETINCOMit +eit   (6)

The following components were also calculated:

Abnormal cash flow from the operating operations (CFO): In this study, the cash flow statements were calculated from the CFO estimated based on the accounting standards of Iran (accounting standard No. 2). In addition, model seven was used to estimate the normal CFOs, and the remaining model was considered as the criterion for the abnormal CFOs:

$$\frac{CFO_t}{TA_t} = \alpha_0 \left(\frac{1}{TA_{t-1}}\right) + \alpha_1 \left(\frac{S_t}{TA_{t-1}}\right) + \alpha_2 \left(\frac{\Delta S_t}{TA_{t-1}}\right) + \varepsilon_t \tag{7}$$

In the model above, CFO_t is the company's CFO, TA_{t-1} shows the total assets of the company at the end of the t-1 year, S represents the sales of the t round, ΔS_t is the change in the sales rate of the company, and ε_t is the remaining model.

Abnormal discretionary expenses (Disexp): This variable was estimated using model eight, and the remaining model was considered as the criterion of the abnormal Disexp.

$$\frac{Disexp_t}{TA_{t-1}} = \alpha_0 \left(\frac{1}{A_{t-1}}\right) + \alpha_1 \left(\frac{S_t}{TA_{t-1}}\right) + \omega_t \tag{8}$$

In the model above, Disexpt is the discretionary expenses of the company, S shows the sales rate of the t period, TAt-1 represents the total assets at the end of the previous period, and ω_t shows the remaining model.

Abnormal changes in production expenses (abnormal prod): The remaining model nine was considered as the abnormal changes in the production expenses.

$$\frac{PROD_t}{TA_{t-1}} = \alpha_0 \left(\frac{1}{TA_{t-1}}\right) + \alpha_1 \left(\frac{S_t}{TA_{t-1}}\right) + \alpha_2 \left(\frac{\Delta S_t}{TA_{t-1}}\right) + \alpha_3 \left(\frac{\Delta S_{t-1}}{TA_{t-1}}\right) + \delta_t \tag{9}$$

In the model above, PROD is the normal production expenses, ΔS shows the changes in the sales rate of the current period compared to the former period, S is the sales rate of the t period, TAt-1 shows the total assets at the end of the previous period, δ_t is the remaining model, size represents the corporation size, MTB is the market value to the stock book value, and net income denotes the net profit after the deduction of the interest and tax balanced with the total assets.

Peer performance: Initially, the company's specific returns were calculated using model 10, as follows [14]:

$$Pshock_{i,q} = Ret_{i,q} + \beta_0 + \beta^{\widehat{market}}\left(R_{m,q} - R_{f,q}\right) - \beta^{\widehat{industry}}\left(R_{mindustry,q} - R_{f,q}\right) \tag{10}$$

$Ret_{i,q}$: Stock returns in q period; obtained from model (11).

$$\frac{\text{Cash capital contribution of shareholders} - \text{dividend} + \text{stocks value at the beginning of the year} - \text{stocks value at the end of the year}}{\text{Cash capital contributions of shareholders} + \text{stocks value at the beginning of the year}} \tag{11}$$

$R_{m,q}$ is the market return in the q period as obtained using the Tehran Stock Exchange index and model (12).

$$R_m = \frac{TEPIX_t - TEPIX_{t-1}}{TEPIX_{t-1}} \tag{12}$$

$R_{f,q}$ shows the risk-free rate of the returns in the q period, which was considered equal to the on-account interest rate of the one-year investment deposits of government banks.

Industry returns in the q period, where β_0, β^{market}, and $\beta^{industry}$ were obtained from model 13.

$$Ret_{i,q} = \beta_0 + \beta^{\widehat{market}}\left(R_{m,q} - R_{f,q}\right) - \beta^{\widehat{industry}}\left(R_{mindustry,q} - R_{f,q}\right) + \varepsilon \tag{13}$$

Future competitive performance: This variable was defined through the moderate interaction of the following index:

Sales growth (SALESGROWi,t) was obtained by model (14), as follows:

$$\text{SALESGROW iq} = \frac{S_q - S_{q-1}}{S_{q-1}} \tag{14}$$

In the model above, SALESGROWiq represents the growth rate of the ith company in the q year, Sq shows the sales revenue of the ith company in the q period, Sq-1 is the sales rate of the ith company in the former period, CHSHAREi,t shows the market share in the fourth quarter of the last year minus the current market share, which was calculated as the sales of the company divided into the total sales rate of the industry, CHROA1Yi,t is the change in the asset returns of the last year compared to the current year, and CHROA3Yi,t denotes the change in the asset returns of the past three years compared to the current year [15].

