# THE RELATIONSHIP BETWEEN FINANCIAL STATEMENTS DISAGGREGATION AND AUDIT FEES

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Received: April 06, 2021 Accepted: April 27, 2021 Published: May 01, 2021

#### **Abstract**

This paper studies the relationship between financial statements disaggregation and audit fees. Financial statements disaggregation is about detailed disclosure of information and is based on the better quality of finer information. To measure this characteristic, native standards and resources (from Iran) were used. Our method of measurement is based on Chen et al.'s (2015) approach, but with a basis of local resources. Providing more detailed information in the financial statements can affect the auditors' judgment regarding audit scope, which can affect their demanded fee. The results indicate that there is a significant relationship between financial statements disaggregation and audit fees.

**Keywords:** Disaggregation, Financial Statements, Financial statement Items, Audit Fee

# 1. Introduction

The term "Disclosure" is a comprehensive term and covers almost the entire financial reporting process. One of the basic principles of accounting is the disclosure of all facts of importance and related events and financial activities of a single entity, in particular, public corporations (Alivar, 1991). Researchers have adopted different approaches to measuring and operationalizing the disclosure quality, with significant differences in their structure. Major disclosure studies have focused on the extent to which compulsory and optional information have been disclosed, which generally includes indicators designed by the researcher in accordance with legal requirements, such as the standards and regulatory rules of countries for compulsory items (Ahmad and Nicholls, 1994) or optional items (Kashanipour et al., 2001; Botosan, 1997). Measurement of Disclosure Quality is one of the issues considered by the Securities and Exchange Organization. Ratings made by the Securities and Exchange Organization are based on the reliability and timeliness of the information. Given the extent of the disclosure issue and the factors affecting its quality, there are certainly other aspects of this measure that can be used as a complement to the standards used by the Securities and Stock Market Organization. The factor to be considered in this study is financial statements' disaggregation. Using the financial statements' disaggregation as a measure of disclosure quality is a new approach that was first proposed by Chen et al. (2015).

Chen et al. (2015) introduced the financial statements' disaggregation as an indicator for disclosure (based on the higher quality of finer information). The requirements to break down the financial information in financial statements provided in accounting standards are usually generalized and based on the nature and function of each item. Compliance with these requirements and disclosure of sums based on the minimum segments referred to in the standard by the reporting units is essential. However, there is no limitation to further breaking down and more detailed presentation of the financial statements. The reporting units, according to management judgment, split or aggregate reported items. Subsequently, this study examines the relationship between the disaggregation of accounting information and audit fees. Different researches have been done to identify the effective factors in

determining audit fees. Factors such as the volume of operations, the complexity of the operations and the type of audit firm (Nikbakht and Tanani, 2010), the ownership of state and sub-state institutions, and the auditor's expertise in the industry (Vaez et al., 2014) are effective in determining audit fees. Disaggregation of financial statements information can also be effective in determining audit fees. Further breakdowns of information may affect the auditor's judgment of significance level of a single disclosed item compared to a situation when the same item is disclosed in aggregate with other items. In these circumstances, the auditor may increase the volume of their work and determine a higher number of samples to ensure that the reported numbers are accurate, depending on the importance of the items disclosed separately. This will lead to more time spent on processing the information and, as a result, will require higher audit fees (Beck et al., 2016). For this purpose, this paper examines the extent to which the level of financial statements disaggregation affects audit fees.

# 2. Literature Review

## 2.1.Disclosure Quality

The terms "disclosure quality of accounting information" and "transparency of disclosure" are generally synonymous, and it is difficult to define precisely the "transparency" and "quality" that exists on this consensus. In this regard, so far, various structures as the representative of the disclosure quality have been used such as relevance, comprehensiveness, awareness and timeliness (Alavi Tabari et al., 2011). Ball et al. (2000) interpret transparency as a combination of timeliness and conservatism. Barth and Schipper (2008) describe the transparency of financial reporting as part of a financial report that identifies the underlying economic affairs of a business entity, which is understandable to users. Singhavi and Desai (1971) argue that quality refers to the characteristics of completeness, accuracy, and reliability. According to Brown and Hillegeist (2006), the disclosure quality provides a general overview of the company's overall disclosures and depends on the amount of information disclosed, the timeliness of the information and its accuracy.

