



The Effect of Financial Reporting Readability on Debt Capacity of Firms Listed in Tehran Stock Exchange (TSE)

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Abstract

Objective: The purpose of this research is to track the effect of readability of financial reporting on debt capacity.

Methodology: In order to achieve the objectives of the research, 123 companies listed in Tehran Stock Exchange (TSE) during the years 2016-2022 were selected by systematic elimination model. Multiple linear regression based on consolidated data was used for hypothesis testing. the fog index was used for evaluating of readability of financial reporting and also debt capacity was measured with model developed by Frank and Goyal (2009).

Results: The finding showed positive and significant effect of readability of financial reporting on debt capacity.

Innovation: This research develops theoretical foundations of previous research by providing empirical evidence of the consequences of language style and readability of financial reporting in emerging markets such as Iran.

Keywords: Attracting Creditors' Trust, Capital Structure, Debt Capacity, Information Asymmetry, Financial Reporting Readability Criteria.

1. Introduction

By understanding the importance of the adverse consequences of the expansion and deepening of information asymmetry between the providers and users of financial information in the capital and debt markets, which by intensifying the foggy and ambiguous atmosphere on the one hand, has provided the grounds for the exit of investors and other participants in these markets, and on the other hand, By increasing the return requested by the remaining investors in order to reduce the negative effects of making harmful decisions due to lack of timely access to reliable information, they create the basis for increasing the cost of financing and capital for the companies present in these markets. The mentioned events caused the failure of the market in order to achieve its main goal, to provide a space to move the capital of the participants in the market to the plans and areas that need financial resources, along with providing the opportunity to get a suitable return for the participants in these markets, according to the amount of investment and Their risk tolerance and investment horizon will be. In order to prevent such a situation from happening in the capital markets, professional and academic authorities have made an extra effort to organize the activity of the accounting system of companies as the only official and major authority for preparing and presenting financial information about companies active in the aforementioned capital markets and with extensive support for research. professional and academic in order to lead these researches to find the holes that aggravate this information inequality, to try hard to expand the transparency of disclosure and provide assurance of timely access to reliable information to all participants in these markets in order to help them while making the right investment decisions and Credited. In this regard, it is argued that the timely disclosure of company information, along with the simplicity and higher readability of the material presented in the text of the financial statements, has led to a better understanding and interpretation of the information by the participants in the mentioned

markets, which ultimately leads to an increase in the transparency of financial reporting (Li et al., 2018).

Bai et al's (2019) showed that companies that more readable reporting include a high level of information disclosure quality, which facilitates management monitoring of the company's activities by increasing the flow of transparent and high-quality information. It also provides the reduction of information inequality. Therefore, the readability of financial reports is considered an important feature of textual information (Ertugrul et al., 2017). The low quality of readability of financial reports and more complex disclosure of information by companies will increase information inequality and lack of understanding and knowledge of the future performance of the company, and companies with more ambiguous annual reports require a higher risk estimate, which ultimately leads to an increase in capital costs. It becomes them (Dadashi and Nowrozi, 2020). Transparency of financial information from external providers of capital reduces restrictions on financing. Companies that face financial constraints provide less cash at a higher cost (Salmanian et al., 2018).

Most of the foreign and domestic researches in this area, indicates that the readability has a significant impact on the stability of profit (Li, 2008), volume of transactions (De Franco et al., 2015), credit rating, cost of debt and the risk of falling stock prices (Bonsal and Miller, 2017; Ertugrul et al., 2017), stock liquidity (Hasan and Habib, 2020), cost of equity (Rjiba et al., 2021), commercial credit (Mahdavi et al., 2022), cost of capital and reporting quality Mali has (Daryaei and Amini 2023).

Considering the importance of the subject of the present research, with the aim of investigating the effect of the simplicity of presentation and textual readability of financial statements on reducing the concern and information disparity and gaining the trust of the loan and lenders, and as a result, reducing their requested return and ultimately reducing the cost of financing from debts and increasing The debt capacity of companies is done. Considering the high share of

debt financing in the capital structure of companies and the great importance of ways to reduce the cost of debt financing, and the existence of an obvious research gap in this field, the researchers of this study were convinced that the present study is necessary and worth doing and the authors of this research hope and believe that their efforts will bring the necessary knowledge increase by enriching the findings and related literature in this important field.