Factors of correlation with peer companies (FACTORk): This variable included the factors of industrial focus and growth opportunity, which were measured through the moderate interaction of the following factors:

HIGHCORRi,t shows the index variable, which would be equal to one if the firm's past earnings performance had a strong correlation with its industrial peer (>0.5); otherwise, it would be considered zero.

Regression (15) was estimated to assess the severity of correlation of the last earnings performance of the company with its industry peer.

$$\text{ROA k‹q} = \phi 0 + \phi 1 \text{ ROA k‹q-4} + \varsigma q \tag{15}$$

In this regression, ROA k‹q is the asset returns for the peer in the q period, and ROA k‹q-4 represents the asset returns of the company in the period before q. The severity of correlation between the last earnings performance of the firm with its industry peer was equal to the coefficient of the determination of the regression model (R2). Evidently, the higher coefficient of determination was associated with the higher severity of the correlation of the last earnings performance of the company with its industry peers.

Poor: the index variable would be equal to one if the company's Tobin's q ratio was lower than the average Tobin's q ratio for all the peer companies in the industry group; otherwise, it would be considered zero. Model (16) was applied to calculate the Tobin's q ratio.

$$\text{Tobin's } Q = (MVCS + BVPS + BVLTD + BVINV + BVCL - BVCA) / BVTA \qquad (16)$$

In the model above, Mvcs represents the market capital of the firm's common stock, BVPS is the book value of the preferred share, BVLTD shows the book value of the long-term financial liabilities, BVINV is the book value of the inventory, BVCL shows the book value of the current liability, BVCA denotes the book value of the current asset, and BVTA is the book value of the total assets [15].

Control Variables:

A) Special return of firms: The measurement technique has been previously explained in the section of the dependent variables.

B) Market value to the stock book value ratio;

C) Company size;

D) Asset returns, which was equal to the changes in the total assets divided by the total assets of the past year;

E) Cash flow fluctuations, which was the standard deviation of the operating cash flow with the assets;

F) Financial leverage;

G) Institutional shareholders: The total amount of the shares held by the banks and insurance companies, holdings, investment companies, pension funds, financing companies and investment funds, government organizations and institutions, and public corporations were divided into all the company shares, and the percentage or amount of the institutional ownership was obtained.

4 Analysis and Findings

Prior to the testing of the research hypotheses, a brief assessment of the variables was carried out, the results of which are presented in Table 1.

Table 1: Descriptive statistics of variables of firms

	Measurement index of manipulation of abnormal real operations	Peer performance	Special returns of company	Market value to book value ratio	Size of company	Factors of correlation with peer companies
Mean	0.003437	-0.003531	-0.021969	6.931922	14.60953	0.231250
Median	0.040000	0.000000	-0.200000	2.820000	14.62000	0.000000
Maximum	0.430000	0.020000	4.820000	309.2100	19.25000	1.000000
Minimum	-0.330000	-0.020000	-2.020000	0.180000	11.08000	0.000000
Standard deviation	0.136136	0.013728	0.743113	28.62734	1.429688	0.421962
Skewness	-0.170300	0.256615	2.492077	9.566134	1.029055	1.274809
Kurtosis	2.611816	2.118417	15.28961	98.66086	4.429716	2.625137
Jarque and Bera	0.712555	0.287789	0.485550	0.255885	0.175556	0.185555
Probability	0.299856	0.722555	0.522545	0.785555	0.875555	0.722500
Total	2.200000	-2.260000	-14.06000	4436.430	9350.100	148.0000
Total standard deviation	11.84264	0.120419	352.8665	523676.3	1306.121	113.7750
Observations	640	640	640	640	640	640
Sections	128	128	128	128	128	128

According to the information in Table 1, the mean value that represented the equilibrium point and distribution center as a proper indicator of the centrality of the data was equal to 0.003 for the variable of the manipulation of abnormal real operations. Median was another central indicator that demonstrated that half of the data was less than this amount, and the other half was larger than this value. Moreover, the equal amount of the mean and median indicated the normality of this variable, which was estimated at 0.04 for the variable of the manipulation of abnormal real operations.