## 2.2.Disclosure Quality in Iran

The Securities and Exchange Organization of Iran determines the disclosure quality of the information of companies admitted to Tehran Stock Exchange based on timeliness and reliability of financial statements. To be timely in the theoretical framework is to provide timely information that can influence decisions of decision makers (FASB, 2010). By interpreting this definition, it can be said that timeliness is relative, information at anytime can or cannot have this attribute, and prescribing a specific date or time period for its presentation, while considering the different approaches of each user, If not impossible, it will surely be very difficult. If a report is submitted on a date after the date specified in the instruction, the timeliness rank of the company will be reduced, although, from the user's point of view, the information provided may be timely. In their respected calculations, the volatility and changes in the forward-looking estimates as well as the differences between the expected amounts and the actual audited performance are reliability measures. The calculation of points based on the described items and ignoring other factors affecting reliability (such as the quality of the reported statement, the level of error in the report, etc.) are among the weaknesses of this criterion.

#### 2.3. Financial Statements Disaggregation

The explanatory notes include information presented in addition to the information available in the financial statements. They include descriptions or disaggregated amounts of the items included in these statements (IASB, 2007). The Disaggregation Quality is based on the Blackwell's (1951) view of "finer information is of higher quality". Further disaggregation provides investors with more accurate and more information. A detailed disclosure of information reduces information asymmetry and increases the accuracy of financial statements, and provides investors with more information for valuation and reduces the likelihood of a wrong pricing (Fairfield et al., 1996; Jegadeesh and Livant, 2006). In addition, further disaggregation increases the credibility of the corporate earnings forecast report and reduces manager's freedom in managing reported numbers (Chen et al., 2015; D'Souza et al., 2010; Hirst et al., 2007). Chen et al. (2015) found that disaggregation quality has a positive and significant relationship with the accuracy of analysts' forecasts, and a negative and significant relationship with information asymmetry and capital cost.

DQ is a comprehensive measure for accuracy of information provided in the annual financial statements of the companies. Although the level of detail provided in the financial reports is an important part of the disclosure behavior of the organizations, it has not been under a lot of attention by researchers. This criterion, conceptually, is very different with other metrics of disclosure quality, such as managerial predictions and self-made indicators of researchers. The difference of this benchmark with others is due to its focus on the accuracy of data that reflects the degree of separation of items in the financial statements (Chen et al., 2015). Contrary to the widespread literature in the field of disclosure in general, and the disclosure of the optional and compulsory information in particular, there are no standards or studies in Iran to measure the disclosure quality based on the extent of the disaggregation in the financial statements.

According to Chen et al. (2015) there are three significant points in designing and implementing this benchmark. First, the purpose of this study is to construct a brief, intuitive, and relatively free of researcher's judgment. Therefore, the implicit assumption of this research is the higher quality of "finer information" and there are no differences between recognition (financial statements items) and disclosure (accompanying notes). Second, this criterion focuses on examining the details contained in the annual reports based on aggregation rather than aggregation with the classification change (for example, classification of long-term receivables as short-term to illustrate a better picture of the company's situation). Third, with regard to the need to maintain comparability in preparing financial statements, companies will not have a yearly jump in this indicator. The limitation of changes in this criterion in companies over time will make it a suitable tool for cross-sectional and event-driven research. For example, the DQ can be used to evaluate changes in classification after the change of auditor, major changes in the entity's business or management change.

While financial statements, in accordance with accepted accounting principles, necessarily integrate accounting data to provide useful information in a cost-effective manner, the standard-makers require financial statements to provide disaggregated accounting information, for simple accounting metrics, such as income, to avoid particular attention to these simplified criteria. Therefore, financial reporting standards consider the costs and benefits of disaggregated accounting data, but do not provide guidance on the appropriate level of disaggregation in financial reports (Beck et al., 2016). Since managers have a significant discretion when choosing the level of separation in compulsory reports, companies differ in the amount of disaggregated accounting data.

