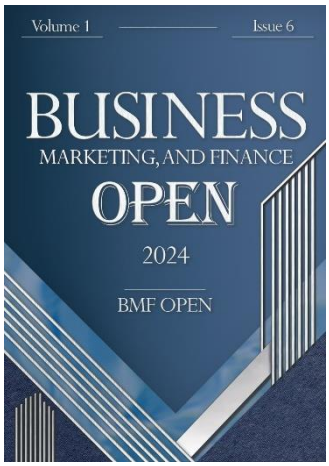
The Effect of Corporate Governance Components and Corporate Strategy on The Tone and Readability of Financial Reporting



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Abstract: The primary aim of this study was to model the factors influencing the tone and readability of financial reporting, focusing on corporate governance components and corporate strategies in the Tehran Stock Exchange. The research considered corporate governance components such as managerial ownership, institutional ownership, familial ownership, board size, board independence, gender diversity within the board, independence of the auditing committee, frequency of auditing committee meetings, and the size of the auditing committee. Additionally, corporate strategies, categorized as defensive and offensive strategies, were analyzed as independent variables. The dependent variables in this study were the tone and readability of financial reporting. The statistical sample comprised 125 companies from 2013 to 2022, with data analyzed using multiple regression tests. Findings from the first and second hypotheses revealed that institutional ownership, board independence, auditing committee independence, and the offensive strategy had a positive and significant effect on the tone of financial reporting. Conversely, managerial ownership, familial ownership, and the defensive strategy exhibited a negative and significant effect on the tone. Similarly, results from the third and fourth hypotheses showed that the number of auditing committee meetings, board independence, auditing committee independence, and the offensive strategy positively and significantly influenced financial reporting readability. In contrast, managerial ownership, familial ownership, and the defensive strategy negatively and significantly affected readability. The coefficients of determination indicated that corporate governance components and corporate strategies accounted for 62.7% of the variation in financial reporting tone and 74.3% of the variation in financial reporting readability, respectively.

Keywords: corporate governance, corporate strategies, financial reporting tone, financial reporting readability

1. Introduction

The tone and readability of financial reporting are critical factors for shareholders and investors. Financial statements that are presented in a clear and straightforward manner can reduce information asymmetry between managers and shareholders. Greater transparency in financial statements signals to capital market participants that the company's financial position is stable and reliable. Conversely, prior research indicates that companies facing unfavorable financial conditions may have managers who deliberately use ambiguous and complex language to

obscure the organization's true status [1, 2]. Over recent years, the increasing complexity of explanatory reports, such as footnotes and board activity reports, has not only aimed to provide detailed insights into future corporate performance and decision-making but has also facilitated managers in employing perception management strategies [3].

For example, a review of a specific note in Enron's annual report prior to its collapse by Daivice and Bernan (1997) revealed language that overly emphasized the company's positive standing. This demonstrated managers' opportunistic behavior, shifting user perceptions of the company's performance rather than offering genuinely informative disclosures. Similarly, the Delvaithe Auditing and Professional Services Company discovered that as Enron's financial health deteriorated, its reports became increasingly vague and complex. These findings suggest that Enron employed specific financial reporting tones as a means of managing perceptions, despite underlying audit figures indicating otherwise [4]. Regarding managers' explanatory reports, tone means the degree of its positivity and negativity. Latrodice (2016) found that high-revenue companies, compared to low -revenue companies, make use of more pessimistic words. In other words, companies with high revenues tend to conservatism. This study was performed to evaluate the effects of tone in financial reporting so that corporate performance and market efficiency are predicted. These two domains have been considered as two pervasive and critical areas in financial and accounting and have attracted the attention of various capital market players [5].

Research by Lee (2015), Ajina et al. (2011), and Hassan highlights that managers employ distinct styles in their financial reports. Managers seeking to showcase strong performance tend to issue more readable financial statements. However, when attempting to conceal poor performance, managers often provide complex and less readable reports, effectively obscuring their opportunistic actions. As suggested by the literature, when managers engage in deceptive reporting practices, they use intricate language and obscure terminology to make it harder for investors, financial analysts, and regulators to detect inconsistencies. For instance, studies by Zhoul et al. (2011), Zhoul and Gonneglie (2010), and Poudra and Sclikourn (2012) indicate that linguistic complexity in financial reporting is a common tool for concealing fraudulent behavior. Analyzing the linguistic patterns of financial statements is, therefore, crucial for identifying fraudulent activities. Additionally, corporate governance mechanisms play a significant role in curbing such practices. Despite the importance of this topic, domestic research has largely overlooked the connection between financial reporting practices and corporate governance, leaving a critical gap in the literature [6].

A company's trading strategy reflects its approach to competing in its chosen market. To strengthen these strategies, firms adopt various policies and activities to achieve sustainable competitive advantages. Since corporate strategies directly influence a company's information environment, trading performance, and managerial disclosure behavior, they also impact the readability of financial reporting. According to theoretical studies, companies adopting offensive (or leading) strategies focus on innovation, often exposing themselves to operational complexities and environmental uncertainties due to the inherent risks of research and development activities and unpredictable decisions. This scenario may lead to increased disclosures but also greater incentives to withhold or obscure certain information. Conversely, companies following defensive strategies—emphasizing stability and affordability rather than innovation—experience less operational complexity and uncertainty. This reduces their need for extensive disclosures and limits their inclination to conceal information. As a result, aggressive reporting by companies with offensive strategies is often expected to exhibit lower tone quality and readability compared to the reports of companies with defensive strategies [7, 8].

