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Impacts of managers' loss-aversion characteristics on discretionary accruals-based earnings management in companies listed on the Tehran stocks exchange

Fatemeh Taghipour
Master Student, Department of Accounting, Lahijan Branch, Islamic Azad University, Lahijan, Iran

Mojtaba Maleki Chubari
Assistant Professor, Department of Accounting, Lahijan Branch, Islamic Azad University, Lahijan, Iran

***Abstract*---**The present article investigates the impacts of managers' loss-aversion characteristics on discretionary accruals-based earnings management in the Tehran Stocks Exchange companies. The study falls under applied research, which uses a descriptive-correlational method in terms of goals. The statistical population consists of all companies listed on the Tehran Stocks Exchange, which, in 2019, totaled 435 companies. The screening sampling method (systematic removal method) selects the statistical sample. Thus, the number of 138 companies are selected. To gather data on managers' loss-aversion bias, the Pen Pin Questionnaire (2008) is employed, which, the loss-aversion bias, was introduced to the model as a virtual variable (0, 1). The adjusted Jones' model is used to measure discretionary accruals-based earnings management. Variables of financial leverage, return on assets, corporate size, institutional ownership, and the market-to-book value entered the model as effective control variables to explain and examine the effects of the independent variable on the dependent variable. Excel and Eviews software and cross-sectional data model are used to analyze the data. The findings suggest that the variable of managers' loss-aversion bias is positively and significantly associated with discretionary accruals-based earnings management. The more the managers' loss-averse behavior strengthens, the higher earnings management through discretionary accruals in the companies.

***Keywords*---**loss aversion bias, discretionary accruals, Tehran stocks exchange.

Introduction

Accounting profit is a basic criterion to evaluate the continuity of operations, functioning of trading units, and anticipation of future trading unit operations. The net earnings of each economic firm are constantly used by investors, creditors, accounting professionals, financial managers, and equity analysts (Demvari et al., 2011). Earning management is performed in two forms: the first form consists of selecting appropriate accounting methods to achieve a desirable level of earnings (i.e., managing accruals). In contrast, the second form involves scheduling or operational decisions to achieve desirable earnings (i.e., manipulating real operations). The auditor may occasionally discover the first form in the early years, though discovering the second form by the people outside the company may be more difficult (Helli & Vallen, 2014). Jones (1990) identified the discrepancy between earnings and the cash ensuing from the operations as accrual items. Accrual items are discretionary and non-discretionary. The management manipulates the former under various conditions for different goals.

Loss aversion bias is one of the main contributors to the managers' behavior and decisions in financial markets. Loss aversion can be defined as any operation with at least an ambiguous and uncertain outcome (Ghalibaf et al., 2015). Loss aversion bias is, in fact, a kind of emotional bias which makes people tend to avert the loss more than they tend to earnings. This suggests that investors gain more psychological value from the return on the one dollar of losses than profits. Some studies have indicated that the losses sustained are psychologically two times as much strong as the gains, indicating that one's dissatisfaction with financial loss will be two times as desirable as that of the earnings to the same extent. In other words, a loss-averting individual is exposed to risks for each dollar he has invested (Rocky et al. 2020). Loss aversion bias was developed by Kahneman and Tversky in 1979 as part of the Prospect Theory to answer the findings of the said theory, which states people tend to avert losses more than they tend to gain. To better describe it, the prospect theory says that investors value gains and losses differently, giving more weight to the perceived gains versus the perceived losses. An investor presented with both equal choices will choose the one presented in terms of potential gains. Prospect Theory is also known as the loss-aversion theory.

Loss aversion tends to prefer avoiding losses to acquiring equivalent gains. It says that the individual unduly becomes unhappy with the potential or actual loss (Rahnamy-Roudposhti & Karimi, 2015). When the managers are in red, they tend to risk more. These people are ready to risk to avert losses. Empirical evidence suggests that the pains managers suffer are two times as pleasurable as the same gain. This helps elucidate why the people who lose the bets tend to do more. They seek to reduce their loss burden by accepting greater loss volume and reducing the pains from the loss. Thus, one would say that managers always avert losses and tend to show they have made profits out of their investment (Jalili et al., 2014). As stated, this research aims to investigate the impacts of managers' loss-aversion characteristics on discretionary accruals-based earnings management in companies listed on the Tehran Stocks Exchange.

