



## Effect of earnings quality on the financial reporting readability using the structural equation approach

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### ABSTRACT

Companies' annual financial reports have been a major source of information for decision-making by capital market participants, market legislators, and other stakeholders. Also, the information contained in the financial statements which have high readability has a higher value. Managers use corporate disclosures to mislead or influence investors about corporate value. Earning quality is an important feature of the accounting system. The high quality of reported earnings through information transparency and market efficiency causes the highest accounting income and economic income alignment and indicates the usefulness of earning information for users in making decisions. Poor earning quality creates risk in resource allocation, slows economic growth through misallocation of capital, diverts resources to unprofitable projects, and increases information risk. The present study investigates the effect of earnings quality on the readability of financial reporting using the structural equation approach in companies listed on the Tehran Stock Exchange. The statistical population of the study is the companies listed on the Tehran Stock Exchange during the period 2006 to 2020 and the relationship is studied in 435 firm-years observation. Research findings indicate that earnings quality affects the readability of financial reporting.

### Keywords:

Earning quality, readability of financial reporting, structural equation.



## 1. Introduction

Financial statements are designed to provide information about a company's financial condition, financial performance, and cash flow, which is useful to most users in making economic decisions. The information in the financial statements that attract the attention of investors or prospective investors is the company's profit, which reflects its performance in the accounting period. Looking at it from an information perspective, earning quality causes a positive response from investors through rising stock prices. Earnings information that attracts the attention of investors or prospective investors is earnings information that reflects the firm's performance in the accounting period. In the information approach, earnings quality is analyzed using a short time around the date of the financial statements (before and after the announcement) to confirm that changes in stock prices occur due to earnings information (Cornell & Landsman, 2013).

In company reports, on average, 80% of annual reports are text and 20% are quantitative information. Transparency and clarity of this major part of mandatory disclosure require understanding and interpretation of the information contained in the report. The US Securities and Exchange Commission has openly warned against complex corporate reports. Christopher Cox, chairman of the Securities and Exchange Commission, has suggested using measures to strengthen reporting in plain English. The Securities and Exchange Commission seems to believe that "the era of lawyers' formidable words is over"; The tendency to disclose with difficult terms stems from the fact that "the main purpose of financial reporting has shifted from a focus on informing investors to reassurance against political claims" (Lo et al., 2017).

Because not all investors can quickly understand complex corporate reports, companies should not publish complex, lengthy, or redundant reports (Ajina, et al., 2016). Although managers disclose company reports in a way that is acceptable to legal authorities, in some cases they use complex and lengthy disclosures to keep some of their information confidential from investors and other stakeholders, and the bad news or bad performance do not be easily identified in the company reports.

Some researchers suggest that managers use complex and lengthy disclosure, some investors and stakeholders use the information that keep secret the

bad news or the bad performance of the company simply is not specified in the reports. In other words, when manager proceed to earnings management, they try to provide reports with less readability so that it is difficult to determine their behavior in earnings management (Ahmadi and Ghaemi, 2019). In research on the use of sophisticated disclosure by managers, some companies manage earnings and their managers tend to report earnings more than the actual amount. Although in these cases, the firm's managers reveal good news, they have an incentive to hide the means of accessing that news. Therefore, when managers are managing earnings, they try to present their financial reports in a way that is less readable and more complex and lengthy, so that their efforts to manage earnings are more the text and complexity hide them (Li, 2008).

## Conceptual framework

The company's income is a reflection of current operating performance and the main source of predicting the company's future growth. If the reported profit meets both of the above reflections, it can be said that the company has a qualified income. Different stockholders rely on their interests when making rational decisions. Investors use earnings as the first indicator when assessing a company's future growth. In addition, management relies on profit to be able to predict the future financial turnover of the company (Ezzat, 2020).

Profit is therefore an important part of financial accounting information that influences capital market decisions. Bushman and Smith (2001) state three flows in which financial accounting information (e.g., earnings provided) affects the financial market. The first is risk information flow, which is reduced by the high quality of profits and helps investors to distinguish between good and bad investments, which in turn reduces the cost of capital.

The second trend is to reduce agency costs, which increases investors' attention about good and bad managers due to reported income. The third is the asymmetry between investors and management and between informed investors and uninformed investors, which leads to an adverse selection problem in the capital market (Bhattacharya et al., 2003).

Some studies have examined the relationship between profitability characteristics and financial reporting readability. Li (2008) examined the

relationship between the readability of annual reports and earnings persistency. His research shows that firms with lower profits have low annual report readability. In addition, the results of his research show a positive relationship between readability and profit persistency. In addition, Ajina et al. (2016) in a study examined the relationship between earnings management and annual reporting readability. The results of their research showed a positive relationship between earnings management (discretionary accounting adjustments) and readability (Fog index as a readability index). In addition, Lo et al. (2017) examined the relationship between earnings management and the readability of annual reports and find firms with more complex annual reports are more inclined to manage earnings.

Because the main purpose of accounting is to prepare and present financial information, the readability of annual reports has been a topic of interest for researchers in recent years. Interdisciplinary research in this regard has begun in the 1950s and continues to this day.