Mirzaei et al. (2020) examined the impact of the pessimistic tone in financial reporting on aggressive financial reporting, with a focus on the role of shareholder equity protection. The study analyzed data from 105 companies listed on the Tehran Stock Exchange over the period 2013–2017. The Shannon entropy method, a multi-criteria approach, was employed to measure shareholder equity protection, while hypothesis testing was conducted using regression analysis. The findings revealed that the pessimistic tone of financial reporting had a significant negative effect on aggressive financial reporting [9]. Furthermore, shareholder equity protection was found to intensify the negative impact of a pessimistic tone on aggressive financial reporting. Kazemi-Uloum et al. (2020) investigated the relationship between financial reporting readability and risk factors associated with auditing projects. The study identified auditing risk criteria as delayed audit reports, increased audit fees, ambiguous opinions on continuity of operations, and auditor changes. Data from 150 companies listed on the Tehran Stock Exchange between 2012 and 2018 were analyzed using panel data, logistic regression, and multiple regression methods. The results showed that companies with lower readability in their financial reporting faced longer audit durations, higher audit fees, and greater ambiguity in activity continuation assessments. These findings indicated that reduced readability in financial reporting increased auditing risks, requiring auditors to adopt additional measures to address these challenges [10].

A review of corporate governance definitions reveals common elements, with accountability and oversight of financial reporting quality being central themes. This broader view highlights the importance of accountability to a wide range of stakeholders and shareholders [11, 12]. The corporate governance system incentivizes the efficient use of resources while holding companies accountable to their stakeholders. Furthermore, implementing effective corporate governance practices fosters optimal resource allocation and enhances information transparency, ultimately improving the tone and readability of financial reporting [13, 14].

Despite its significance, domestic studies have largely overlooked this issue, leaving a critical gap in the literature on accounting and financial reporting. This study seeks to address this gap and expand the theoretical framework surrounding corporate governance, trading strategies, and their impact on financial reporting tone and readability. The findings aim to assist capital market regulators, including stock exchange officials and accounting standard-setters, in developing models that encourage companies with offensive strategies to produce more readable and transparent financial reports. By discouraging overly complex and lengthy reports, these efforts would improve the effectiveness of corporate governance mechanisms, enhance transparency, and contribute to the growth of the capital market. In summary, this study seeks to answer the following research questions: **"Do corporate strategy and corporate governance mechanisms influence the tone and readability of corporate financial reporting? If so, what is the nature of this influence?" and the hypotheses are:**

1. Corporate governance components have an effect on the financial reporting tone

1.1. The proportion of managerial ownership influences the tone of financial reporting.

1.2. The proportion of familial ownership affects the tone of financial reporting.

1.3. The proportion of institutional ownership impacts the tone of financial reporting.

1.4. Gender diversity on the board of directors plays a role in shaping the tone of financial reporting.

1.5. The size of the board of directors has an effect on the tone of financial reporting.

1.6. The independence of the board of directors affects the tone of financial reporting.

1.7. The independence of the auditing committee influences the tone of financial reporting.

1.8. The frequency of auditing committee sessions impacts the tone of financial reporting.

1.9. The size of the auditing committee plays a role in shaping the tone of financial reporting.

2. Corporate strategies influence the tone of financial reporting.

2.1. Offensive strategies affect the tone of financial reporting.

2.2. Defensive strategies impact the tone of financial reporting.

3. Corporate governance components influence the readability of financial reporting.

3.1. The proportion of managerial ownership affects financial reporting readability.

3.2. The proportion of familial ownership influences financial reporting readability.

3.3. The proportion of institutional ownership impacts financial reporting readability.

3.4. Gender diversity on the board of directors plays a role in financial reporting readability.

3.5. The size of the board of directors has an effect on financial reporting readability.

3.6. The independence of the board of directors influences financial reporting readability.

3.7. The independence of the auditing committee affects financial reporting readability.

3.8. The frequency of auditing committee sessions impacts financial reporting readability.

3.9. The size of the auditing committee plays a role in financial reporting readability.

4. Corporate strategies have an impact on the readability of financial reporting.

4.1. Offensive strategies affect the readability of financial reporting.

4.2. Defensive strategies influence the readability of financial reporting.

2. Methodology

Regression models of hypotheses tests are as follows:

$$1)\ TONEi,t = \alpha 0 + \beta 1manage - owni,t + \beta 2Insi,t + \beta 3Family - owni,t + \beta 4b - sizei,t + \beta 5OUTDi,t + \beta 6Genderi,t + \beta 7Ind - Committeei,t + \beta 8Size - Committeei,t + \beta 9Meetings - Committeei,t + \beta 10Defencivei,t + \beta 11Offencivei,t + \varepsilon i,t$$

$$2)\ READABILITYi,t = \alpha 0 + \beta 1manage - owni,t + \beta 2Insi,t + \beta 3Family - owni,t + \beta 4b - sizei,t + \beta 5OUTDi,t + \beta 6Genderi,t + \beta 7Ind - Committeei,t + \beta 8Size - Committeei,t + \beta 9Meetings - Committeei,t + \beta 10Defencivei,t + \beta 11Offencivei,t + \varepsilon i,t$$

Tone/readability/managerial ownership (manage-own)/institutional ownership (Ins)/familial ownership (Family-own)/board of directors' size (b-size)/Board of directors' independence (OUTD)/the gender diversity of the board of directors (Gender)/the independence of the auditing committee (Ind-Committee)/the size of the auditing committee (size-committee)/the number of the auditing committee sessions (meeting-committee)/offensive strategies (offensive) and defensive strategies (defensive)

A) Dependent variables

Financial reporting tone

Tone, as a variable, serves as an index to express the language of annual financial reporting. The analysis requires the use of instruments to measure both pessimistic and optimistic tones in the sample data. To achieve systematic categorizations of optimistic and pessimistic tones, specific words are recommended, which are commonly used in analyzing various forms of narration, such as speeches by politicians, policymakers, annual reports to shareholders, and other business communications (Moradi et al., 2014). These analyses are conducted using a predefined list of

words tailored for text and content analysis. The word list is derived from linguistic theories that are well-established in academic and practical fields. The words are categorized into three "pessimistic" groups: "blaming," "difficulty," and "denial," and three "optimistic" groups: "valuable," "satisfaction," and "good idea." These categories are used as criteria for determining the tone of financial reporting, as outlined in Tables 1 and 2. The selection of words to identify both optimistic and pessimistic tones is based on a list employed by text analysis software used in contemporary U.S. discourse. Since these words aim to capture the subtle nuances of language, they were translated with a high degree of accuracy by language experts. It is important to note that these words have been extensively used in the analysis of accounting explanatory reports, including annual reports from the boards of directors of companies listed on the Tehran Stock Exchange.