Chen et al. (2015) measured the quality of the financial statements disaggregation by counting all line items in COMPUSTAT and dividing the number of items disclosed into the total line items defined for each account. In order to construct a relevant criterion for evaluating the disaggregation level of information presented in financial statements for general purposes, this study used Chen et al. (2015) method but with a different basis. Accounting standards specify the disclosure requirements in annual financial statements. Also, during the audit process, charted accountants are required to complete the disclosure checklist designed by the IACPA which is based on accounting standards.

Using the accounting standards, the disclosure checklist of the AICPA, and the instruction of disclosing information provided by the Securities and Stock Exchange organization, in order to provide the objectives of this research, a table was designed to be used in order to rank the level of disaggregation quality in companies.

#### 2.4.Disaggregation in Statement of Financial Position Items

IAS 1 describes the statement of financial position and the minimum required items which comprise it. According to par. 55 of IAS 1, if in addition to principal items, there are other titles and sub categories that are relevant to understanding the entity's financial position the entity shall provide them in the case of a financial position. When presenting these subgroups, they should consist of the main items and be presented and named in such a way that the principal items are clear and comprehensible; they should also be uniform across periods. The Standard also requires the separation of assets and liabilities to current and non-current (except where liquidity-based provision provides more relevant and reliable information). These in fact, mean the same in terms of disaggregating amounts in other for users to be better able to understand and comprehend the financial position of an entity.

The sub-categories of the main items that should be disclosed in the notes in accordance with the standard should be classified according to the entity's operations. As necessary, each sub-item should be subdivided into more sub-items according to its nature. The determination of the sub-categories depends on the requirements of the accounting standards, size, nature and operation of the items. Notable points to the separate presentation of these items as per

standard include the nature and capability of the asset, the operation of the assets in the business unit and the amounts, nature and timing of debt repayments.

#### 2.5.Audit Fee

It is important to study the factors affecting the audit fee in terms of its impact on the quality of the audit. Research suggests that audit fees are to a mostly a function of audit team labor hours and its cost, and a risk component. Four major phases of audit process include: (1) planning, (2) risk assessment, (3) conducting the audit, and (4) evaluating the results and issuing the report. When deciding about the audit fee, the decisions and assessments made during the planning and risk assessment are of high importance (Ittonen & Peni, 2012).

Audit fees are effective in the planning and implementation of the proper and high-quality financial audit work. The low quality of the audit results in decreased confidence of the users of financial statements, which not only leads to failure to achieve audit objectives, but also reduces the credibility of the audit process and prevents the optimal allocation of capital in the securities market and leads to the increase of cost of capital and financing (Rajabi, 2004). Determining the factors influencing the audit fee will help the client understand the benefits of this service and what this cost is due to. Obviously, knowing this will accelerate and facilitate auditors work, and due to the involvement of the client, a higher quality audit will take place (Gist, 1992).

## 2.6.Financial Statements Disaggregation and Audit Fee

Empirical research has provided an insight into the reasons for manager's decision to disaggregate financial statements items. Heitzmann, Weisley and Zimmerman (2010) and Riedl and Srinivasan (2010) presented evidence that managers' decisions in disaggregation of financial statements items were influenced by the importance of these items for the company and, consequently, for investors. For example, in the area of segment reporting, Berger and Han (2003 and 2007) found that corporate executives tended to conceal losses of segments with aggregating their numbers with profitable sectors to hide bad performance, and prevent scrutiny by investors. In this example, the bad performance of the client directly relates to his/her business risk, which is one of the factors influencing the determination of audit fees. In line with these researches, it can be said that the disaggregation quality of financial statements could have potential effects on the auditor's assessment of the importance of the items presented. Disaggregation of an item that was previously presented collectively and at that time, its' importance in terms of the auditor's opinion was low, may become an item of high importance to the auditor. Disaggregation of this item could be effective on user decisions, and as a result, the auditor may need to ask for more evidence, carry out more tests and anticipate conducting more extensive audit procedures at the planning stage, which may result in asking for a higher fee (Beck et al., 2016).

# 3. Research Hypothesis

Based on the above and reviewing existing literature, the main hypothesis of the research is as follows:

H1: There is a positive relationship between financial statement disaggregation and audit fees.