In the first studies, indices such as the Flesch scale (Pashalian & Crissy, 1950; Soper & Dolphin, 1964), Dale-Chall readability formula (Smith and Smith, 1971), and Fog index (Parker, 1982) were used. Courtis (1986) used Fry, Smog, Lix, and Rix indices to analyze the readability of annual reports. Recent accounting studies have mainly used the Fog index as a measure of readability (Li, 2008; Biddle et al., 2009; Miller, 2010; Lehavy et al., 2011; Lawrence, 2013; Inger et al., 2018). Recently, Bonsall et al. (2017) introduced a new measure called the Bog index, which is not yet widely used but is obtained through exchange rates.

Bonsall (2017) used the Fog index to measure the effect of information disclosure readability on bond rating and debt cost.

The readability of financial reporting as one of the important criteria that increases the quality of financial reporting has been considered by many researchers. Readability is a feature of information that is measured qualitatively. When reading any text, the reader gets a sense of the complexity or simplicity of the text, which has a great impact on understanding the content. This is the level of readability of the text. The empirical evidence shows that the less complex the text causes a high level of understanding.

In the accounting and financial literature, recognizing the factors that make difficult or easy for users to understand financial statements and the readability of financial reporting is one of the important issues that has always been of interest to researchers (Rezaei Pithanoui and Safari Grayly, 2018).

One of the foundations of readability is the agency theory. agency theory (Jensen and Meckling, 1976) predicts that due to information asymmetry between owner and manager, there is a moral hazard problem that the manager is likely to use the main asset for his interest. This theory predicts that owners and managers know that disclosure of accounting information can help reduce this information asymmetry.

However, Hope et al. (2008) argue that even for managers motivated to share information to reduce information symmetry, the tendency to secrecy may lead to conflict. Therefore, it can be said that firms that want to reduce information asymmetry, present their annual reports in a fully readable format. However, companies from countries with an inherent secret culture try to hide information by covering it up in a complex language. Another argument that follows the agency theory is that due to the more dispersed ownership structure, agency costs increase due to the increased likelihood of disputes between owners (Fama and Jensen, 1983).

Another legibility is the incomplete disclosure hypothesis, which suggests that managers can reduce the market response to bad news with the view that bad news analysis requires a lot of time (Bloomfield, 2002). Li (2008) examined this hypothesis and concluded that managers make analyzing bad news expensive by sending too many long annual reports with big words and long sentences. One reason is that it is harder to describe the bad news and the losses. Another reason is that managers may write reports longer and more complex to protect themselves in a lawsuit (Bloomfield, 2008). The most important recent research on textual features and readability is related to Li (2008).

Lee (2008) found that companies with higher income have healthier reports and the positive income of companies with lower readability annual reports are less persistent.

A review of research on structural equations in the field of accounting revealed that many of these studies have been analyzed using software such as Amos,

Lisrel, and Smart PLS. Since the data extracted from the audited financial statements of firms listed in the stock exchange are time series, so the use of the above software to analyze this data is not appropriate because the "time" factor in this software is not applicable. This software's mostly used for qualitative data. Stata software is often used to solve this problem and the present study is the first study in Iran that has paid attention to the time factor in structural equations this software is used to analyze data by applying a time series perspective. Since internal research on the readability of financial reporting is very few and on the other hand, and no research has been studied the effect of earnings quality on the readability of financial reporting, the present study seeks to fill the research gap in this area.

## Literature review

After conducting studies in the field of profit quality and readability of financial reporting, it was determined that the conducted research can be divided into three categories:

The first category is research that examined the impact of earnings quality, earnings management, management ability, and auditors' responses to financial reporting readability; Including: Investigating the effect of earnings quality on the relationship between financial reporting readability and cost of capital (Ezzat, 2020); Investigating the effect of earnings management and financial constraints on the readability of financial reporting (Jabbarzadeh, Kangarloui et al., 2019); Investigating the effect of management ability on the readability of firms financial reporting (Safari Grayli and Rezaei PiteNoei, 1397); Investigating the relationship between management ability, readability of annual reports and disclosure in US companies (Hassan, 2017); Earning management and readability of financial reporting: an empirical test of opportunistic approach (Safari Grayli et al., 2017); Real earning management and readability of financial reporting (Ahmadi and Ghaemi; 2018); Modeling and evaluating the adjusting role of management ability on the relationship between financial reporting readability and agency costs (Norouzi et al., 2016) Auditors' response to the low readability of corporate annual reports in the United States (Blanco et al., 2021); etc.

The second category is research that, unlike the first category (relationship change direction),

examined the impact of reporting readability on earnings management, earnings persistency, the likelihood of fraud, investor sensitivity and agency costs, etc. These researches include: examining the relationship between the readability of annual reports, current earnings, and earnings persistency (Li, 2008). Investigating the effect of financial reporting readability on the probability of accounting fraud (Rezaei PiteNoei and Safari Grayli, 2018). Assessing the readability of financial statements and the sensitivity of investors to the use of accounting information (Bagheri Azgandi et al., 2018). Investigating the relationship between the readability of the annual report, agency costs, and firm's performance (Dalwai et al., 2021).