Theoretical Basics of the Research

Behavioral and Loss Aversion Bias

Behavioral biases are defined as systematic judgmental mistakes. Researchers have categorized a long list of behavioral biases. Recent studies suggest over fifty known behavioral biases on investment. This is while many managers' behavioral tendencies are yet to be reviewed. Some behavioral biases consist of: over-reaction and under-reaction, overconfidence, anchoring effect, loss aversion, collectible effect, etc. (Golarzi & Ziachi, 2014). Some studies have indicated that the losses suffered are psychologically twice as strong as the gains, i.e., one's dissatisfaction with a financial loss is twice the desirability of the gain to the same extent. Put it the other way, managers with loss aversion bias may demand the least gains for every dollar they have invested and are exposed to risks (Moloud Raki et al. 2020). Behavioral anomalies in the market represent investors' decisions as abnormal; i.e., they de-systematize the market wherein a large portion of these cases are defined in the behavioral and financial area. One of these irregularities in the market that ensues from investors' behavioral biases is the tendency to avert the losses (Rezazadeh & Fallah-Shams, 2013).

Profit Management

Profit management is defined as taking major steps within the adopted accounting principles that empower the managers to bring reported profit to the level they deem desirable (Mashayekh et al., 2013). Profit management is expressed as the purposive intervention with the external financial reporting process to achieve personal interests (Mashayekh et al., 2013). Profit management is a conscious activity to demonstrate corporate profits at a desirable and intended level. For Jones, profit management is conscious and actively manipulating the accounting results to create changes in revealing the trading status of a firm (Jones et al., 2005). Profit management means manipulating financial statement items within the framework of accounting standards that may benefit the company or the opportunity.

Profit Management Theories

Like most research on accounting agenda, profit management theories are adopted from other research domains in accounting or other bodies of knowledge, financing, economics, and psychology. Theories of Hospitality and Catering and Big Bath are relatively new terms in this connection. The former is borrowed from policy-making studies on divided profits in the financing, while the latter is a direct outcome of academic studies on profit management. Some of the most widely used profit management theories consist of: prospect theory, agency theory, hospitality theory, big bath theory, signaling theory, behavioral theory, game theory, stakeholder theory, and theory of the firm. All profit management theories seem to be characterized with the following (Saghafai & Pouryanasab, 2010):

They all seek to explain the relationship between corporate managers and users or stakeholders concerning profit management. For this, and because of using

two rational premises of rational human and personal interest and the result of these two, which is the maximization of desirability, all these theories seek to explain the relationship between profit management and value. These theories are products of the positivist accounting age; thus, they are inductive and positivist and taken from experiences and observations. Below, we deal with a variety of theories.

Agency Theory: This theory involves two approaches to stockholders and stakeholders. According to the former, which is a traditional approach, there exists a potential conflict of interests between stockholders and the managers. Here, the managers seek to maximize their wealth. This wealth increases with increasing the rewards, increasing the value of equity options or values, or acquiring a better occupational position. Thus, managers have necessary incentives for managing the profit. On the other hand, the stakeholder approach reveals that conflict of interests is generalized to all stakeholder groups.
Big Bath Theory: This theory posits that if a company experiences lower profit margins in a year, it may reduce the profit of that year by bathing the assets (converting it to costs). Thus, if the asset-bathing approach is within the adopted public accounting principles, the managers will not be rebuked nor fined for converting the interests to costs (Valizadeh-Larijani, 2008).
Hospitality Theory: The advocates of this theory maintain that managers inflate the accruals to cater to the investors' optimism about the profits. According to this theory, the investors have a greater hunger for surprising profit, as managers inflate the accrual items to cater to this hunger.
For this theory, there are three presumptions: 1. A non-discretionary demand for companies gives greater weight to impressive and surprising profits to be valued; 2. Surprising limits for the investors cannot repel this demand, and 3. Managers assume greater weights to short-term gains versus long-term costs (Ibid).