In the continuation of the research structure, firstly, the development of the theoretical foundations, the current experimental findings of the research and the hypothesis are presented, then the research method and the operational definitions of the research variables are presented, and finally, the findings and conclusions of the research are presented.

2. Literature Review and Theoretical Background

Readability of financial reporting and debt capacity

Financial flexibility is considered by researchers as an important component of the capital structure (Gregory, 2020) and is one of the evaluation tools of companies by investors and creditors in order to review and evaluate the current situation and predict the future situation of the business unit. It is defined as the company's ability to use a positive (negative) shock in the set of investment opportunities (Lambrinoudakis et al., 2019). According to Vol Breda (1998), internal financial flexibility can be measured through two components of debt capacity and cash retention. For this purpose, a group of managers are trying to maintain their internal financial flexibility by applying the policy of maintaining sufficient cash and another group by applying a conservative debt policy based on not taking too many loans and borrowing and maintaining excess debt capacity. In addition, financial flexibility through debt is preferable to financial flexibility through holding cash (Dennis, 2011).

For the first time, Myers (1984) raised the issue of debt capacity and assumed it as a level of borrowing

that if financing from debt exceeds that amount, the market value of the company's debts will decrease. According to the theory of financial hierarchy, debt capacity is considered a kind of financial limitation. When a company uses debt, it is obliged to repay the principal and interest of the debt when it is due, which is why it is exposed to the risk of default or bankruptcy (Zhang, 2013).

Hence, it has been suggested that firms deliberately maintain unused debt capacity to maintain access to low-cost sources of external capital to avoid financial emergency costs in the face of negative shocks and in case of profitable opportunities. arise, invest (Gregory, 2020). However, companies with limited debt capacity make more efforts to maintain access to financing markets (Lemmon and Zender, 2010). In other words, financing-constrained companies quickly change their payment approaches in response to changes in profitability. This behavior leads to the reduction of information asymmetry and keeps the company's access to debt markets with lower cost (Denis, 2011). Bhat et al (2020) in a study titled "Debt capacity, debt selection and the underinvestment problem: Evidence from China" concluded that debt capacity is positively related to leverage, and debt capacity helps firms to have easy access to the credit market. have and reduce liquidity risk. Companies can reduce their capital cost by increasing their excess debt capacity (Pour Rezaei et al., 2017). On the other hand, the existence of information asymmetry allows managers to have exclusive access to a part of the company's confidential information. Managers may use confidential information for their personal interests, this will lead to an increase in the company's investment risk for investors (Ramazanpour et al., 2021). An increase in investment risk will also lead to an increase in the return requested by investors and ultimately an increase in the cost of financing. The research results of Stickney et al (2007) also showed that lenders limit the use of debt for companies that have created an information asymmetry between themselves and investors in terms of company risk. In companies with more information asymmetry and

information ambiguity, the cost of common stock capital is also higher than other companies (Peng He et al., 2013). Daryaei and Amini (2023) showed that the role of the interactive effect of financial reporting quality and readability on the cost of capital among companies with higher information asymmetry is much more important than companies with low information asymmetry. Therefore, disclosure policies can affect financing costs (Easley and O'Hara, 2004).

Information disclosure usually consists of three parts of content, timing, and presenting information way, which usefulness of each of which depends on the readability and comprehensibility of financial reports (Courtis, 2004). Therefore, readability and other textual features of financial disclosures are of high value (Ertugrul et al., 2017). In this regard, the American Securities Exchange Commission formed a study group in 1967 to provide guidelines to improve the readability and comprehensibility of companies' disclosure procedures. The results of these reports, which were published in 1969 as the Witt report, recommended that since all investors are not able to quickly understand complex reports of companies, therefore companies should avoid publishing complex, long or redundant reports (Ajina et al., 2016). Readability is the degree of complexity of the text of financial reports and their relationship with the understanding of users (Souza et al., 2019).