The third category is research that can be classified into other related research; These studies include: examining the factors affecting the readability of financial statements of American firms (Kumar, 2014); investigating the readability of financial statement notes, and international financial reporting standards setting (Lau, 2016); investigating the relationship between financial reporting readability and corporate debt cost (Bonsall & Miller, 2017); investigating the effect of family ownership on the ability to read annual reports (Drago et al., 2018); investigating the effect of business strategy on the ability to read annual reports (Lim et al., 2018); investigating the impact of aggressive tax strategy and fraud on the readability of financial reporting (Sukotjo & Nanok Soenarno, 2018).

Criticism of previous research on the readability of financial reporting is that some of the research has been done regardless of the role and direction of the relationship. In other words, it can be said that this research has been done reversely. It is necessary to mention that managers run their plans during the year and at the end of the year publish reports to explain or justify their plans. Therefore, events that occur during the year and various factors on the readability of financial reporting should be considered, because the first behavior or an event occurs by managers during the year and then the effect of that behavior or the event at the end of the year is shown through the annual reports.

As a result, the critique of previous research is that the second category of research and some of the third category of research mentioned above have been conducted in a theoretical framework regardless of the

role of the relationship. In addition, given little research has been done on the Iranian capital market in this area, and since many factors can affect the readability of financial reporting. Therefore, there are many research gaps in this field that the purpose of this research is to fill some gaps in this field.

**Research method**

The present research is applied research in terms of purpose and the research method is the descriptive and correlational method. In addition, depending on the type of data, the research is quantitative and archival. The information collection method related to this research is divided into two categories: the first category of information related to research literature and research background related to each component of the conceptual model and the second category, data related to the research variables in the period for hypotheses evaluation. To obtain the first type of information, field studies are used. Also, to obtain the

second type of data, the information available on the Cadad website of the Tehran Stock Exchange is used.

In the next step, the Excel spreadsheet is used for the initial collection and classification of statistical data. Finally, to adjust and normalize the data, Confirmatory Factor Analysis (CFA) and Path Model Analysis, Structural Equation Modeling in STATA 15 software are used.

**Research hypothesis**

According to the literature, theoretical foundations, and objectives of the research, the hypothesis of the present research is presented as follows:

Earing quality has a significant effect on the readability of financial reporting.

**Research variables**

The operational definition of research variables is given in table 1:

Table (1) definition of research variables

Variable	Variable Name	Feature	Measurement
Readability	FOG index	Sentence Complicity	$0.4 \left[ \left( \frac{\text{words}}{\text{sentences}} \right) + 100 \left( \frac{\text{complex words}}{\text{words}} \right) \right]$
	LNW	Words Number	Word= LNW
	MB	File Volume	MB=Kb/1024
Earning Quality	ER (Earing Response Coefficient)	Based on Market Variables	$R_t = \beta_0 + \beta_1 E_t + \beta_2 \Delta E_t + \epsilon_{it}$
	EV (Earning Value Relevance)		$R_t = \beta_0 + \beta_1 E_t + \epsilon_{it}$
	ET (Earning Timeliness)	Based on Qualitative Features of Accounting Information	$R_t = \beta_0 + \beta_1 \Delta NI_t + \beta_2 NI_t + \epsilon_{it}$
	ES (Earning Persistence)	Based on Time Series	$E_t = \beta_0 + \beta_1 E_{t-1} + \epsilon_{it}$
	EP (Earning Perdition)		$CFO_{t+1} = \beta_0 + \beta_1 E_t + \epsilon_{it}$
	EC (Earning Variability)		$E_t = \beta_0 + \beta_1 E_{t-1} + \epsilon_{it}$
	EQ (Operating Cash Flow to Operating Income)	Based on the Relationship between Cash Flow and Accruals	$EQ = \frac{\sigma CFO}{\sigma OI}$
	WC (Working Capital)		$\Delta WC_t / A_{t-1} = \beta_0 + \beta_1 1 / A_{t-1} + \beta_2 CFO_{t-1} / A_{t-1} + \beta_3 CFO_t / A_{t-1} + \beta_4 CFO_{t+1} / A_{t-1} + \epsilon_{it}$

**Statistical Population and Sample**

The statistical population consists of all firms listed on the Tehran Stock Exchange during the years 2016-2020. The statistical population was screened which was determined by applying the following conditions:  
 1- Investment companies, banks, and insurance

companies were removed from the statistical population of the research due to their special characteristics. 2- The financial period of the company should end in March and during the research period have not changed their fiscal year. 3. Trading interval should not be more than 3 months. 4. Data related to

the variables of the present study should be available. According to the above limitations, 87 companies between 2016-2020 consisting of 435 observations are selected as research samples.

### Data analysis method

In this research, descriptive and inferential methods are used to analyze the obtained data. At the descriptive level, using statistical characteristics such as frequency, mean, standard deviation, the general characteristics of society are described, and at the inferential level, Confirmatory Factor Analysis (CFA) and Path Model Analysis, Structural Equation Modeling in STATA 15 software are used to find specific relationships between variables.

## Research Findings

Table 2 describes the status of data related to the research variables after collecting and standardizing.