Table 1. List of pessimistic tone-related words

Blaming	
Sample words	Definition
Problematic, finding fault with, bad, carelessness, difficult (complicated), foes, unstable and discomforting	Terms characterizing social mismatch and disputes; qualities describing adverse and unexpected fluctuating situations, including evident tarnishing.
List of difficulty-related words	
Sample words	Definition
Abuse, warning, fights, conflicts (inconsistency), depressed, disappointing, going bankrupt, fear, hardship and difficulty, regret (hopelessness), demotion, threats, weakness and faults	It includes natural catastrophes, adversary measures, reprimand and blameworthy behaviors, unpleasant political outcomes and human's natural fear, human force incompetence
List of denial and rejection-related words	
Sample words	Definition
Nothing, can't be done, should not be done, null (nothing)	Terms with negative functions and terms characterizing null sets

Table 2. List of optimistic-related words

List of valuable (praiseworthy) words	
Sample words	Definition
The best, better, capable, good, excellent, vague, positive, profitable, strong and successful	Confirmation by some others, groups, or abstract bodies including terms separating social qualities, physical qualities, intellectual qualities, entrepreneurial qualities and moral qualities. All terms in this connection are attributes
List of satisfaction-related words	
Sample words	Definition
Acclamation, admiring, celebrating, trust and self-confidence, happiness, enjoying, enthusiasm, excited, and pleased	Terms related to positively effective (emotional) states, pleasurable moments, enjoyable recreation or words related to success, as well as all words falling under educational domains
List of good idea words	
Sample words	Definition
Commitment, sacrifice, improvement, loyalty, productivity, progress and quality	Virtues worthy of global respect; terms separating favorable moral qualities and also effective personal characters, social and political ideals also fall under these words.

According to Feldman et al. (2010) and Davise and Thamasoueith (2012), in accounting explanatory reports, the reporting tone is considered pessimistic when the ratio of pessimistic words to the total number of words exceeds that of optimistic words. Conversely, if the ratio of optimistic words is higher, the tone is considered optimistic. The pessimistic tone of financial reporting is seen as reliable and unbiased, and managers often use it to disclose more relevant and forward-looking information in annual reports. Therefore, the pessimistic tone is utilized in the hypothesis testing model (Shafizadeh et al., 2018). For this analysis, Persian text analysis software was used to

extract the number and type of words from PDF-formatted board of directors' annual reports. The total number of pessimistic and optimistic words in each report was manually counted, and then these counts were divided by the total number of words in each report to obtain the respective ratios.TONE = (negative words - positive words) / (negative words + positive words)

Financial reporting readability

According to studies by Abernasi et al. (2019), Hassan (2017), Rezaei-Pine Nowi and Safari Garaei (2018), the financial reporting readability index, titled FOG (used in many accounting and auditing domains) is used to measure financial reporting readability. This index is a function of two variables of sentence length (based on words) and complex words (defined as the number of words with three or several parts), calculated as follows:

(Average number of words in each sentence + number of complex words) = 0.4 fog index

The financial reporting readability level in above indices is determined as follows: (Abdi et al. 2018).

1. Randomly select a 100-word sample from the beginning, middle, and end of the report.
2. Count the number of sentences in each sample.
3. Calculate the average sentence length by dividing the number of words by the number of complete sentences in each 100-word sample.
4. Count the number of complex words (three or more syllables) in each sample.
5. Add the number of complex words to the average sentence length.
6. Multiply the sum of the complex words and average sentence length by 0.4.
7. Repeat the above steps for the other two 100-word samples.
8. Calculate the average readability score by summing the results from the three samples and dividing by three.The relationship between the FOG index and the readability level is as follows:

FOG≥18 means the text is not readable and highly complex; 14-18 (difficult text); 12-14 (appropriate text); 10-12 (acceptable text) and 8-10 (easy text). Since higher values of the above index indicates the less readability level of financial reporting, the calculated value is multiplied by -1 to obtain a direct criterion of financial reporting readability indices.

B) Independent variables

Corporate governance components

- **Size of the board of directors:** The number of the board of directors is a measuring criterion for the size of the board of directors
- **Independence of the board of directors:** The independence of the board of directors is obtained from dividing the dormant number of the board of directors by the total members
- **Gender diversity of the board of directors:** The gender diversity of the board of directors is a virtual variable in a way that if the board of directors involves a female member, value 1 and otherwise value 0 is assigned.
- **Managerial ownership:** Percentage of shares at the hand of executive managers and members of the board of directors
- **Institutional ownership:** Percentage of shares at the hand of quasi-government bodies
- **Familial ownership:** Familial ownership is a qualitative variable and involves companies that at least meets one of the following criteria:

a) One or several members of one or two families hold at least 20% of the company's shares unless they exert less significant influence over the company's affairs despite their stakes

b) Fifty percent of members of the board of directors is comprised of members of one family in a way that they exert a significant influence over the company, even if the ownership of the members is less than 20%.
c) To calculate the familial ownership ratio, the ratio of the number of shares, held by members of a family to the total shares of a company, is used.