Discretionary accruals indicators in measuring profit management

The literature on profit management is predominately directed at accrual items. Accrual items result from the discrepancy between the profit and cash from the operations, including depreciation expenses, changes in the assets, and current liabilities except for the cash (e.g., accounts receivable, inventory, and accounts payable). As a result, assuming that the cash flow is not manipulated, the only way to manipulate the profit is to increase or decrease the accruals (Mashayekhi & Safari, 2006). The question, however, is: To what extent is the profit increased or decreased and what is the normal rate of accruals? Since then, many 90s studies have used the Jones methodology to estimate the discretionary and non-discretionary accrual items. The first problem was which part of the accruals pertained to a level of activity (non-discretionary) and which part to the manipulation (discretionary). Past studies were concentrated on specific accruals, which were more exposed to be used for the profit management goals. Initially, many researchers sought to measure the discretionary accruals based on the relationship between the total accruals and explanatory variables. First done by Healy and DeAngelo, these researches use the total accruals and relevant changes as a scale for the manager's discretion about the profit.

Jones developed a regression methodology to control non-discretionary agents affecting accruals which, as suggested, reveals a linear relationship between the total accruals and changing sales and fixed assets (properties, machinery, and equipment) (Mashayekhi & Safari, 2006). The Jones' model reveals that the accruals are a function of the actual corporate trading activity, with the trading activity of each company being measured through the sale at that company. Unlike Healy and DeAngelo, Jones removed the assumption of non-discretionary accruals as constant, rather seeking to control for the effects of change in the economic conditions on non-discretionary accruals. However, the model assumes that the earning from the sale is non-discretionary and the profit is managed through discretionary earnings; the Jones' model will remove some of the managed profits, which is considered a limitation of the Jones' model (Mehrani & Aref-Manehs, 2008).

Literature Review

In research, Vang et al. (2019) investigated the effects of managers' loss aversion bias on selecting the internal financing and return on investment (Investment scale: high and low investment) using a sample company in Shanghai Stocks Exchange in China Shenzhen Stock Exchange from 2010 to 2015. They concluded that internal financing would improve business opportunities and reduce the shortage of investment, though it may cause excessive investment, especially in companies with managers with loss aversion biases.

Gilmet et al. (2018) investigated the time horizon of investment with myopic loss aversion, concluding that managers with a higher level of management show myopic loss aversion compared to those with lower management levels. Lee and Veld-Merkoulova (2016) investigated the effects of loss aversion on the amount of investment in the Netherlands' Stocks Exchange, suggesting a direct and significant relationship between loss aversion and investment. Brooks and Zank (2005) also investigated the loss aversion behavior and concluded that many managers were aiming for the aversion of losses, as gender could affect the losses aversion, with females being more loss avert than the males.

Esna Ashari et al. (2020) investigated the relationship between profit management and investment perception. Upon applying the limitations, the statistical sample was selected from 2006-2017. Research hypotheses were tested by estimated generalized least squares (GLS). The findings suggested that the management model is reversely related to the investors' perception of the capital market horizon through accruals. Ebrahimi et al. (2020) investigated the effects of investors" myopic loss aversion on investment in equities. The sample under study included 403 investors, collected in 6 months in 2018. The findings concluded that the more loss-averting investors evaluate their portfolio, the less they invest in the equities, and the less they engage in their portfolio, the more they will invest in the equities.

Research Methodology

The research falls under applied studies and is descriptive-correlational. The data in this study are quantitative because each data is assigned a number and used

in the statistical models. Because historical data of financial statements of companies listed on the Tehran Stocks Exchange are used, the research is, from a time perspective, a retrospective study, i.e., *an* ex post facto study. Since the findings from the research can be generalized to the whole statistical population, it is an inductive study from a logical perspective. The reliability of the financial reports of the companies listed on the Tehran Stocks Exchange makes them the most important information source to conduct research. These reports include the basic financial statements of the companies under study available at WWW.RDIS.IR.