In longitudinal studies, reliability means that the mean and variance of research variables over time and the covariance of variables between different years are constant. According to Levin, Lin & Chu test results at 95% confidence level, because the probability value for all variables is less than 0.05, so all research variables in the research period are stable. One of the basic conditions in the implementation of most confirmatory factor analysis and path analysis tests is the normal distribution of data. According to the output of the Shapiro-Wilk test in the above table to determine the type of data distribution at 95% confidence level, given that the probability values for all variables are less than 0.05, it can be said that the data distribution for all the data follows the normal distribution.

**Table 2: descriptive statistic**

Variable	Mean	Std Deviation	Min	Max	Shapiro-Wilk Test	Sig.	Levin, Lin, Chu	Sig.
PR	109.234	2611.506	-4823.076	50932.22	-6.586	0.9985	-13.137	0.00
PV	0.233	0.250	0.0001	0.9545	-4.581	0.9985	-17.095	0.00
PT	0.529	0.281	0.0126	0.998	2.516	0.7541	-4.279	0.011
PS	0.282	0.795	-2.9571	2.956	6.549	0.9985	-96.675	0.00
PP	-2.925	29.347	-263.003	-0.175	2.075	0.6885	-27.940	0.00
PC	-0.0750	0.0582	-0.2723	-0.0106	-6.460	0.9985	-11.911	0.00
EQ1	0.0618	2.7095	0.0238	16.855	-0.993	0.9985	-8.885	0.00
WC	-0.0679	1.1282	-5.7304	-0.005	-6.589	0.9985	-104.757	0.00
Fog	12.100	2.3697	8.0300	19.900	-6.523	0.9985	-23.564	0.00
LNW	9.0482	0.4235	7.1944	10.153	-2.981	0.9287	-8.129	0.007
MB	2.3076	2.2888	0.1816	11.0938	-6.549	0.9981	-8.286	0.009

### Creating a model of structural equations

In the present study, the researcher has sought to investigate the effect of earnings quality on the readability of financial reporting. Accordingly, the conceptual model of the research is presented in figure 1.

Before forming and extracting outputs related to path analysis, the dependence and compatibility between the obvious variables related to each of the research constructs must be ensured separately. The purpose of doing this is to determine the degree of dependence and compatibility between variables related to a latent structure (Ramlall, 2016; Oud and Delsing, 2010). In this case, the researcher already takes into account the existence of variables as an exponent and the latent variable. The latent variable is a new variable that is

estimated by the linear combination of the original values of the observed variables. Any latent variable can be considered as a fictitious or hypothetical variable that is made up of a combination of several variables that are similar in some respects. Each of the observed variables has specific factor loading that indicates how much they estimate the latent variable.

In this research, to study and identify the revision process in the initial model, before implementing and finalizing the conceptual model in the software, each of the reflective structures separately has been evaluated in STATA through Confirmatory Factor Analysis to evaluate the external factor loading of the proxies associated with each, and the revised model has been formed after identifying and eliminating variables with unacceptable factor loading. In the table

below, the findings related to the factor loading related to the proxy of each structure are reported separately in both the initial conceptual model and the revised model.

Confirmatory analyzes for the earnings quality (EQ) model indicated that obvious variables of earnings value relevance (EV), earnings persistency (EP), earnings variability (PV), and accrual quality (AQ) has weak factor loading and a non-same direction effect

with the earning quality model. It has been reported that in the financial reporting readability confirmatory factor analysis, the file size variable has weak factor loading and is inconsistent with other variables. Of course, to improve the fit of the model and the occurrence of possible errors in the correctness of the original model, a revised model can be formed next to it by removing the above-mentioned obvious variables.