Size of the auditing committee: The number of auditing committee's members is extracted from notes to corporate financial statements at Tehran Stock Exchange site

Independence of the auditing committee: To calculate the independence of the auditing committee, the ratio of members of the auditing committee, not members to the board of directors of the company, to the total members of the auditing committee is used.

Number of auditing committee's sessions: The number of reports by the auditing committee is the basis for calculating the number of the auditing committee's reports

Corporate strategies

Building on the work of Dyanati Deilami et al. (2015) and Tanani and Mohebkhah (2014), this study adopted the trading strategy scoring method proposed by Einther, Larker, and Rajane (1997). To calculate the composite scores, five ratios were utilized: sales growth rate, advertising expenses as a percentage of total sales, number of employees relative to sales, market value to book value ratio, and fixed assets to total assets ratio. The scoring process follows these steps:

1. Companies are divided into five groups based on the first four ratios, from top to bottom.
2. The company in the highest group receives a score of 5, while the company in the lowest group receives a score of 1. Companies in the intermediate groups are assigned scores in proportion to their rank within the group.
3. For the fifth ratio, the scoring procedure is reversed: companies in the highest group receive a score of 1, and companies in the lowest group receive a score of 5, with the others receiving scores proportionate to their position.
4. The scores from the two stages are then summed to yield the final score for each company.

As a result, the composite scores range from 5 to 25. Companies with a total score between 5 and 15 are classified as defensive, while those with scores between 16 and 25 are classified as offensive (Einther et al. 1997). For the purpose of this study, 45 companies with offensive strategies and 80 companies with defensive strategies were selected. Defensive strategy scores for companies with offensive strategies were set to zero, and likewise, offensive strategy scores for companies with defensive strategies were also zero.

Population and statistical sample

The statistical population of the study consisted of all companies listed on Tehran Stock Exchange until the end of 2021. The present study selected the companies based on the following conditions and limitations:

1. To select a homogenous sample, the companies must have been listed on Tehran Stock Exchange prior to 2013, and have their shares transacted from the beginning of 2013.
2. To select active companies, transactions of these companies from 2013 to 2022 must not have ceased in the Exchange for over 3 months.
3. To increase comparability, the companies' financial periods lead to the month of March.
4. The companies must not have changed fiscal year or activities from 2013 to 2022.
5. The companies must not have been among investment, financial brokerage, or banking and leasing industries.

As mentioned above, 125 companies were selected as the statistical sample.

3. Findings

As given by Table 3, the average financial reporting readability indicated difficult texts reported by companies' boards of directors because they the reports averaged around 14%. The average familial and managerial ownership is at a low rate of around 5 and 11%, respectively. The gender diversity of the boards of directors' composition was also at a very low level of around 3%. The independence of he auditing committee was also estimated at around 60%, with around 34 and 64% of the companies applying offensive and defensive strategies, respectively.

Table 3. Descriptive statistics of research variables

variable	Number Observations	mean	deviation	maximum	minimum	Kurtosis	skewness
tone	1250	0.026	0.041	0.347	-0.118	4.553	-0.683
Readability	1250	-14.537	2.467	-9.734	-26.582	11.890	3.123
Manage-own	1250	0.116	0.198	0.693	0	3.162	1.036
Family- owned	1250	0.051	0.253	0.387	0	4.211	1.002
Ins	1250	0.295	0.141	0.546	0	7.177	2.593
Gender	1250	0.036	0.130	1	0	4.172	2.337
B-size	1250	3.293	1.239	5	3	4.510	2.915
OUTD	1250	0.314	0.264	0.66	0.20	8.711	4.326
Ind. committee	1250	0.612	0.130	1	0	4.172	2.337
meetings committee	1250	4.337	2.116	12	4	9.219	4.376
Size. committee	1250	3.472	1.506	5	2	6.472	3.091
Defensive	800	11.811	3.171	15	5	9.170	4.391
Offensive	450	18.931	2.967	25	6	8.110	2.496

A common issue in time series analysis is the phenomenon of dummy regression, which occurs when there is no meaningful relationship between variables, despite a high coefficient of determination. To ensure the validity of the study's findings and confirm that the relationships in the regression are not spurious, and that the variables are indeed significant, the stationarity test by Levin-Lin-Chu and Im, Pesaran, and Shin (IPS) was conducted for the study variables. If the tests indicate that the variables exhibit a unit root and require first-differencing, their order of integration is 1 (I(1)). If the tests show that the variables are stationary, then their order of integration is zero (I(0)). The results of the stationarity test, presented in Table 4-2, indicated that the test values were significant for

all variables, leading to the rejection of the null hypothesis, which posits the presence of a unit root. Therefore, the data can be considered stationary.

Table 4. Stationarity test of study variables

	B-size	Gender	Ins	Family- owned	Manage-own	Readability	tone
IPS	-7.30	-8.36	-11.87	-6.01	-6.53	-8.39	-4.63
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Result	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)
LLC	-3.42	-5.39	-6.74	-4.63	-5.36	-4.88	-5.11
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Result	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)

Table 5. Stationarity test of study variables (continued)

	Offensive	Defensive	Size. committee	Meetings committee	Ind. committee	OUTD
IPS	-5.101	-10.964	-11.371	-8.850	-4.216	-6.128
Sig.	0.000	0.000	0.000	0.000	0.000	0.000
Result	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)
LLC	-3.155	-11.299	-9.907	-4.175	-6.536	-8.494
Sig.	0.000	0.000	0.000	0.000	0.000	0.000
Result	I(0)	I(0)	I(0)	I(0)	I(0)	I(0)

To assess whether the panel data method is suitable for estimating the intended model, the Chow test or Bound F test is employed. Additionally, to determine which estimation method (fixed effects or random effects) is more appropriate for addressing cross-sectional unit differences, Hussmann's tests are used. The results of these tests, as presented in the following tables, show that the models were tested using the panel data method with fixed effects.