Table 2: Descriptive statistics of variables of companies

	Asset returns	Asset growth rate	Cash flow fluctuations	Financial leverage	Institutional shareholders	Future competitive performance
Mean	0.104937	0.253859	0.088891	0.557906	0.347672	0.142234
Median	0.060000	0.200000	0.090000	0.610000	0.320000	0.060000
Maximum	0.450000	1.220000	0.200000	2.190000	0.990000	14.11000
Minimum	-0.540000	-0.280000	0.020000	0.050000	0.000000	-0.330000
Standard deviation	0.161172	0.263319	0.038924	0.291123	0.261388	0.974674
Skewness	0.246544	0.521186	0.577216	0.311459	0.620277	13.84675
Kurtosis	2.623749	2.837867	3.294300	4.628925	2.196650	198.3612
Jarque and Bera	0.125550	0.298555	0.377550	0.811550	0.588880	0.125550
Probability	0.885859	0.712556	0.633256	0.198959	0.422589	0.885585
Total	67.16000	162.4700	56.89000	357.0600	222.5100	91.03000
Total standard deviation	16.59900	44.30637	0.968112	54.15699	43.65883	607.0435
Observations	640	640	640	640	640	640
Sections	128	128	128	128	128	128

Resource: (research findings)

Dispersion indicators are a measure of determining the level of data dispersion or level of dispersion among the data compared to the mean. Standard deviation is one of the most important dispersion indices, which was equal to 0.136 for the manipulation of abnormal real operations. The asymmetry level of the frequency curve is referred to as skewness; in the current research, the skewness coefficient of the manipulation of abnormal real operations was positive and near zero, indicating that the distribution was normal and slightly skewed to the right. In addition, the dispersion rate index of kurtosis or platykurtic of the frequency curve to the standard normal curve is referred to as kurtosis.

Table 3: Results of the unit root test by Levin, Lin, and Chu

Variables	Statistic of the unit root test by Levin, Lin, and Chu	Level of significance
Manipulation of abnormal real operations	-59.4872	0.0000
Peer performance	-7.41559	0.0000
Special returns of the firm	-48.4769	0.0000
Market value to book value ratio	-183.880	0.0000
Asset growth rate	-36.1347	0.0000
Cash flow fluctuations	-46.9333	0.0000
Financial leverage	-49.5850	0.0000
Institutional shareholders	-94.4145	0.0000
Future competitive performance	-27.1406	0.0000
Factors of correlation with peer companies	-3.67478	0.0000

Source: (research findings)

In the present study, the unit root test by Levin and Lin was used for the variables at the first-degree level and difference (Table 3). According to the information in Table 3, the significance level of the unit root test was less than 0.05 for all the variables, showing that they were ranked zero and were at a durable level. In other words, the mean and variance of the variables were stable during 2013-2017, demonstrating the stability of the variables. Table 4 shows the results obtained by the F-Limer and Hausman tests for the research hypotheses.

Table 4: Results of F-Limer and Hausman tests

Hypothesis	F-Limer Test	Level of Significance	Hausman Test	Level of Significance
H1	5.677089	0.0000	33.038768	0.0001
H2	5.861081	0.0000	33.529993	0.0001
H3	5.261044	0.0000	26.332871	0.0018

Source: (research findings)

According to the information in Table 4, the panel data method was confirmed for all the research hypotheses, for which the panel data method could be used simultaneously with the random effects and fixed effects models as selected using the Hausman test. According to the research models, the probability of Chi-square was less than 5%, which led to the use of the fixed effects model to estimate and analyze the general model.

4.1 Summary of the Analyses for Each Hypothesis

Testing of the First Hypothesis

H1: Peer performance affects the manipulation of abnormal real operations.

Table 5: Results of the first hypothesis

Variable	Coefficients	Standard deviation	T statistic	Probability
Y-intercept	0.130126	0.016689	7.797061	0.0000
Future competitive performance	-0.211014	0.075911	-2.779767	0.0056
Special return of company	-0.003863	0.001277	-3.023803	0.0026
Market value to book value ratio	-0.000764	2.22E-05	-34.40875	0.0000
Size of company	0.001610	0.001088	1.480132	0.1395
Return on assets	-0.873739	0.015687	-55.69934	0.0000
Asset growth rate	0.016005	0.004470	3.580816	0.0004
Cash flow fluctuations	-0.103974	0.041762	-2.489649	0.0131
Financial leverage	-0.079364	0.008108	-9.787777	0.0000
Institutional shareholders	-0.013241	0.005718	-2.315510	0.0210
Coefficient of determination		0.973	Durbin-Watson	2.3
Modified coefficient of determination		0.961	Probability level	00.0