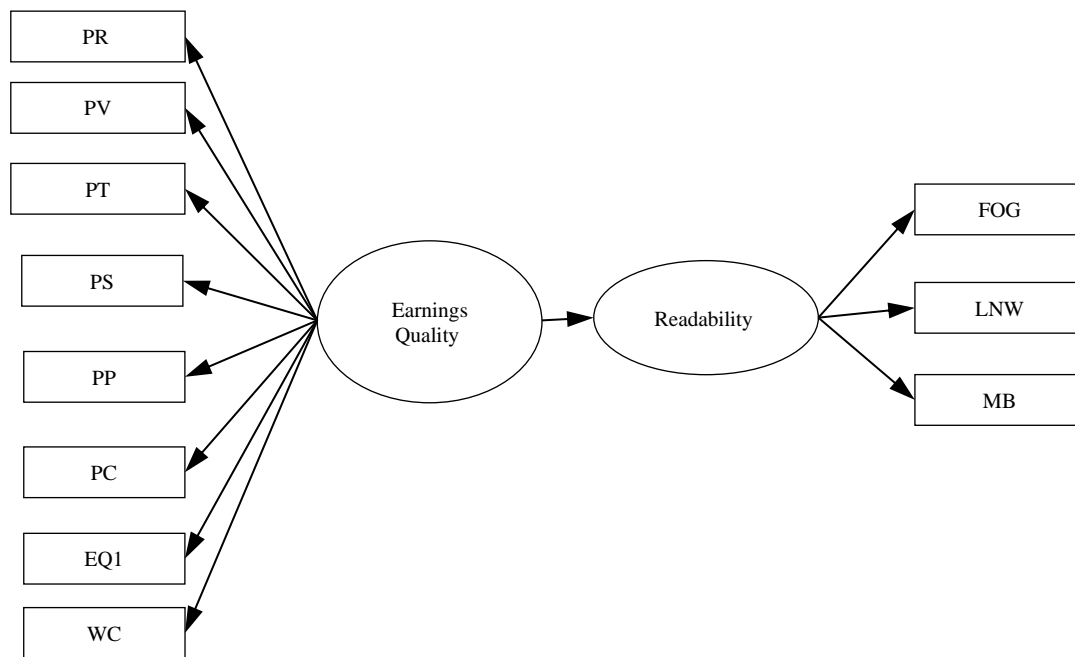


Table 3: Loading factors related to structures separately

Latent variable	Obvious variable	Initial model		Revised model	
		Loading factor	P> z	Loading factor	P> z
Readability	FOG	0.521	0.021	0.921	0.921
	LNW	0.502	0.005	0.965	0.965
	MB	0.332	0.150	-	-
Earnings Quality	PR	0.394	0.082	0.822	0.822
	PV	0.466	0.766	-	-
	PT	0.647	0.639	0.639	0.639
	PS	0.044	0.338	-	-
	PP	0.673	0.008	0.965	0.965
	PC	0.207	0.104	-	-
	EQ1	0.508	0.000	0.822	0.822
	WC	0.012	0.803	-	-

### Investigation of model fit determination indices

In Table 4, the findings related to the fit indices of the original and revised models are reported separately for different fit indices based on STATA output.

**Table 4: Findings related to the fit indices of the initial model and the revised model**

Fit index	Index value		discerption
	Initial model	Revised model	
Likelihood ratio			
chi <sup>2</sup> _ms	196.773	29.629	Normal versus saturated model
p > chi <sup>2</sup>	0.000	0.000	
chi <sup>2</sup> _bs	633.749	136.750	Base mode vs. model saturation mode
p > chi <sup>2</sup>	0.000	0.000	
Population error			
RMSEA	0.091	0.079	The mean squared values of the estimated errors in the path model
90% CI, lower bound	0.078	0.050	
90% CI, upper bound	0.104	0.110	
Pclose	0.000	0.051	
Baseline comparison			
CFI	0.734	0.913	Comparative fit index Tucker-Lewis index
TLI	0.660	0.867	
Size of residuals			
SRMR	0.082	0.048	Mean squared standard errors for the path model Determination index ratio
CD/R <sup>2</sup>	1	0.521	

In the first part of Table 4, the findings related to the chi-square probability indices for the initial and revised model are reported. The chi-square index is used to evaluate the likelihood of the model from the perspective of determining the adequacy of the data. Given that for both models; The initial model and the revised model, the probability of testing at the level of 95% is 0.000, it can be claimed that the null hypothesis is based on the proportionality of the sample size with the rejected model and the opposite hypothesis has been accepted. The chi-square test is generally affected by the statistical sample size. The larger the statistical sample size selected, the greater the probability of accepting the null hypothesis based on the appropriateness of the data for evaluating the structural equation model, and there is no precise rule in determining the sample size through it.

Due to this, neither the initial model nor the revised model from the perspective of the chi-square likelihood test has been accepted in this study; On the other hand, according to researchers such as Acock (2013) and Ejeta et al. (2016), if this index is rejected for structural equation models due to sampling size constraints, we should not rely on chi-square index

alone to evaluate the accuracy of the model and refer to other indicators and if you accept the validity of the model in other indicators, you can accept the findings and the model. Otherwise, the model or sample size should be revised. Therefore, in the following, the status of other indicators of model fit is investigated.

The sample error-index is one of the likelihood indicators of the structural equation model calculated by STATA. Values less than 0.08 for (RMSEA) indicate an acceptable value of the mean squared index of the estimated errors in the path model (Ramlall, 2016). According to the findings of the second part in Table 3, only a suitable value was reported for the revised model (0.079) but the status of this index was not suitable for the initial model (0.091).

A common rule is that the CFI and TLI index values are approximately 0.9 and higher. According to the findings of the third section in Table 3, it can be seen that the relevant likelihood indices for the initial model are less than the revised model. This means that the revision of the model has led to an improvement in its performance from the perspective of these two indicators.



The last indicator is the error size values reported in the fourth section of Table 3. According to the rule, if the average squared error of the standardized model for the path model is less than 0.05, the model has a good fit. Accordingly, the revised model had a good fit from the perspective of the SRMR index (0.048), but the original model did not have a good position from the perspective of the index (0.082). The index of determination for the acceptable condition is approximately 0.5 and for the unsuitable condition is more or less than this value. It can be seen that the revised model has a good fit from the perspective of the CD / R2 index (0.521), but the original model did not have a good position from the perspective of this index (1).

According to the study of the likelihood indices of the models, it can be said that the revised model is in a good condition from the perspective of likelihood and the statistical findings extracted from it can be refereed.