Table 6. Chow and Hussmann test results for the first model

Test	n	Statistic	Cross-section	Prob
Redundant Fixed Effects Tests	1250	F	4.1654	0.000
Correlated Random Effects - Hausman Test	1250	χ^2	5.2177	0.000

Table 7. Chow and Hussmann test results for the second model

Test	n	Statistic	Cross-section	Prob
Redundant Fixed Effects Tests	1250	F	5.3245	0.000
Correlated Random Effects - Hausman Test	1250	χ^2	5.1094	0.000

To assess the validity of the model and check the assumptions of classical regression, several tests are conducted, including tests for normality of residuals, homogeneity of variances, independence of residuals, and the absence of model specification errors (i.e., linearity). Additionally, multicollinearity among the independent variables introduced into the model is also investigated. To test for the normality of residuals, various methods can be applied, including the Jarque-Bera test. The results of the Jarque-Bera test indicate that the residuals from the model's estimation follow a normal distribution at a 95% confidence level, as the test's probability value is greater than 0.05.

Another assumption in classical regression is the homogeneity of residual variances. If the variances are not homogeneous, the linear estimator remains unbiased but will not have the least variance. To test for this assumption, the Breusch-Pagan test is used. The test results, with a significance level smaller than 0.05, suggest the rejection of the null hypothesis of homogeneity, indicating that the model suffers from heteroscedasticity. To address this, the Generalized Least Squares (GLS) estimation is applied.

The Durbin-Watson (D-W) test is used to check for autocorrelation, which is an assumption of regression analysis. Based on the initial model estimation, the D-W statistic ranges from 1.5 to 2.5, suggesting that the residuals are independent of each other. Additionally, to verify the linearity of the model, the Ramsey Test is conducted. With a significance level greater than 0.05, the null hypothesis of linearity is confirmed, indicating that the model does not suffer from specification errors. A summary of these test results is provided in the following tables.

Table 8. Test results of statistical assumptions for the first model

Ramsey		Durbin-Watson	Breusch-Pagan		Jarque-Bera	
$P-Value$	F	D	$P-Value$	F	$P-Value$	χ^2
0.165	3.225	1.813	0.009	.976	0.215	1.632

Table 9. Test results of statistical assumptions for the second model

Ramsey		Durbin-Watson	Breusch-Pagan		Jarque-Bera	
$P-Value$	F	D	$P-Value$	F	$P-Value$	χ^2
0.094	5.032	2.265	0.004	1.835	0.742	1.104

The results of testing the first and second hypotheses are as follows:

Table 10. Results of multivariate regression of first and second hypotheses

Sig.	T. Value	Std. error	Coefficient	Variable	Variable type
_	_	-	_	TONE	Dependent variable
0.311	1.326	0.245	0.326	α	Fixed coefficient
0.000	-4.709	0.082	-0.387	MANAGE-OWN	Independents variables
0.000	3.508	0.041	0.145	Ins	
0.000	-5.634	0.038	-0.216	Family-own	
0.121	1.665	0.247	0.412	b-size	
0.000	4.653	0.110	0.513	OUTD	
0.098	1.774	0.244	0.433	Gender	
0.000	6.823	0.044	0.304	Ind-committee	
0.175	1.564	0.084	0.132	Size-committee	
0.135	1.611	0.114	0.184	Meetings-committee	
0.000	4.869	0.023	0.113	Defencive	
0.000	-6.479	0.029	-0.189	Offencive	
_	_	-	1.813	DW	
0.000	_	-	9.165	F	
_	_	-	0.627	R Square	
_	_	-		Adjusted R Square	

As presented in the table, the variables of managerial ownership, institutional ownership, familial ownership, board independence, auditing committee independence, offensive strategies, and defensive strategies exhibit a significant effect on the financial reporting tone, as their error levels are below 5%. In contrast, the variables of board size, auditing committee size, gender diversity of the board, and the number of board meetings do not influence the financial reporting tone, as their error levels exceed 5%.

Given that the significance level of the F statistic is below 5% (0.000), the regression model is deemed statistically significant, indicating a meaningful relationship between the variables. Additionally, the coefficient of determination reveals that the independent variables account for 62.7% of the variation in corporate financial reporting tone. Since the Durbin-Watson statistic falls within the range of 1.5 to 2.5 (with a value of 1.813), it is concluded that there is no autocorrelation in the residuals of the regression equation.

Results of the first secondary hypothesis (first main hypothesis):

The negative coefficient of the variable of managerial ownership (-0.387) indicates the reverse effects of this variable on financial reporting tone, i.e., an increase of one unit of managerial ownership decreases financial reporting tone by 0.387 units. Therefore, based on analyzing the confirmation of the first secondary hypothesis, managerial ownership is concluded to have a significant and reverse effect on financial reporting tone.

Results of the second secondary hypothesis (first main hypothesis):

The reverse coefficient of the variable of familial ownership (-0.216) indicates the reverse effects of this variable on financial reporting tone, i.e., an increase of one unit of familial ownership decreases financial reporting tone by 0.216 units. Therefore, based on analyzing the confirmation of the second secondary hypothesis, familial ownership is concluded to have a significant and reverse effect on financial reporting tone.

Results of the third secondary hypothesis (first main hypothesis):

The positive coefficient of the variable of institutional ownership (0.145) indicates the direct effects of this variable on financial reporting tone, i.e., an increase of one unit of institutional ownership increases financial reporting tone by 0.387 units. Therefore, based on analyzing the confirmation of the third secondary hypothesis, institutional ownership is concluded to have a significant and direct effect on financial reporting tone.