Empirical research shows that readability criteria provide a new way to evaluate the quality of financial reporting of companies (Berger, 2011). Ertugrul et al. (2017) also state that the readability of financial reporting can affect the quality of financial statement information; Therefore, the poor readability of financial reporting adds to the problems of the organization. In this regard, Ertugrul et al (2017) state that the lack of readability and the use of unclear language in annual financial reports weakens the credibility of the company. Xu et al. (2020) also believe that financial reporting with low readability has a high cost for the company, according to them, if a business unit is committed to the disclosure of high-quality financial reporting, it will not expose itself to

risk by presenting financial statements with less readability. In addition, financial reports with difficult reading are an obstacle to the processing and analysis of company information by investors (Boubaker et al., 2019). Aghaei et al (2021) stated that higher quality accounting information reduces the risk and cost of obtaining information. Therefore, the complexity of financial reports leads to information asymmetry between company managers, creditors, and investors, resulting in conflict of interests. In this regard, some researchers studied the effect of information disclosure complexity on information asymmetry, stock liquidity, and cost of debt. As, Miller (2010) and Lawrence (2013) found that the analysis of complex reports requires spending a lot of money and time to extract useful information, therefore investors did not invest when faced with these reports and the volume of transactions decreases. De Franco et al (2015) also provided evidence that there is a positive relationship between the readability of financial reports and the volume of stock transactions. Rahmanian et al (2023) also showed that the readability of financial reporting has a negative and decreasing effect on the specific volatility of stock returns. Yin et al (2022) also showed in a research that ambiguous financial reporting leads to a fall in stock prices. Chen et al (2023) stated that the low readability of the annual report hinders efficient and accurate assimilation of information into stock prices, financial reports with low readability are associated with more stock mispricing.

Hassan and Habib (2020) showed that companies whose financial reports are less readable, maintain more cash balance and pay less dividends, and such a relationship is stronger for companies with weak corporate governance, more financial constraints and more financing risk.

In a study titled "Readability of Annual Financial Reports, Information Efficiency and Stock Liquidity," Aldosari and Meleji (2023) stated that improving the readability of annual reports, in addition to analyzing the factors affecting it and voluntary disclosure requirements, is essential in order to help users of

financial statements to understand the topic of information and facilitate decision making.

In addition, managers can influence the judgment of investors by manipulating the linguistic feeling and readability of qualitative disclosures and guide or mislead them (Elliott and Rennekamp, 2018). Companies with lower readability of annual financial reporting will have higher cost of capital (Ajina et al., 2016). Rjiba et al (2021) investigated the relationship between reporting readability and cost of equity, and found that the impact of the complexity of the annual report on the cost of equity is greater when the tone of the disclosure is more negative or ambiguous. They believe that complex reports reduce the ability of investors to process and interpret annual reports and lead to an increase in information risk and, as a result, an increase in financing costs. Mahdavi et al (2022) also investigated the impact of financial report readability on commercial credit, emphasizing the role of management ability, and showed that financial report readability has a significant direct relationship with commercial credit. In other words, companies with more readable financial reports receive more business credit from suppliers.

Ertugrul et al (2017) during a research by examining the relationship between the readability of financial reporting and the cost of financing showed that the readability of financial reporting of companies reduces their financing cost. He stated that the readability of financial reporting is related to the effort to hide bad news, which is the main determinant of borrowing costs. Bonsall and Miller (2017) also investigated the relationship between the readability of financial reporting and the cost of capital and found that the readability of financial reporting reduces the cost of debt of companies.

Ayuningtyas and Harymawan (2022) also showed that both negative tone and poor readability are positively related to the cost of debt. More intense use of negative tone or pessimistic words was associated with higher debt costs. Less (more) readable annual reports lead to higher (less) debt costs. However, the results of Daryai and Amini's research (2023) showed

that the readability of financial reporting does not have a significant relationship with the cost of capital. Fang et al (2014) also stated that the readability of the annual financial report reduces the cost of information processing for creditors. As a result, more people trust the market and enter the market, in fact, the market attracts additional capital and liquidity, and the risk of liquidity and subsequently, the cost of capital of companies will decrease.