Figures 2 and 3 show the initial model and the revised model for performing path analysis. In the following, the coefficients of determination, path analysis, and the significance of the relationship between the components of the model are investigated. In Table 4, the values of direct and indirect path coefficients and their significance for the revised model are reported at 95% confidence level.

Figures 2: Basic model in path analysis

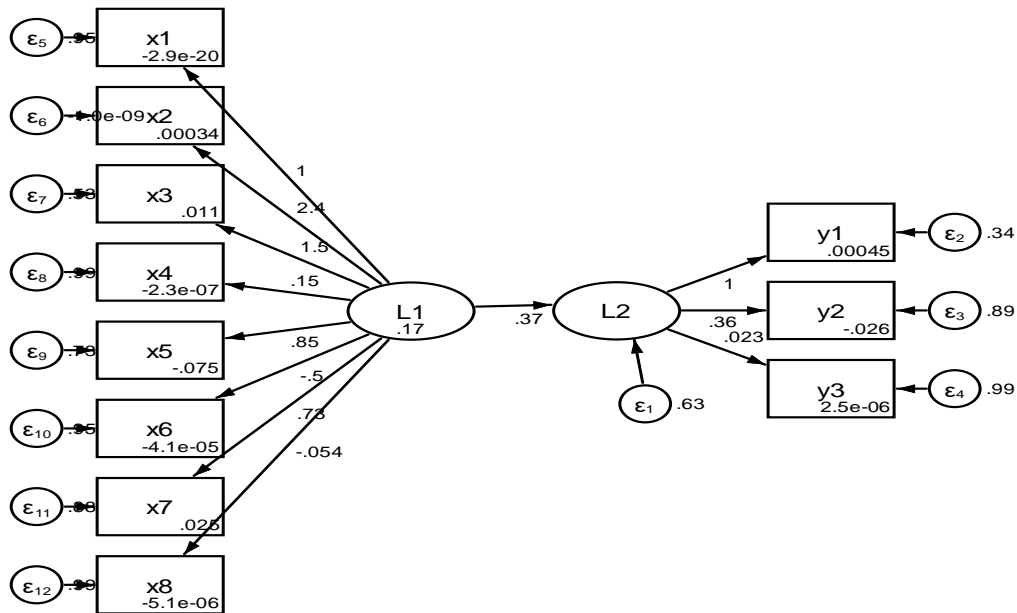


Table 4. Direct and indirect path coefficients and their significance for the revised model

Path coefficient	Standard error	Z statistic	P> z	[95% Conf. Interval]		Path
0.71480	0.2755	2.59	0.009	0.1748	1.2548	Read<- EQ
0.199	0.091	2.193	0.016	0.6642	1.4384	Fog<- PR
0.132	0.073	1.797	0.044	-0.0903	0.0947	Fog<- PT
0.191	0.121	1.577	0.059	0.01879	0.4967	Fog<- PP
0.663	0.087	7.631	0.000	0.7836	1.7956	Fog<- EQ1
0.084	0.088	0.953	0.21	-0.0966	0.09549	LNW<- PR
0.442	0.111	3.989	0.001	0.4556	1.0088	LNW<- PT
0.293	0.176	1.663	0.062	-0.0931	0.1040	LNW<- PP
0.288	0.084	3.412	0.000	-0.0187	0.16743	LNW<- EQ1

According to the findings of the revised model in Table 4, the effect of earnings quality on the readability of financial reporting with a coefficient of 0.7148 at a 95% confidence level is confirmed. Also, the findings related to indirect effects confirmed the effect of earnings response coefficient, earnings timeliness, and operating cash-to-income ratio on financial reporting readability (Fog index). In addition, earnings timeliness and the ratio of operating cash to operating income has a significant effect on the financial reporting readability (the words number natural logarithm index).

### Conclusions and suggestions

One of the indicators of disclosure quality that has not been used much in previous research is readability. In a broader sense, readability is the ability to easily understand and read words and sentences (text) at the desired speed. Therefore, readability in the communication process between the management and shareholders of the company and debtors should be given much attention. Accordingly, based on the ambiguity hypothesis, a company's management can use the readability of a "board" report to clarify their performance or hide information from company shareholders and lenders.

Income quality can be seen as an indicator of information quality that affects the forecast of future cash flows of the company. Companies need to pay attention to the quality of their information that is disclosed to various shareholders and lenders. They seek to disclose earnings accuracy to reduce the risk of ambiguity that may exist in financial statements. As a result, poor financial reporting, which is ambiguous about profits, leads to poor cash flow forecasting in the future, which in turn leads to high information risks. Profits reflect current operating performance and are a major source of predicting future growth (Lu, 1989; Decho, 1994; Carmo et al., 2016). If the reported profit meets both concerns, it can be said that the company has a quality profit.

Different stockholders rely on profit when making rational decisions. Investors use profits as an indicator when assessing the future growth of a company. In addition, management relies on predicting the company's future cash flow and delivering performance and compensation (Carmo et al., 2016). Therefore, income is an important part of financial accounting information that influences capital market

decisions. Bushman and Smith (2001) show three flows that affect financial accounting information (e.g., presented earnings) in the financial market. The first is information risk, which is reduced by the high quality of profits and helps investors distinguish between good and bad investments.