Results of the fourth secondary hypothesis (first main hypothesis):

Because the error level of the variable of the gender diversity of the board of directors is higher than 5% (0.098), therefore, based on analyzing the rejection of the fourth secondary hypothesis, the gender diversity of the board of directors is concluded to have no effect on financial reporting tone.

Results of the fifth secondary hypothesis (first main hypothesis):

Because the error level of the variable of the size of the board of directors is higher than 5% (0.121), therefore, based on analyzing the rejection of the fifth secondary hypothesis, the size of the board of directors is concluded to have no effect on financial reporting tone.

Results of the sixth secondary hypothesis (first main hypothesis):

The positive coefficient of the variable of the independence of the board of directors (0.513) indicates the direct effects of this variable on financial reporting tone, i.e., an increase of one unit of the independence of the board of directors increases financial reporting tone by 0.513 units. Therefore, based on analyzing the confirmation of the sixth secondary hypothesis, the independence of the board of directors is concluded to have a significant and direct effect on financial reporting tone.

Results of the seventh secondary hypothesis (first main hypothesis):

The positive coefficient of the variable of the independence of the auditing committee (0.304) indicates the direct effects of this variable on financial reporting tone, i.e., an increase of one unit of the independence of the auditing committee increases financial reporting tone by 0.304 units. Therefore, based on analyzing the confirmation of the seventh secondary hypothesis, the independence of the auditing committee is concluded to have a significant and direct effect on financial reporting tone.

Results of the eighth secondary hypothesis (first main hypothesis):

Because the error level of the variable of the number of auditing committee sessions is higher than 5% (0.135), therefore, based on analyzing the rejection of the eighth secondary hypothesis, the number of auditing committee sessions is concluded to have no effect on financial reporting tone.

Results of the ninth secondary hypothesis (first main hypothesis):

Because the error level of the variable of the size of the auditing committee is higher than 5% (0.135), therefore, based on analyzing the rejection of the ninth secondary hypothesis, the size of the auditing committee is concluded to have no effect on financial reporting tone.

Results of the first secondary hypothesis (the second main hypothesis):

The positive coefficient of the variable of the offensive strategy (0.113) indicates the direct effects of this variable on financial reporting tone, i.e., an increase of one unit of the offensive strategy increases financial reporting tone by 0.113 units. Therefore, based on analyzing the confirmation of the first secondary hypothesis, the offensive strategy is concluded to have a significant and direct effect on financial reporting tone.

Results of the second secondary hypothesis (the second main hypothesis):

The negative coefficient of the variable of the offensive strategy (-0.189) indicates the direct effects of this variable on financial reporting tone, i.e., an increase of one unit of the offensive strategy decreases financial reporting tone by 0.189 units. Therefore, based on analyzing the confirmation of the second secondary hypothesis, the offensive strategy is concluded to have a significant and reverse effect on financial reporting tone.

The results of testing the third and fourth hypotheses are given by Table 11:

Table 11. The results of the multivariate regression of the third and fourth hypotheses

Sig.	T. Value	Std. error	Coefficient	Variable	Variable type
_	_	-	_	Readability	Dependent variable
0.199	1.896	0.073	0.118	α	Fixed coefficient
0.000	-5.414	0.085	-0.293	MANAGE-OWN	Independents variables
0.128	1.811	0.096	0.174	Ins	
0.000	-4.328	0.068	-0.295	Family-own	
0.387	1.339	0.331	0.464	b-size	
0.000	6.042	0.050	0.307	OUTD	
0.531	1.217	0.247	0.301	Gender	
0.037	2.455	0.067	0.166	Ind-committee	
0.522	1.141	0.290	0.331	Size-committee	
0.000	4.774	0.086	0.412	Meetings-committee	
0.041	2.083	0.066	0.271	Defencive	
0.033	-2.201	0.087	-0.105	Offencive	
_	_	-	2.265	DW	
0.000	_	-	17.208	F	
_	_	-	0.743	R Square	
_	_	-	0.739	Adjusted R Square	

*: The significance level is 0.05.

As shown by this Table, because the error level of the variables of managerial ownership, familial ownership, the independence of the board of directors, the independence of the auditing committee, offensive strategies and defensive strategies is less than 5%, these variables have a significant effect on financial reporting tone; meanwhile, the size of the board of directors, the size of the auditing committees, the gender diversity of the board of directors and institutional ownership have no effect on financial reporting tone (because the error level of these variables is higher than 5%).

Because the significance level of the F statistic is less than 5% (0.000), the model of the calculated regression is significant; in other words, there is a logical relationship between the variables.

Also, based on the coefficient of determination, the independent variables explained 74.3% of the changes to the corporate financial reporting readability, and since the Durbin-Watson statistic ranges from 1.5 to 2.5 (2.265), it is concluded that there is no autocorrelation between error sentences in the regression equation.

Results of the first secondary hypothesis (the third main hypothesis):

The negative coefficient of the variable of managerial ownership (-0.293) indicates the reverse effects of this variable on financial reporting readability, i.e., an increase of one unit of managerial ownership decreases financial reporting readability by 0.293 units. Therefore, based on analyzing the confirmation of the first secondary hypothesis, managerial ownership is concluded to have a significant and reverse effect on financial reporting readability.

Results of the second secondary hypothesis (the third main hypothesis):

The negative coefficient of the variable of familial ownership (-0.295) indicates the reverse effects of this variable on financial reporting readability, i.e., an increase of one unit of familial ownership decreases financial reporting readability by 0.295 units. Therefore, based on analyzing the confirmation of the second secondary hypothesis, familial ownership is concluded to have a significant and reverse effect on financial reporting readability.

Results of the third secondary hypothesis (the third main hypothesis):

Because the error level of the variable of institutional ownership is higher than 5% (0.135), therefore, based on analyzing the rejection of the third secondary hypothesis, institutional ownership is concluded to have no effect on financial reporting readability.