According to the literature on the subject, the mentioned research hypothesis is explained as follows:

H₁: The financial reporting's readability has significant and positive effect on debt capacity of companies listed in TSE.

3. Research Methodology, Model and Variables, Population and Sample

This research is classified in applied research in view of purpose implementation, and also is an descriptive-attributive in terms of the method of conducting research. EvIEWS software has been used for estimating of research model which developed by multiple regression.

Due to the ease of access and the reliability of the information of listed companies, the statistical population of the present study also consists of all the companies listed in TSE, which are systematically removed by taking into account the conditions, including the existence of complete information of each of the companies under study. The temporal scope of the research, the lack of change in the financial year during the research period, the exclusion of intermediary companies, banks, investments and holding companies due to the way of financial reporting and the different nature of income and expenses. Finally, the information of 123 companies collected for 7-year (2016-2022) .

Operational definitions of variables:

Independent variable: Debt capacity (DC)

The model Frank and Goyal (2009) was used for measuring debt capacity as follows:

Model (1)

$$LEV_{i,t} = B_0 LEV_{i,t} + B_1 LndLEV_{i,t} + B_2 M/B_{i,t} + B_3 Size_{i,t} + B_4 Tan_{i,t} + B_5 Profitability_{i,t} + B_6 Inflation_{i,t} + \varepsilon_{i,t}$$

LEV: Ratio of total debt to the total assets

LndLEV: Average debt of companies in the industry.

M/B: The ratio of market value to book value, which is measured by total debt and stock market value to total assets.

Size: Logarithm of company assets.

Tan: Ratio of fixed assets to total assets.

Profitability: Profit before interest and taxes to total assets.

Inflation: Inflation rate for the year, based on the growth of the consumer index as announced by the Central Bank.

$\varepsilon_{i,t}$: Other factors (the rest of the model).

And finally, in order to determine the debt capacity of the research sample companies, the regression residuals of the mentioned model were used in the research period for each company.

Independent Variable: Readability of Financial Reporting (Read)

The fog index was for used measuring independent variable (financial reporting readability). The level of financial reporting readability through the Fog index is a function of two variables of sentence length in terms of the number of words and the complexity of words (defined as the number of three or more syllable words) measured by the

Equation1:

financial reporting readability = (Total Fog Index in 100 word sample at the beginning, middle and end of the report)/3

For 100-word sampling and calculating the Fog index in each of these samples, the following is done:

- 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) Specifying the average length of sentences by the number of words by dividing the number of words by the total number of sentences of each 100-word sample.
- 4) Count the number of words three or more syllables as an indicator of complex words in each of the one-hundred-word texts.
- 5) After the average number of words in each sentence and the percentage of complex words have been obtained, the Fog index for each of the 100word samples of the first, middle and end of the report is calculated through the following relationship (Safari Grilli and Rezaei Pitenoei., 2019).

Equation2:

Fog Index = 0.4 (Average length of sentence in terms of number of words + percentage of complex words)

The high and low values of the Fog index show lower readability and more financial reporting, respectively. In order to obtain a direct measure of the Fog index with the readability of financial reporting, the values of this index are multiplied by negative number 1 (-1).

Control variables of the research

In order to control the unwanted effects of some disturbing variables, several control variables that are consistent with the research objectives have been used as follows:

Independent audit quality (AQ): If company's audit was done by audit organization, the quality of the independent audit is equal to 1 and otherwise it is 0.

Internal audit quality (Inter): If audit report does not have any significant weaknesses in the company's internal control (i.e., the company's internal controls are of good quality), it is equal to 1, and otherwise (the presence of significant weaknesses in internal controls, i.e., the low quality of internal controls) is equal to 0.

Company size (SIZE): natural logarithm of total assets.

Financial leverage (LEV): ratio of total debt to total assets.

Tangible fixed assets (Tan): ratio of tangible fixed assets to company's total assets

Sales growth (Growth): Percentage change in current year's revenue compared to the previous year's revenue.