Regarding the variable of loss aversion, the Diagnostic Behavioral Bias Questionnaires were used to develop the Behavioral Finance and Asset Management Book Questionnaire. Thus, the questionnaires mentioned above are gathered based on the Iranian capital market and the view of professors and experts, which enjoy higher validity and reliability. The statistical population consists of all companies listed on the Tehran Stocks Exchange, which, in 2019, totaled 435 companies. The screening sampling method (systematic removal method) is used to select the statistical sample. Thus, the number of 138 companies are selected. Because data at t-1 year is needed to calculate the variables, corporate data from 2018 were made available. The companies have a productive operation; hence no financial institutions, investment firms, and banks are entered into the model. The removal of these agencies is due to the difference in their capital structure, type of activities, and financial leverages, which helps improve the way results are compared.

The inclusion criteria for the companies listed included the following: the fiscal year of the companies should end at March 20, i.e., companies that have not changed their fiscal year within the time interval set; during the research interval, the companies should have no more than three months of operational cessation and all managers should be available for completing the loss-aversion questionnaires (to extract the data needed). This led to the selection of 135 companies.

Research Variables

Discretionary accrual items are calculated from the difference of total accruals minus non-discretionary accruals as seen from the following Equation:

$$DA_{it} = \frac{ACC_{it}}{A_{it-1}} - NDA_{it}$$

Independent Variable (Loss aversion bias): To measure the loss aversion bias, the Pen Pin Loss Aversion Questionnaire (2008) includes four items, each assigned 0-1 scores, totaling a number ranging from 0-4. In the end, the variable mentioned above is introduced to the model as a virtual variable (0,1). If the managers enjoy this very dimension (the score received is between 3 and 4), number 1, otherwise (score received is between 2 to 2), number 0 is assigned.

Control Variables

Corporate size (SIZE): It is measured as the natural logarithm changes of the company's stock exchange market value each year (E'temadi & Montazeri, 2013).
Financial leverage (LEV): One of the most important scales of financial leverages is the debt ratio calculated by dividing all the debt by the total assets. It is expected to see a direct and significant relationship between financial leverage and performance (Foster, 1986).
Return on Assets (ROA): It is defined as the pre-tax earnings and unexpected items divided by total assets (E'temadi & Montazeri, 2013).
Institutional Ownership Percentage (INS): It represents the percentage of the stocks provided to institutional owners. Institutional investors include banks, insurance firms, investment companies, retirement agencies, etc. Because they have a long-term horizon, these investors are considered institutional investors (Yazdani et al., 2016).
Market-to-Book Value Ratio (MTB): It equals market-to-book value (Salehi-Nejad & Vaghfi, 2015).

Research Model

To analyze the results, the cross-sectional linear regression model was applied. Accordingly, the hypothesis test model is as follows:

Hypothesis Model: Using this model, we examine whether managers' loss-aversion characters affect discretionary accruals-based earnings management.

$$DA_{i,t} = \beta_0 + \beta_1 Loss\ Aersion\ Bias_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 \mathrm{INS}_{i,t} + \beta_6 MTB_{i,t} + \varepsilon_{i,t}$$

In the model, DA stands for discretionary accruals, NDA for non-discretionary accruals, Loss Aversion Bias for loss aversion, LEV for financial leverage, ROA for return on assets: SIZE for company size, INS for institutional ownership, MTB for the market to book value, β for intercept and regression model coefficients and ε_{it} for regression model error.

Findings

Table (1) gives descriptive values of the main model variables. As seen, the lowest mean pertains to the DA variable and the highest to the MTB variable. The results from the index of dispersion also show that, in the research variables, the highest standard deviation pertains to the MTB variable. The skewness coefficient is positive in all research variables (except for ROA, INS, and MTB variables), indicating the skewed right and the tendency of the variables to smaller values; however, the coefficient is negative for ROA, INS, and MTB variables, indicating the skewed left and the tendency of the variables to larger values.