Results of the fourth secondary hypothesis (the third main hypothesis):

Because the error level of the variable of the gender diversity of the board of directors is higher than 5% (0.531), therefore, based on analyzing the rejection of the fourth secondary hypothesis, the gender diversity of the board of directors is concluded to have no effect on financial reporting readability.

Results of the fifth secondary hypothesis (the third main hypothesis):

Because the error level of the variable of the size of the board of directors is higher than 5% (0.387), therefore, based on analyzing the rejection of the fifth secondary hypothesis, the size of the board of directors is concluded to have no effect on financial reporting readability.

Results of the sixth secondary hypothesis (the third main hypothesis):

The positive coefficient of the variable of the independence of the board of directors (0.307) indicates the direct effects of this variable on financial reporting readability, i.e., an increase of one unit of the independence of the board of directors decreases financial reporting readability by 0.307 units. Therefore, based on analyzing the

confirmation of the sixth secondary hypothesis, the independence of the board of directors is concluded to have a significant and direct effect on financial reporting readability.

Results of the seventh secondary hypothesis (the third main hypothesis):

The positive coefficient of the variable of the independence of the auditing committee (0.166) indicates the direct effects of this variable on financial reporting readability, i.e., an increase of one unit of the independence of the auditing committee increases financial reporting readability by 0.166 units. Therefore, based on analyzing the confirmation of the seventh secondary hypothesis, the independence of the auditing committee is concluded to have a significant and direct effect on financial reporting readability.

Results of the eighth secondary hypothesis (the third main hypothesis):

The positive coefficient of the variable of the number of the auditing committee sessions (0.412) indicates the direct effects of this variable on financial reporting readability, i.e., an increase of one unit of the number of the auditing committee sessions increases financial reporting readability by 0.412 units. Therefore, based on analyzing the confirmation of the eighth secondary hypothesis, the number of the auditing committee session is concluded to have a significant and direct effect on financial reporting readability.

Results of the ninth secondary hypothesis (the third main hypothesis):

Because the error level of the variable of the size of the auditing committee is higher than 5% (0.522), therefore, based on analyzing the rejection of the ninth secondary hypothesis, the size of the auditing committee is concluded to have no effect on financial reporting readability.

Results of the first secondary hypothesis (the fourth main hypothesis):

The positive coefficient of the variable of the offensive strategy (0.271) indicates the direct effects of this variable on financial reporting readability, i.e., an increase of one unit of the offensive strategy increases financial reporting readability by 0.271 units. Therefore, based on analyzing the confirmation of the first secondary hypothesis, the offensive strategy is concluded to have a significant and direct effect on financial reporting readability.

Results of the second secondary hypothesis (the fourth main hypothesis):

The negative coefficient of the variable of the offensive strategy (-0.105) indicates the direct effects of this variable on financial reporting readability, i.e., an increase of one unit of the offensive strategy decreases financial reporting readability by 0.105 units. Therefore, based on analyzing the confirmation of the second secondary hypothesis, the offensive strategy is concluded to have a significant and reverse effect on financial reporting readability.

In general, the models obtained from the test of study hypotheses are as follows:

$$1)\ TONEi,t = -0.387manage - owni,t + 0.145Insi,t - 0.216Family - owni,t + 0.513OUTDi,t + 0.304Ind - Committeei,t + 0.113Defencivei,t - 0.189Offencivei,t + \varepsilon i,t$$

$$2)\ READABILITYi,t = -0.293manage - owni,t - 0.295Family - owni,t + 0.307OUTDi,t + 0.166Ind - Committeei,t + 0.412Meetings - Committeei,t + 0.271Defencivei,t - 0.105Offencivei,t + \varepsilon i,t$$

4. Discussion and Conclusion

The results of the first main hypothesis of the study are as follows:

According to the results of the first secondary hypothesis, managerial ownership had a reverse and significant effect on financial reporting tone. Because managers tend to provide the best performance to stakeholders, they may not observe the matching principle and present reports via an optimistic tone, which does not sound a favorable tone for financial statement reports.

According to the results of the second secondary hypothesis, familial ownership had a reverse and significant effect on financial reporting tone.

Since familial owners have less sensitivity and more confidence over corporate share ownership, they exert less monitoring very financial statements and the behavior of managers reporting those statements, which may reduce the favorable tone of corporate financial reporting.

According to the results of the third secondary hypothesis, institutional ownership had a direct and significant effect on financial reporting tone.

Because institutional owners possess expert managers in the capital market, they can better oversee the behavior of managers reporting financial statements, which could promote the quality of financial reporting tone.

According to the results of the fourth secondary hypothesis, the gender diversity of the board of directors had no effect on financial reporting tone. Because female members at boards of directors of Tehran Stock companies are few, this reduces their power of expression, which will eventually have no effect on financial reporting tone.

According to the results of the fifth secondary hypothesis, the size of the board of the directors had no effect on financial reporting tone. Members of the board of directors can help promote the favorability of financial reporting tone by providing effective and expert monitoring, as the type and efficiency of members' monitoring is key and thus the number of members had no effect on financial reporting tone.

According to the results of the sixth secondary hypothesis, the independence of the board of directors had a direct and significant effect on financial reporting tone. Dormant members of the board of directors can provide more monitoring over financial statements to prevent manipulation with financial reporting items and thus promote financial reporting.

According to the results of the seventh secondary hypothesis, the independence of the auditing committee had a direct and significant effect on financial reporting tone. When the independent member of the auditing committee is many, they can better audit financial statements and report intentional or unintentional mistakes, which could eventually lead to a favorable tone of financial reporting.

According to the results of the eighth secondary hypothesis, the number of auditing committee sessions had no effect on financial reporting tone.