The second is the agency cost, which increases investors' awareness of good and bad managers because of reported profits. The third case concerns information asymmetry between investors and management and between informed and uninformed investors. This leads to the problem of adverse choices in trading markets (Bhattacharya et al., 2003). In addition, managers may need to demonstrate good performance by reducing the complexity of the readability of reports provided to shareholders and creditors. Thus, according to signaling theory, high-quality reported earnings increase managers' desire to increase the readability of reports.

In addition, based on the ambiguity hypothesis, management may mask its poor performance when profit has low quality by increasing the complexity of the reporting.

Although firms are releasing good news about meeting a benchmark, they have incentives to hide the tools used to achieve it. In other words, when reported performance differs from underlying fundamentals, it is expected that managers try to make it harder for investors to identify such earnings management behavior and the underlying performance (Jabbarzadeh Kangarlouie et al., 2019). Therefore, the present study examined the effect of earnings quality on the readability of financial reporting using the structural equation approach in companies listed on the Tehran Stock Exchange. The results indicate that earnings quality affects the readability of financial reporting. The results of the present study do not in conformity with the results of the Ezzat (2020) research. The result of this research can be interpreted from several aspects. First, managers should report simply and understandably to show their good performance to shareholders and lenders. Second, managers need to increase the readability of their reports to show the high quality of the company's profits. Third, management may use complexity of their reports to hide their poor performance.

Because financial statements and especially financial statement notes are used by investors to make decisions and companies with poor performance tend

to increase the textual complexity of their reports and companies with positive performance tend to present the reports simply and understandably, it is suggested that investors consider the quality of companies' profits in examining the readability of financial reporting.

Based on the results of the present study and previous research, it is suggested that the following topics be considered in future research:

1. Investigating the effect of fraud on the readability of financial reporting using the structural equation approach.
2. Investigating the effect of aggressive tax strategies on the readability of financial reporting using the structural equation approach.
3. Investigating the effect of information asymmetry on the readability of financial reporting using the structural equation approach.

## References

- 1) Ahmadi, A., Ghaemi, M. (2019). Real Earnings Management and Financial Reporting Readability. *Applied Research in Financial Reporting*, 7(2), 45-72.
- 2) Ajina A., Danielle S., Lakhal F. (2016). Corporate Disclosures, Information Asymmetry and Stock-Market Liquidity in France. *The Journal of Applied Business Research*, 31, pp. 223-238.
- 3) Acock, A. C. (2013). *Discovering structural equation modeling using Stata*. Stata Press Books.
- 4) Ahrens, B. (2010). Capital market implications of earnings quality, 69. *BoD-Books on Demand*.
- 5) Bagheri Azghandi, A, Hesarzadeh, R., and M. R., Abbaszadeh, (2018). Readability of financial statements, and investors' sensitivity to use of accounting information. *Financial Management Perspectives*, 23, pp. 87-103. In Persian.
- 6) Bhattacharya, U., Daouk, H. and Welker, M. (2003). The world price of earnings opacity, *Accounting Review*, 78 (3), pp. 641-678.
- 7) Biddle, G., Gilles, H., and Rodrigo, V. (2009). How does financial reporting quality relate to investment efficiency?
- 8) Bonsall, S.B. and Miller, B.P. (2017). The impact of narrative disclosure readability on bond ratings and the cost of debt, *Review of Accounting Studies*, 22 (2), pp. 608-643.
- 9) Bushman, R.M. and Smith, A.J. (2001). Financial accounting information and corporate governance, *Journal of Accounting and Economics*, 32 (2), pp. 237-333.
- 10) Bloomfield, R. (2008). Discussion of 'annual report readability, current earnings, and earnings persistence ', *Journal of Accounting and Economics*, 45 (2-3), pp. 248-252.
- 11) Bloomfield, R.J., (2002). "The Incomplete Revelation Hypothesis and financial reporting". *Account. Horizons*, 16, pp. 233-243.
- 12) Bonsall, S.B. and Miller, B.P. (2017), The impact of narrative disclosure readability on bond ratings and the cost of debt, *Review of Accounting Studies*, 22 (2), pp. 608-643.
- 13) Blanco, B., Coram, P., Dhole, S., & Kent, P. (2021). How do auditors respond to low annual report readability?. *Journal of Accounting and Public Policy*, 40(3), pp. 106-769.
- 14) Carmo, C.R., Moreira, J.A.C. and Miranda, M.C.S. (2016), Earnings quality and cost of debt: evidence from Portuguese private companies, *Journal of Financial Reporting and Accounting*, 14 (2), pp. 178-197.
- 15) Cohen, D. A. (2004). *Quality of Financial Reporting Choice: Determinants and Economic Consequences: Doctor of Philosophy*, Northwestern University.
- 16) Cornell, B. and Landsman, W. (2003). Accounting Valuation: Is Earnings Quality an Issue? *Financial Analysts Journal*, 59, pp. 20-29.
- 17) Curtis, J.K. (1986), An investigation into annual report readability and corporate risk-return relationships, *Accounting and Business Research*, 16 (64), pp. 285-294.
- 18) Drago, C., Ginesti, G., Pongelli, C., & Sciascia, S. (2018). Reporting strategies: What makes family firms beat around the bush? Family-related antecedents of annual report readability. *Journal of family business strategy*, 9(2), 142-150.
- 19) Dalwai, T., Chinnasamy, G. and Mohammadi, S.S. (2021), Annual report readability, agency costs, firm performance: an investigation of Oman's financial sector, *Journal of Accounting in Emerging Economies*, 11 (2), pp. 247-277. <https://doi.org/10.1108/JAEE-06-2020-0142>.