Table 1: Descriptive values of the main model variables

$DA_{i,t} = \beta_0 + \beta_1 Loss\ Aersion\ bias_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 \mathrm{INS}_{i,t} + \beta_6 MTB_{i,t} + \varepsilon_{i,t}$							
Variable	Dependent	Independent	Control				
Name	Discretionary accruals	Loss Aversion bias	Financial leverage	Return on assets	Corporate size	Institutional ownership	Market-to-book value
Abbreviated form	DA	Loss Aversion bias	LEV	ROA	SIZE	INS	MTB
Mean	-0.0000	0.4890	0.6138	0.1212	12.7795	0.4460	6.1100
Median	-0.0410	0.0000	0.5707	0.1035	12.6595	0.5027	4.9023
Maximum	0.4952	1.0000	2.5490	0.5285	14.7648	0.9715	54.5786
Minimum	-0.2548	0.0000	0.0604	-0.4915	11.8066	0.0000	-45.5179
Standard deviation	0.1462	0.5017	0.3458	0.1684	0.6167	0.320	9.3739
Skewness	0.8268	0.0438	2.847	-0.2631-	1.2586	-0.0463	-0.3313
Kurtosis	3.4962	1.0019	15.7800	3.8246	4.6391	1.5806	16.6715
Jarque-Bera	17.0172	22.833	1117.53	5.4636	51.5079	11.5480	1069.444
Jarque-Bera probability	0.002	0.0000	0.0000	0.0651	0.0000	0.0000	0.0000
Number of observations	137						

The adjusted Jones model is used to calculate earnings management. In this model, first, all accrual items are calculated as follows:

ACC = OI- CFO

Where ACC is total accrual items; OI is operational profit, and OCF is operational cash flow Upon calculating the total accruals, the parameters α1, α2, α3 are calculated using the following regression equation to measure non-discretionary accruals:

$$\frac{ACC_{it}}{A_{it-1}} = \alpha 1\,(\frac{1}{A_{it-1}}) + \alpha 2\,(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}) + \alpha 3\,(\frac{PPE_{it}}{A_{it-1}}) + \varepsilon_{it}$$

Where ACC_i is total accruals of the company i at year t; At-1is book value of total assets of the company i at the end the of year t-1; ΔREV_{it} is changes in the

revenue of the company i between years t and t-1; ΔREC_{it} is changes in the accounts receivable of the company i between years t and t-1; PPE_{it} is gross assets, machinery, and equipment of the company i at year t; ε is unknown effects of random factors and α1, α2, α3 are estimated parameters of the Jones' model. The results of this equation based on the cross-sectional regression are given in Table (2):

Table 2: Estimated Jones' model results

$\frac{ACC_{it}}{A_{it-1}} = \alpha 1\,(\frac{1}{A_{it-1}}) + \alpha 2\,(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}) + \alpha 3\,(\frac{PPE_{it}}{A_{it-1}}) + \varepsilon_{it}$			
Variable	Coefficient	T value	Prob.
C	0.0552	3.1640	0.0019
$\frac{1}{A_{t-1}}$	8422.739	1.5394	0.1261
$\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}$	0.0151	0.6338	0.5273
$\frac{PPE_{it}}{A_{t-1}}$	-0.0239	-1.4525	0.1487
Coefficient of determination=0.133	Adjusted coefficient of determination=0.111		
Test probability=0.003	Test value=10.515		
Durbin-Watson statistic=2.041			

In the end, the NDA, having been measured, the discretionary accruals (DA) are calculated as follows:

$$DA_{it} = \frac{ACC_{it}}{A_{it-1}} - NDA_{it}$$

In ordinary least squares regression analysis, the variance inflation factor (VIF) examines the intensity of multiple collinearities. Table 3 gives the results from the study of this variable. The results of this study show no collinearity between variables.