Resource: (research findings)

Table 5 shows the results of the first hypothesis of the research. According to the information in Table 5, the probability of the t statistic for the coefficients of the variables of peer performance, the specific returns of the company, ratio of the market value to the book value, return on assets, asset growth rates, cash flow fluctuations, financial leverage, and institutional shareholders was less than 5%. Therefore, the mentioned association was considered significant, and the coefficient estimated by the software was also significant for the variable of peer performance (0.005). In addition, the probability of the t statistic for the variable of the company size was more than 5%, which demonstrated that the coefficient of the mentioned variables was not significant for this variable in the regression model

with 95% confidence interval. The modified coefficient of determination indicated the explanatory power of the independent variables as it could explain 0.96 of the changes in the dependent variable. Moreover, the probability of the F statistic indicated that the entire model was statistically significant. According to the obtained results, the H0 hypothesis was rejected since the variable of peer performance was negative and significant in the model, suggesting that peer performance reversely affected the manipulation of abnormal real operations.

Testing of the Second Hypothesis

H2: The future competitive performance affects the manipulation of abnormal real operations.
The results of the second hypothesis are presented in Table 6.

Table 6: Summary of results of the second hypothesis model

Variable	coefficients	Standard deviation	T statistic	Probability
Y-intercept	0.120816	0.016194	7.460307	0.0000
Future competitive performance	-0.003267	0.000406	-8.053296	0.0000
Special return of company	-0.003629	0.001251	-2.901601	0.0039
Market value to book value ratio	-0.000766	2.05E-05	-37.43417	0.0000
Size of company	0.002264	0.001060	2.135716	0.0332
Return on assets	-0.852759	0.014279	-59.71982	0.0000
Asset growth rate	0.012744	0.004228	3.014432	0.0027
Cash flow fluctuations	-0.123414	0.040351	-3.058526	0.0023
Financial leverage	-0.073267	0.007600	-9.639868	0.0000
Institutional shareholders	-0.019147	0.005046	-3.794686	0.0002
Coefficient of determination		0.983	Durbin-Watson	2.3
Modified coefficient of determination		0.971	F probability level	0.000

Source: (research findings)

According to the information in Table 6, the probability of the t statistic for the future competitive performance, special returns of the company, market value to the book value ratio, company size, asset returns, asset growth rate, cash flow fluctuations, financial leverage, and institutional shareholders was less than 5%, thereby confirming the statistical significance of the correlation. In addition, the coefficient of the variable of the future competitive performance was considered significant (0.000). The modified coefficient of determination indicated the explanatory power of the independent variables as it could explain 0.97 of the changes in the dependent variable. According to the obtained results, the H0 was rejected since the variable of the future competitive performance (0.000) was significant in the model. In other words, the future competitive performance reversely affected the manipulation of abnormal real operations.

Testing of the Third Hypothesis

H3: The factors of correlation with peer companies affect the manipulation of abnormal real operations.

The results of the third hypothesis of the research are presented in Table 7. According to the information in Table 7, the probability of the t statistics for the factors of correlation with peer performance, special returns of the company, market value to the book value ratio, company size, asset returns, asset growth rate, cash flow fluctuations, financial leverage, and institutional shareholders was less than 5%, thereby confirming the statistical significance of the correlation. In addition, the coefficient of the variable of the factors of correlation with peer companies was considered significant (0.000). The probability of the t statistic was more than 5% for the variable of institutional sharehold-

ers, which indicated the lack of significance of the mentioned coefficient and its insignificance at 95% confidence interval. On the other hand, the F statistic showed that the entire model was statistically significant. The H0 was rejected since the variables of the factors of correlation with peer companies (0.030) were significant in the model. In other words, the factors of correlation with peer companies affected the manipulation of abnormal real operations.