- 20) Ezat, A. N. (2020). The impact of earnings quality on the association between readability and cost of capital. *Journal of Accounting in Emerging Economies*.
- 21) Hope, O., T. Kang, W. Thomas, Y.K. Yoo. (2008). Culture and auditor choice, A test of the secrecy hypothesis. *Journal of Accounting and Public Policy*, 27(5), 357-373. <http://dx.doi.org/10.1016/j.jaccpubpol.2008.07.00>.
- 22) Inger, K. K., Meckfessel, M. D., Zhou, M., & Fan, W. (2018). An examination of the impact of tax avoidance on the readability of tax footnotes. *The Journal of the American Taxation Association*, 40(1), 1–29. doi:10.2308/atax-51812.
- 23) Fama, E. and M. Jensen. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), pp.301-325.
- 24) Jabbarzadeh Kongerloui, S, Motavassel, M., and Y. Behnamoon, (2019). The Impact of Earnings Management and Financial Constraints on the Readability of Financial Reporting, *Quarterly Journal of Stock Exchange*, 46, pp. 5-25. In Persian.
- 25) Jensen, M. and Meckling, W. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics* 3, 305–360.
- 26) Kumar, G. (2014). Determinants of readability of financial reports of U.S.-listed Asian companies. *Asian Journal of Finance & Accounting*, 6(2). doi:10.5296/ajfa.v6i2.5695.
- 27) LI, F. (2008). Annual Report Readability, Current Earnings, and Earnings Persistence. *Journal of Accounting and Economics*, 45, 221-247.
- 28) Lawrence, A. (2013). Individual investors and financial disclosure. *Journal of Accounting and Economics*, 56(1), 130–147. doi:10.1016/j.jacceco.2013.05.001.
- 29) Lehavy R, Li F, Merkley K, (2011). The effect of annual report readability on analyst following and the properties of their earnings forecasts. *Account Rev* 86:1087–1115.
- 30) Lo, K., Ramos, F. and Rogo, R. (2017), Earnings management and annual report readability", *Journal of Accounting and Economics*, 63, 1, pp. 1-25.
- 31) Miller, B. (2010). The effects of reporting complexity on small and large investor trading. *The Accounting Review*, 85(6), 2107–2143. doi:10.2308/accr.00000001.
- 32) N. Gibbons; D. Vickrey; D. Tierney; D. Brown. (2013). Sabrient/gradient earnings quality rank. White paper, 1 (1), 1-20.
- 33) Nowruzzi, M, Azinfar, K, Abbasi, I., and I. Dadashi. (2020). Modeling and Evaluating the Modulating Role of Management Ability on the Relationship between Financial Reporting Readability and Agency Cost, *Financial Accounting Research*, 12 (1), pp. 1-18. In Persian.
- 34) Oud, J. H., & Delsing, M. J. (2010). Continuous-time modeling of panel data using SEM. In *Longitudinal research with latent variables*, pp. 201-244: Springer.
- 35) Parker, L. D. (1982). Corporate Annual Reporting: A mass communication perspective. *Accounting and Business Research*, 12(Autumn), 279–286. doi:10.1080/00014788.1982.9728820.
- 36) Pashalian, S., & Crissy, W. J. E. (1950). How readable are corporate annual reports? *The Journal of Applied Psychology*, 34(August), 244–248. doi:10.1037/h0061918 PMID:15436380.
- 37) Ramlall, I. (2016). *Applied structural equation modeling for researchers and practitioners: Using R and Stata for behavioral research*: Emerald Group Publishing.
- 38) Rezaei Pite Noei, Y., and M. Safari Graili (2018). Readability of Financial Reporting and the Possibility of Fraudulent Financial Reporting. *Financial Accounting Research*, No. 4 (38), pp. 43-58. In Persian.
- 39) Safari Graili M, Rezaei Pite Noei, Y., M., Nowruzzi. (2017). Profit Management and Readability of Financial Reporting: An Empirical Test of Opportunistic Approach". *Auditing knowledge*. Pp. 217-230. In Persian.
- 40) Sukotjo, C., and Soenarno, Y. N. (2018). Tax Aggressiveness, Accounting Fraud, and Annual Report Readability. *Journal of Finance and Economics*, 6(2), 38-42.
- 41) Smith, J.E. and Smith, N.P. (1971). Readability: a measure of the performance of the communication function of financial reporting", *The Accounting Review*, 46, 3, pp. 552-561.
- 42) Soper, F. J., and Dolphin, R. (1964). Readability and corporate annual reports. *The Accounting Review*, (April), 358–362.