Table 3: Variable collinearity results

	Hypothesis	First	Second
Variable	Short form	VIF	VIF
Loss aversion bias	LOSS	1.011	1.011
Financial leverage	LEV	1.235	1.235
Return on assets	ROA	1.219	1.219
Corporate size	SIZE	1.218	1.218
Institutional ownership	INS	1.203	1.203
Market-to-book values	MTB	1.046	1.046

The constant variance of the errors is one of the assumptions of the regression model. The ARCH method examines the homogeneity of variances in the cross-sectional model. In this method, the null hypothesis suggests the variance

homogeneity, and the opposite hypothesis shows the variance heterogeneity. Table (4) gives the heterogeneity test results of the research model. As noted, the estimated probabilities in the model are higher than 0.05, indicating the absence of variance heterogeneity in the model error statements.

Table 4: Variance heterogeneity test results

Hypothesis	Method	Value	Prob.
	ARCH	0.6205	0.4322

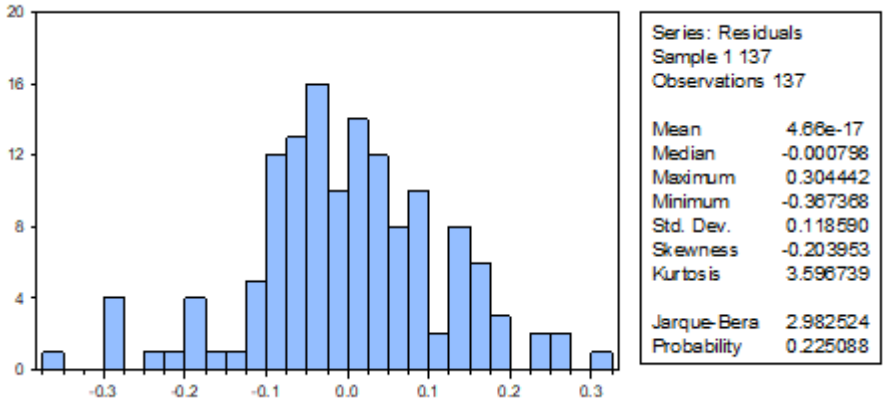

Figure 1: Test of normality of research disruption of model statements

Jarque-Bera statistic is used to examine the normality. If the statistic is greater or the probability level is low, the null hypothesis, i.e., the series normality, is rejected. Figure (1) illustrates the normality test results of the research disruption of model statements and their histograms. Because the calculated Jarque-Bera probability is greater than 0.05, the null hypothesis states that the normality of the error sentences is supported. Table 5 gives the hypothesis test results are presented using cross-sectional regression.

Table 5: Hypothesis estimation results

$$DA_{i,t} = \beta_0 + \beta_1 Loss\ Aersion\ bias_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 \mathrm{INS}_{i,t} + \beta_6 MTB_{i,t} + \varepsilon_{i,t}$$

Variable	Coefficient	Standard error	T value	Prob.
C	-0.4976	0.2266	-2.1945	0.0299
Loss Aversion Bias	0.0460	0.0207	2.2256	0.0278
LEV	-0.0750	0.0372	-2.164	0.0458
ROA	0.3211	0.1055	3.0439	0.0028
SIZE	0.0400	0.0183	2.1881	0.304
INS	-0.0592	0.0358	-1.6515	0.1010
MTB	-0.0006	0.0009	-0.6789	0.4997
Test statistic=11.292	Coefficient of determination=0.342			
Test probability=0.000	Adjusted coefficient of determination=0.312			

Durbin-Watson statistic=2.003

As noted, the control variables of institutional ownership (INS) and market-to-book value (MTB) are not significantly related to earnings management as based on discretionary accruals (DA); thus, the extra variable test is first used to examine the possibility of removing these variables. The results of this test are given in Table (6).