Life of the company (Age): It has been measured by the number of years that have passed since the company's establishment to each of the studied years.

percentage of the largest shareholder (Lshare): The ratio of largest shareholder to total number of company shares.

In order to achieve the objectives of the research and test the relevant hypothesis, the mathematical model of the research is developed and presented as follows:

Model (2)

$$DC_{i,t} = B_0 + B_1 Read_{i,t} + B_2 AQ_{i,t} + B_3 Inter_{i,t} + B_4 Growth_{i,t} + B_5 Size_{i,t} + B_6 LEV_{i,t} + B_7 Tan_{i,t} + B_8 Age_{i,t} + B_9 Lshare_{i,t}$$

4. Findings

Descriptive statistics of research variables

Table (1) and (2) shows the central and dispersion indicators. The minimum of descriptive indices (debt capacity with 861 observations) is 0.0141, maximum, 0.748, average debt capacity, 0.136 and standard deviation 0.989. based on table (2), average quality of independent audit is 0.191, and its standard deviation is 0.393. Also, the average quality of internal audit is 0.667 and its standard deviation is 0.471.

In order to check the normality of residual sentences, the Jarque-Bera test was used. As probability of the test statistic (0.558) is greater than 5%, the regression residuals have a normal distribution. Table (3) shows the collinearity analysis. As variance of inflation factor is slightly higher than 1, a weak collinearity is between the research variables.

For ensuring the absence of heterogeneity of variance, Bartlett's test was used. According to this test, there is no heterogeneity of variance between the regression residual sentences.

Due to the mixed nature of the research data, F-Limmer and Hausman tests were used to determine the appropriate regression model for testing the hypotheses. The results show that the probability of the F test statistic is less than 5% and the use of panel data method is more appropriate. Also, the results of the Hausman test showed that the probability of the test statistic is less than the 5%, so using the fixed effects method to estimate the regression model of the research is more preferable than the fixed effects method.

The results probability of Fisher's statistic (0.000) which showed in table (4), the model is significant and the Durbin-Watson statistic, it shows the relative independence and lack of autocorrelation of the research variables. In addition, the results related to The adjusted coefficient of determination indicates that more than 54% of the changes in the dependent variable can be explained by the independent variables of the research.

As correlation coefficients between financial reporting readability and debt capacity is positive and significance level is less than 5% so research hypothesis is accepted. In other words, financial reporting readability has a positive and significant effect on debt capacity. Although coefficient of fixed assets is 0.539, so there is a positive and significant relationship between this variable and debt capacity. In this regard, coefficient of financial leverage is -0.091, so the effect of this variable on debt capacity is negative and significant. There is no significant relationship between other control variables and debt capacity.

Table 1) Descriptive statistics of quantitative research variables

Variable	Symbol	Mean	Max.	Min.	S. dev
Debt capacity	DC	0.136	0.748	0.014	0.989
Readability of Financial Reporting	Read	-17.291	-13.163	-22.010	1.458
Company size	size	14.284	19.940	10.133	1.537
Financial leverage	LEV	0.561	0.991	0.090	0.180
Life of the company	Age	37.415	67	3	14.260
Tangible fixed assets	Tan	0.260	0.850	0.002	0.180
Sales growth	Growth	1.273	4.788	0.145	0.486
percentage of the largest shareholder	Lshare	0.493	0.954	0.029	0.213

Table 2) Descriptive statistics of qualitative research variables

Variable	Symbol	Mean	Max.	Min.	S. dev
Independent audit quality	AQ	0.191	1	0	0.393
Internal audit quality	Inter	0.667	1	0	0.471

Table 3) Testing regression assumptions

Test Modle	Jarque-Bera		p-value	
	1.167		0.557	
Absence of linear dependence	Variable	Symbol	Tolerance	
			VIF	Collinearity Statistics
	Readability of Financial Reporting	Read	1.094	0.912
	Independent audit quality	AQ	1.136	0.880
	Internal audit quality	Inter	1.321	0.756
	Company size	Size	1.171	0.854
	Financial leverage	LEV	1.022	0.978
	Life of the company	Age	1.109	0.902
	Tangible fixed assets	Tan	1.738	0.646
	Sales growth	Growth	1.970	0.510
	percentage of the largest shareholder	Lshare	1.355	0.726
Bartlett	Test Statistics		p-value	
	2.341		0.310	
F-Limmer	2.735		0.000	
Hausman	9.480		0.024	