In order to test the research hypothesis, the Standard audit fee model, which includes control variables identified in prior research, that affect the auditor's fees is used. These variables include company size, complexity, operational risk, and financial risk. In this equation, the variable ln\_fees is equal to the natural logarithm of the audit fee. This model was first purposed by Beck et al. (2016), and is modified to fit the structure of Iran's available information and market structure.

Equation 1:

 $ln\_FEESit=\beta0+\beta1DQit+\beta2ln\_ASSETSit+\beta3LEVERAGEit+\beta4LOSSit+\beta5ROAit+\beta6CFOit+\beta7REPORTLAGit+\beta8BIG2it+\beta9CFOVOLit+\beta10SALEGROWTHit+\beta11MTBit+\beta12NEW\_FINANCINGit+\beta13AUDITTENUREit+\beta14SPECIALISTit+\beta15FISCALYEARit+\varepsilonit$ 

## 4. Research Variables

#### 4.1.Independent Variable

Disaggregation Quality (DQ): indicates the accuracy of information that is reflected in disaggregation of accounting data in annual reports (Chen et al., 2015).

In order to measure disaggregation, we used the tables which lists the information included in financial statements. In the preparation of tables, the sample financial statements designed by the Audit Organization, a disclosure checklist by IACPA and accounting standard No. 1 of Iran have been used. For each account group, the parent account and for each parent account, the subcategories were defined.

In two cases, the account balance will not be shown at each of the defined levels:

- 1. The remainder of this account is zero, or
- 2. Balance of this account has been disclosed as aggregated with other items.

If the first state is realized, the disclosure score will be calculated by eliminating the effect of the corresponding account. First, the weight of each section is determined relative to the remainder of the total. Then the number of subclauses in each of these headings is counted and divided by the total number of subcategories determined (according to the table) and multiplied by the weight of that account. Then, the initial disclosure rate is split only for the balance sheet (due to its two parts), so that the final disclosure rate is calculated from one.

## 4.2.Dependent Variable

Audit fees: Audit fees are the amount auditor receives in return for providing audit services and reports from the client. In this study, the audit fees are extracted from the explanatory notes accompanying the financial statements of the companies and, in order to facilitate the calculation, the natural logarithms of these amounts were used.

## 4.3. Control Variables

The list of control variables used in this study and how they are measured are described in Table 1.

Table 1. Co	ntrol variables		
Variable	How it was measured		
ln_ASSETS	Natural logarithm of total assets.		
LEVERAGE	Total debts to total assets.		
LOSS	$\underline{1}$ For companies which reported loss, otherwise $\underline{0}$ .		
ROA	Return on assets.		
CFO	Operational cash flow divided by total assets.		
FISCALYEAR	$\underline{1}$ If the company's fiscal year ends in 12/29, otherwise $\underline{0}$ .		
REPORTLAG	The interval between the date of the end of the fiscal year of the company and the date of the auditor's report.		
BIG2	$\underline{1}$ For the companies which have been audited by Audit Organization or Mofid Rahbar (the two biggest auditors of Iran), otherwise $\underline{0}$ .		
AUDITTENURE	The number of continuous years which an auditor examined financial reports of a company.		
SPECIALIST	$\underline{1}$ If the Auditor is an industry specialist, otherwise $\underline{0}$ .		
SALEGROWTH	Current year's sales divided by last years.		
MTB	Conservatism measured by capital market value divided by nominal value.		
CFOVOL	Standard deviation of CFO <sub>t</sub> , CFO <sub>t-1</sub> , and CFO <sub>t-2</sub> .		
NEW_FINANCING	$\underline{1}$ If the company has issued new shares or bonds in a year, otherwise $\underline{0}$ .		

#### 5. Research Method

This research is an applied research in terms of its application type. The purpose of the applied research is the development of applied knowledge in a particular context. In terms of research method, it is a descriptive - correlation study. First, this paper studies the current status of the statistical population, meaning the variables of the research, and then examining the correlation and determining its type among the variables.