Table 6: Test of extra variables

Variable	F-statistic	Prob	Result
INS	2.904	0.088	Variable removed
MTB	0.315	0.574	Variable removed

Because the probability is calculated to be greater than 0.05, these variables are removed from the model, and the following results are obtained:

Table 7: Results of the best hypothesis estimation

$DA_{i,t} = \beta_0 + \beta_1 Loss\ Aersion\ bias_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 SIZE_{i,t} + \varepsilon_{i,t}$				
Variable	Coefficient	Standard error	T value	Prob.
C	-0.3883	0.2234	-1.7380	0.0845
Loss Aversion Bias	0.0466	0.0207	2.2457	0.0264
LEV	-0.0688	0.0361	-2.1042	0.0491
ROA	0.3366	0.1088	3.1162	0.0022
SIZE	0.0287	0.0177	2.6135	0.0090
Test statistic=16.001	Coefficient of determination=0.326			
Test probability=0.000	Adjusted coefficient of determination=0.306			
Durbin-Watson statistic=1.942				

A review of the results suggests that the variable of managers' loss aversion bias with the coefficient of 0.046 and the estimated probability of 0.02 is positively and significantly related to profit management based on discretionary accruals. Thus, this hypothesis is confirmed with a probability of over 95%. A review of control variables also indicates that the variable of financial leverage is negatively and significantly related, and the variables of return on assets and corporate sizes are positively and significantly related with profit management based on discretionary accruals.

The numerical $\overline{R}^2$ values reveal how much (percentages) of the dependent variable changes can be explained by the independent variables. If a higher $\overline{R}^2$ value is obtained in the estimation process; it will be good. On the other hand, lower $\overline{R}^2$ does not indicate the model is bad. Empirical analyses suggest that achieving higher $\overline{R}^2$ is not so usual; rather, some of the estimated regression coefficients are sometimes statistically insignificant or have signs unlike previous anticipation (Gujarati, 2010). The current model involves $\overline{R}^2$=0.32 and $\overline{R}^2$=0.30. In other words, the explanatory variables explain 0.30% of the dependent variable changes. In sum, the Durbin-Watson statistic is 1.94, which has no gross distance from 2.

Thus, one would claim the model lacks autocorrelation. On the other hand, the F statistic is larger than the one in the table, and despite Prob.=0.00, the regression can be concluded to be significant.

Conclusion

The present article investigates the impacts of managers' loss-aversion characteristics on discretionary accruals-based earnings management in companies listed on the Tehran Stocks Exchange. Accrual items result from the discrepancy between the profit and cash from the operations, including depreciation expenses, changes in the assets, and current liabilities except for the cash (e.g., accounts receivable, inventory, and accounts payable). Accruals management is a method that helps the manager to manage the profits only in the framework of accounting books, without affecting the cash flow and making real economic decisions.

Rezazadeh and Fallah Shams (2013) maintain that one of the factors affecting managers' decisions to manage the profits is their loss-aversion bias. The effect of managers' loss-aversion bias is based on Kahneman and Tversky's theory in 1979 as part of the Prospect Theory to answer the findings of the said theory, which states people tend to avert losses more than they tend to gain. This story was developed to avoid losses rather than their tendency to profit. Roudpashti and Karimi (2015) state that loss-aversion means that a person becomes unduly upset about the potential or actual loss.

The model estimation results suggest that despite the estimated probability of less than 0.05 and a coefficient of 0.46 for managers' loss-aversion bias, a significant relationship is noted between this variable and earnings management using discretionary accruals. Thus, the research hypothesis is confirmed at a significance level of 95%. A hypothesis review shows that managers' loss-aversion bias is positively and significantly related to the dependent variable of discretionary accruals-based earnings management. In other words, the findings concluded that increasing the managers' loss-aversion bias increases profit management in the company through discretionary accruals. Loss-averting managers tend to show profit and manage it through discretionary accruals because of their inclination towards averting losses and desire to profit. In their research, Podudo and Whilers (2016) found no evidence of managers' manipulation of the revenue because of their loss-aversion qualities.

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