Table 7: Summary of results of third hypothesis model

Variable	Coefficients	Standard deviation	T statistic	Probability
Y-intercept	0.095023	0.016609	5.721156	0.0000
Factors of correlation with peer companies	0.030464	0.004362	6.984210	0.0000
Special return of company	-0.003296	0.001183	-2.785808	0.0055
Market value to book value ratio	-0.000800	1.98E-05	-40.46128	0.0000
Size of company	0.003401	0.001076	3.161119	0.0017
Return on assets	-0.898900	0.015458	-58.15178	0.0000
Asset growth rate	0.010134	0.004286	2.364374	0.0184
Cash flow fluctuations	-0.140702	0.039224	-3.587151	0.0004
Financial leverage	-0.065740	0.008166	-8.050381	0.0000
Institutional shareholders	-0.005493	0.005488	-1.000907	0.3174
Coefficient of determination		0.983	Durbin-Watson	2.3
Modified coefficient of determination		0.971	F probability level	0.000

Source: (research findings)

6 Discussion and Conclusion

The present study aimed to evaluate the effects of peer performance, future competitive performance, and factors of correlation with peer companies on the manipulation of abnormal real operations. According to the obtained results, peer performance exerted a significant and reverse impact on the manipulation of abnormal real operations. According to the earnings management theory, companies working in a similar industry face similar risks, opportunities, and shocks. Therefore, measuring the performance of peers could eliminate the common factors from the performance of the firm and demonstrate the specific component of the company's performance. The specific performance of a corporation enables investors to better assess the business strategies, managerial capabilities, and future success opportunities of the firm. As such, the evaluation of peer performance could result in the recognition and reduction of the manipulation of the abnormal real operations of the company. In a study by Graham and Harvey [6], the majority of senior financial directors imitated the financial decision-making of the peer companies in employing financial decisions for their own firms. In addition, Peasnell [16] provided evidence on the negative correlation between the accruals of corporations and their relative earnings performance, which were estimated based on the industry earnings. These scholars also reported that companies make decisions about accruals based on their earnings performance while monitoring the industry earnings. In addition, Kedia [11] claimed that companies learn from the costs of breaking the laws observed in their peer companies due to false reports and gain proper information from these costs, which is in line with our findings.

According to the second hypothesis of the current research, the future competitive performance had a reverse and significant effect on the abnormal real operations. According to the earnings management theory, managers use various innovative strategies (e.g., manipulation of abnormal real operations) to create competitive advantage and become distinguished from their peers. Based on the information

asymmetry theory, market participants are faced with asymmetric information when these strategic operations are performed since only managers have access to the private information on the future value of the unique strategies of the firm. Furthermore, there is a lack of trust in whether these strategies could be successful. In this regard, Karuna [10] stated that industry factors play a key role in the earnings management of the company. According to the third hypothesis of the current research, the factors of correlation with peer companies significantly and directly affected the manipulation of abnormal peer performance, which is consistent with the representation theory, based on which managers seek the maximization of their interests similar to other community members. However, managers might not focus on the improvement of the real performance of the business unit due to conflicts of interest and may seek the manipulation of earnings creating operations (real earnings management) and manipulation of the outcomes and reports (accounting earnings management) in some cases. Therefore, it seems that the factors of correlation with peer companies could increase conflicts and lead to the higher level of the manipulation of abnormal real operations. In this respect, Ramzi [17] claimed that relative earnings performance is an important influential factor in the accounting performance of managers. In addition, Du and Shen [5] stated that the use of accruals increases simultaneously with elevated peer performance, which is in congruence with our findings. According to the results presented in each hypothesis in the present study, the following recommendations are proposed:

Considering the results of the first hypothesis, it is recommended that the designers of standards (especially the auditing organization) lay the proper foundation for drafting sufficient standards for stock companies. Based on the results of the second hypothesis, it is suggested that the effect of the future competitive performance on the manipulation of abnormal real operations be considered by analysts in their predictions. These individuals must also consider that the higher future competitive performance of a firm is associated with lower earnings management. Moreover, it is proposed that the future competitive performance of companies be considered by investors to invest in companies with less future competitive performance. Based on the results of the third hypothesis, it is suggested that special attention be paid to the risk of the distortion of financial statements with the use of earnings management tools (e.g., factors of correlation with peer companies) by the auditing of the organization during auditing and reporting. In addition, the required measures must be taken during the compilation of accounting standards by the auditing organization in order to minimize the unrealistic earnings management tools, such as the reduction of the factors of correlation with peer performance. The most important limitation of the present study was the lack of the complete disclosure of the information regarding the research variables. Furthermore, there was no complete access to the information on all the research variables for the stock companies. Therefore, some years/companies were eliminated from the statistical sample in order to avoid bias, which led to the reduction of the sample size.

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