Table 4) Test Results of Research Hypotheses

Variable	Symbol	Coefficient	t statistic	p-value
Fixed coefficient	C	1.200	2.636	0.009
Readability of Financial Reporting	Read	0.042	2.192	0.029
Independent audit quality	AQ	0.024	1.789	0.074
Internal audit quality	Inter	-0.041	-0.692	0.495
Company size	Size	0.029	1.519	0.129
Financial leverage	LEV	-0.091	-2.908	0.004

Variable	Symbol	Coefficient	t statistic	p-value
Life of the company	Age	-0.029	-1.436	0.151
Tangible fixed assets	Tan	0.539	3.689	0.0002
Sales growth	Growth	0.082	1.355	0.176
percentage of the largest shareholder	Lshare	-0.141	-1.056	0.291
Adjusted R ²		0.54		
Durbin-Watson		1.961		
F statistic		118.245		
p-value		0.000		

5. Conclusion and suggestions

The present study was conducted with the aim of investigating the effect of financial reporting readability as a factor in reducing the information inequality between providers of accounting information and loans and creditors as one of the main groups of users of accounting information on increasing debt capacity as an indicator of gaining the trust of the said user group.

As expected, the results showed that the financial reporting readability has a positive and significant effect on debt capacity. Financial reports are the main source of information for market participants. Companies that provide more readable financial reporting, due to the transparency and high information quality about their financial status and performance, provide a basis for reducing information asymmetry between market participants and reduce the concerns of investors. and the creditors, will underestimate the crediting and investment risk of the company by reducing the requested return, and will reduce the cost of financing from the company's debt. Reducing the cost of capital also leads to an increase in the company's debt capacity. In other words, companies that provide more readable financial reporting have higher debt capacity.

These results are in accordance with the previous findings of Fang et al (2014), they showed that companies with more complex financial reports incur higher debt costs. Also, the results are consistent with Ertugrul et al (2017) who showed that the financial reporting readability is related to the effort to hide bad news and is the main determinant of the cost of

borrowing, and the readability of financial reporting of companies reduces their financing costs. In addition, the findings of the research are also consistent with Ayuningtyas and Harymawan (2022), they showed that less (more) readable annual reports lead to higher (less) debt costs.

According to the results of this research, it is suggested to the compilers of accounting standards to formulate the necessary guidelines for the publication of readable financial reports for the users of financial statements. Providing simple, understandable, concise but comprehensive financial statements is expected to provide an important step to strengthen the information transparency of companies and increase the efficiency of resource allocation by investors and creditors. Investors and lenders are also suggested in order to avoid investing and crediting in companies with low debt capacity and consequently increasing the risk of capital loss, before deciding the ratio of investment in companies, and granting loans, and regarding the readability of financial reporting among others. Pay enough attention to the criteria. Considering that the ability to attract capital and provide financing for companies is one of the most important pillars needed to remain in today's competitive market, it is suggested to the managers to increase the level of readability and remove the ambiguity of the text of the financial statements, an acceptable level of borrowing capacity and flexibility. financial acceptability, in order to optimally use unexpected investment opportunities and crisis management in the face of financial emergency expenses.

In the research process, there are conditions that are beyond the researcher's control, but can potentially affect the research results. One of the limitations of measuring the financial reporting readability is that it requires the existence of financial statements in the form of text and reports, while the readability of some financial statements that lack text cannot be measured. In addition to this, there is no comprehensive, local and internal measurement standard for measuring readability and the lack of specific measurement software and the use of traditional and manual methods, which in addition to being time-consuming will also cause mistakes.

Future researchers are suggested to consider the impact of corporate governance mechanisms on the readability of financial reports and the relationship between the readability of financial reports and audit costs.

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