# 6. Statistical Population and Sample

The statistical population of this study includes companies accepted in Tehran Stock Exchange and the time period of the research are years 2011 to 2015. To determine the ranking of disclosure based on the criteria used in the research and testing of hypotheses, a sample of 61 companies was selected based on the following criteria:

- 1. The company has to be admitted to the Exchange Market before the year 2011 and by the end of the year 2015 its name should not have been removed from the list.
- 2. It must have been a manufacturing company (non-investment and non-holding).
- 3. The audit fee must have been disclosed in the financial statements of the company.

#### 7. Data Collection Method

In order to collect the required data, we use the publisher's comprehensive information system (codal), the Rahavard Novin 3 and other websites related to the securities and stock market organization such as the Financial Information Processing Center of Iran.

# 8. Research Findings

## 8.1.Descriptive Statistics

In order to provide a general overview of the characteristics of the research variables, Table 2 presents some descriptive statistics related to them.

Table 2. Descriptive Statistics							
Variable	Median	Mean	Std. Deviation	Variable	Median	Mean	Std. Deviation
LN_FEES	6.4848	6.408	0.786057	MTB	2.104	2.645767	2.1225
DQ	0.744	0.761	0.108695	NEW_FINANCING	0.000	0.1016	0.302670
CFO	0.138	0.114	0.164319	REPORT_LAG	74.00	74.327	26.85323
CFOVOL	0.090	0.076	0.074295	ROA	10.21	11.272	17.54413
FISCAL_YEAR	0.839	1.000	0.367817	SALEGROWTH	0.1516	0.1889	0.3917
LEVERAGE	0.6610	0.619	0.451109	SPECIALIST	1.000	0.5114	0.500690
LN_ASSETS	13.291	13.42	1.107018	TENURE	2.000	2.0426	1.121626
LOSS	0.1606	0.000	0.367817	BIG2	0.000	0.196	0.3981

# 8.2. Reliability test of variables

One of the conditions for using regression is the reliability of the variables studied in the research. In order to verify the reliability, we used Im, Pesaran and Shin test. The results of this test are shown in Table 3.

Table 3. Reliability test						
Variable	W-stat	p-value	Variable	W-stat	p-value	
LN_FEES	-18.8735	0.0000	REPORT_LAG	-4.0036	0.0000	
CFO	-2.94177	0.0016	ROA	-11.3384	0.0000	
CFOVOL	-3.77039	0.0001	TENURE	-11.2136	0.0000	
LEVERAGE	-8.00537	0.000	SALEGROWTH	-1.82507	0.0340	
ln_ASSETS	-11.5321	0.000	DQ	-1.83229	0.0335	
MTR	-2.67352	0.0038				

According to the results of the IPS test, in all variables, the null hypothesis is rejected (the level of significance is less than 0.05), as a result, research variables during the research period are reliable, and the use of these variables in the model does not lead to false regression.

#### 8.3. Inferential Statistics

In this research, we seek to discover the relationship between several variables. Before fitting the regression models, it is necessary to first select the optimal model by using statistical tests and linear regression assumptions.

## 8.4. Diagnostic Tests

Hausman's test is used to determine the use of a constant effect model versus a random effect model. The Limer test also examines whether there are different results at different intervals or the results are the same. The results of the Limer and Hausman tests are as follows.

Table 4. Limer and Husman test					
Type of test	Type of test Test statistic Prob. Result				
Limer	4.968345	0.0000	Null hypothesis rejected	Panel Model	
Husman	10.503125	0.7870	Null hypothesis not rejected.	Panel with random effects	

The result of the Limer test shows that the panel data method should be used to estimate the research's regression model and the results of the Husman test shows the optimal panel model is with random effects.

# 9. The classic regression assumptions test

# 9.1. Independence test of errors

Durbin-Watson statistic tests the serial correlation between the regression errors. The independence of the errors in the regression model can be achieved when the statistic is between 1.5 and 2.5. The Durbin-Watson statistic of the model is 1.996643, which indicates the independence of errors from each other.

## 9.2.Heterogeneity of variances

In this study, White's test was used to estimate the heterogeneity of variance. White's statistic of the research model is 1.336634 and its P-value equals to 0.1791. As a result, the null hypothesis at the error level of 0.05 is not rejected and OLS regression model can be used.