According to the results of the ninth secondary hypothesis, the size of the auditing committee had no effect on financial reporting tone.

According to the hypotheses test results, the high and low numbers of members of the auditing committee and their sessions cannot guarantee the favorable tone of financial reporting and thus the independence and financial expertise of members of the committee are key.

According to the results of the second main hypothesis, offensive strategies directly affects financial reporting tone, while defensive strategies reduced the favorability of financial reporting tone. This suggests that companies with defensive strategies mostly lack financial resources and have their shares less focused by investors.

These companies have greater financial leverage and are less able to use growth opportunities. This motivates managers to manipulate with financial statements and not to provide accurate reports to stakeholders, which eventually reduce the financial reporting tone favorability. However, companies with offensive strategies are

mainly companies that possess strong financial resources and attach significant to market share and competition in the industry. These companies seek to provide accurate data to promote market players' trust in the companies and aim to promote financial reporting tone.

Results of the third main hypothesis are as follows:

According to the first secondary hypothesis, managerial ownership had a reverse and significant effect on financial reporting readability. Because managers tend to provide the best performance to stakeholders, they may not observe the matching principle and present reports with more complexity, which thus reduces financial statement readability.

According to the results of the second secondary hypothesis, familial ownership had a reverse and significant effect on financial reporting readability. Since familial owners have less sensitivity and more confidence over corporate share ownership, they exert less monitoring very financial statements and the behavior of managers reporting those statements, which may cause managers to provide the reports with less readability and more complexity.

According to the results of the third secondary hypothesis, institutional ownership had no effect on financial reporting readability.

According to the results of the fourth secondary hypothesis, the gender diversity of the board of directors had no effect on financial reporting readability. Because female members at boards of directors of Tehran Stock companies are few, this reduces their power of expression, which will eventually have no effect on financial reporting readability.

According to the results of the fifth secondary hypothesis, the size of the board of the directors had no effect on financial reporting readability. Members of the board of directors can help promote the favorability of financial reporting readability by providing effective and expert monitoring, as the type and efficiency of members' monitoring is key and thus the number of members had no effect on financial reporting readability.

According to the results of the sixth secondary hypothesis, the independence of the board of directors had a direct and significant effect on financial reporting readability. Dormant members of the board of directors can provide more monitoring over financial statements to prevent manipulation with financial reporting items and thus promote financial readability.

According to the results of the seventh secondary hypothesis, the independence of the auditing committee had a direct and significant effect on financial reporting readability. When the independent member of the auditing committee is many, they can better audit financial statements and report intentional or unintentional mistakes, which could eventually lead to favorable readability of financial reporting.

According to the results of the eighth secondary hypothesis, the number of auditing committee sessions had an effect on financial reporting readability. When members of the auditing committee hold a variety of sessions in the year, they can inspect financial statements and reduce reporting complexity, which helps increase financial reporting readability.

According to the results of the ninth secondary hypothesis, the size of the auditing committee had no effect on financial reporting readability.

According to the hypotheses test results, the high and low numbers of members of the auditing committee and their sessions cannot guarantee the favorable readability of financial reporting and thus the independence and financial expertise of members of the committee are key.

According to the results of the fourth main hypothesis, offensive strategies directly affects financial reporting readability, while defensive strategies reduced the readability of financial reporting. This suggests that companies with defensive strategies mostly lack financial resources and have their shares less focused by investors.

These companies have greater financial leverage and are less able to use growth opportunities. This motivates managers to manipulate with financial statements and not to provide accurate reports to stakeholders, which eventually reduce the financial reporting readability favorability. However, companies with offensive strategies are mainly companies that possess strong financial resources and attach significant to market share and competition in the industry. These companies seek to provide accurate data to promote market players' trust in the companies and aim to promote financial reporting readability.

According to study findings stating the reverse effects of managerial and familial ownership on the tone and readability of financial reporting, shareholders of familial companies and those of companies with higher percentage rates are recommended to get expert people and famous auditing firms to perform auditing their companies because this would promote the quality of financial reporting in terms of tone and readability. Also, making the internal auditing of the company more effective can result in transparency, quality, tone and readability of financial reporting.

According to study findings stating the direct effects of institutional ownership on the tone of financial reporting, shareholders at some companies are recommended to transfer some of the shares to institutional owners because the efficiency of these owners will help more oversight and more favorable financial statement tones.

According to study findings stating the direct effects of the independence of the board of directors on the tone and readability of financial reporting, shareholders are suggested to choose dormant board of directors' members from among expert and experienced people to provide better oversight and present more favorable report tone and readability.

According to study findings stating the direct effects of the independence of the auditing committee on the tone and readability of financial reporting, the Stock Exchange is suggested to more focus on members of the board of directors and to not use them in the auditing committee, because the higher independence of the committee could help more impartial and accurate auditing of financial statements and thus reduce complexity, while increasing the favorability of financial reporting tone.

According to study findings stating the direct effects of the number of auditing committee sessions on financial reporting readability, the number of the sessions in each month is suggested to be held regularly. According to the laws, the minimum number of sessions held each year by the committee should be 6, which is not respected by most companies.

According to study findings stating the direct effects of using offensive strategies on the tone and readability of financial reporting, the investors, who regard as important the tone and readability of financial reporting, are suggested to invest in companies using offensive strategies, because these companies focus more on market share, attract the trust of capital market players and publish statements with more favorable tone and readability.

According to study findings stating the reverse effects of using defensive strategies on the tone and readability of financial reporting, the Stock Exchange is suggested to get companies adopting defensive strategies to provide more accurate audit, while obliging them to ceding audit to famous audit firms. On the other hand, the Stock Exchange is recommended to consider advantages for companies to measure the tone and readability of corporate financial reports.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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