# 9.3. Multicolinearity Test of Independent Variables

According to Table 5, the degree of tolerance for all independent variables is greater than 0.2, and the Variance Inflation Factor is also close to 1, indicating a lack of multicolinearity between independent variables.

Table 5. Multicolinearity Test of Independent Variables					
Variable	Tolerance	VIF	Variable	Tolerance	VIF
DQ	0.841594	1.188221	MTB	0.878539	1.138254
ln_ASSETS	0.814782	1.227322	NEW_FINANCING	0.94582	1.057284
LEVERAGE	0.936977	1.067262	TENURE	0.793969	1.259495
LOSS	0.5805	1.722652	SPECIALIST	0.722139	1.384775
ROA	0.37221	2.686655	FISCAL_YEAR	0.730927	1.368125
CFO	0.548802	1.82215	CFOVOL	0.795344	1.257318
REPORT_LAG	0.757124	1.320788	BIG2	0.690399	1.448437
SALEGROWTH	0.947067	1.055891			

## 10. Testing the Research Hypothesis: Results from Running Regression Model

We hypothesized that financial statements disaggregation has a positive relationship with audit fee. The results from running the regression model are shown in the table below.

	Table 6. Results from	running the regression mod	el	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	-0.723888	0.633548	-1.142594	0.2542
DQ	0.920104	0.348850	2.637536	0.0088
LN_ASSETS	0.455012	0.041272	11.02483	0.0000
LEVERAGE	-0.057386	0.054334	-1.056173	0.2918
LOSS	-0.060570	0.087918	-0.688934	0.4914
ROA	-0.002851	0.002532	-1.125655	0.2612
CFO	0.041929	0.207653	0.201918	0.8401
REPORT_LAG	0.003130	0.001429	2.190602	0.0293
SALEGROWTH	0.035267	0.067066	0.525859	0.5994
MTB	0.014798	0.012859	1.150812	0.2508
NEW_FINANCING	0.010459	0.081904	0.127703	0.8985
TENURE	0.060493	0.023856	2.535722	0.0117
SPECIALIST	0.161704	0.076572	2.111791	0.0356
FISCAL_YEAR	-0.001484	0.137720	-0.010777	0.9914
CFOVOL	-0.524494	0.454145	-1.154904	0.2491
BIG2	0.564704	0.128774	4.385216	0.0000
F-statistic	15.44207	Adjusted R-squared	0.416093	
Prob(F-statistic)	0.000000			

The F- statistic of the research model is 15.44 and indicates the significance of the whole regression model. The value of the adjusted R-squared of the model is also equal to 0.41, which shows that the independent variables of the model explain 41% of the variation of the dependent variable (natural logarithm of the audit fee) and indicate the acceptable power of the independent variables in explaining the variation of the dependent variable.

The results of the model estimation indicate the significance of the  $\beta1$  coefficient. The coefficient of DQ is positive and significant, and shows the direct relationship of this variable with the dependent variable (Audit Fee). In this way, according to the results of Table 5, the research hypothesis is approved. Other notable results are the significance of the coefficients of the company's size variable, the report lag, the auditor's tenure, the auditor's specialty in the industry, and the type of auditor.

#### 11. Conclusion

The results of the research indicate that there is a direct and significant relationship between the disaggregation quality of financial statements and audit fees. It seems so that more disaggregated financial statements make auditors spend more time investigating and conducting an audit process that affects their demanded fee. Items that, if presented in aggregation, may be insignificant from the auditor's point of view and the users of the financial statements, may attract more attention when presented separately. The results of testing the hypothesis are consistent with the results of Beck et al. (2016), which have found a positive and significant relationship between the financial statement disaggregation and audit effort. According to the results of the study, it is suggested that further studies be carried out to investigate the effects of the disaggregated information on user decisions as well as the possibility of using this criterion as an alternative or complementary criterion provided by the stock exchange for disclosure quality. Also, determining the optimal level of financial statements' disaggregation from supervisory and regulating institutions according to financial reporting objectives can be one of the issues to be considered.

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