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# DETERMINANTS OF FINANCIAL REPORTING QUALITY FOR LISTED ENTITIES IN MACEDONIA: EVIDENCE FROM FAIR VALUE ACCOUNTING

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## Abstract

*This paper examines the degree and quality of disclosures of financial information related to fair value by Macedonian listed entities and associations with several corporate attributes. An unweighted disclosure index comprising 51 disclosed information in audited financial statements of 32 listed entities for 2010 was composed. The association between the disclosure index of each company and various corporate characteristics (size, industry, ownership concentration, type of auditor, internationalization, leverage etc) was examined through multiple regression analysis. It was concluded that the size of the listed company, type of engaged audit firm and the leverage of the company are associated with the degree and quality of disclosed information on fair value. The research also reveals areas of improvement for listed companies reporting of fair value information in financial statements.*

**Keywords:** disclosures, fair value, financial reporting quality, company characteristics

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## 1. Introduction

The empirical study conducted in this paper examines determinants of disclosure practices related to fair value accounting for Macedonian listed companies in accordance to mandatory IFRS requirements. My goal was to study closely the requirements of IFRS related to fair value disclosures, construct an disclosure index and link index score with certain characteristics of listed companies such as size, industry, internationalization, leverage, ownership concentration, type of auditor and prospects for future growth. These characteristics being determinants of quality disclosure practices have been established in disclosure studies through explanations provided by several theories such as: the positive accounting theory (Watts & Zimmerman, 1978), the signaling theory (Ross, 1977), and legitimacy and institutional theory.

For the purpose of the research design, I took count of determinants of corporate disclosures analyzed in other studies such as Dumontier and Raffournier (1998), Street and Gray (2002), Glaum and Street (2003), Chalmers and Godfrey (2004), Lopes and Rodriguez (2007), but also considered the unique characteristics of Macedonian business and financial reporting environment. Since listed companies were sampled for the study, two specific independent variables were introduced in respect of the type of audit firm engaged and the concentration of ownership. As analyzed and further explained in the sample description section of this paper, the majority of Macedonian listed companies have concentrated ownership between few large shareholders and could not be defined as publicly owned. In terms of the audit market for listed companies, the majority of companies are not audited by "Big four" auditor, which is actually the case in almost all developed capital markets abroad. However, majority of Macedonian listed entities (66%) are audited by international network audit firm, and this fact again should be accounted and taken as one of the factors influencing the quality of financial reporting.

Based on the content analysis of audited financial statements of listed entities for 2010, I've identified common misstatements and omissions related to disclosure of fair value information and constructed the disclosure index for each company. Furthermore, I've developed a multivariate regression model linking disclosure index scores (dependent variable) and listed companies' characteristics (independent variables).

The remainder of the paper is organized as follows. Section 2 presents previous literature related to the determinants of disclosure and describes the development of the hypotheses. In Section 3 the research design is explained, including a description of the dependent and the independent variables. Section 4 discusses the sample selection process and its characteristics, the results of the content analysis of companies' financial statements including areas of disclosure deficiencies, and the results of the multivariate linear regression analysis. Section 5 summarizes main results and conclusions from the study.

## 2. Literature review

Different researchers emphasize different factors influencing quality disclosure of information in financial statements, however I highlight the relevance for the following as most relevant for my research:

- Size of reporting entities,
- Industry,
- Ownership structure,
- Type of auditor,
- Internationalization,
- Capital structure and financing.

Positive accounting theory provides arguments in respect of the size of entities and its relevance for disclosures in financial statements. According to Watts and Zimmerman (1986) political costs are higher for large companies, disclosing more information in order to increase confidence in their affairs. Large companies have superior information systems providing them with additional information at no cost. According to the proprietary cost theory developed by Verrecchia (1983) and Dye (1985) the management quantifies the costs and benefits of disclosing information and decides not to disclose if the costs exceed the benefits. According to the cost of capital theory large companies address capital markets more often in order to obtain financing. Increased transparency and voluntary disclosure of additional information reduces the overall company risk, improves the possibilities for raising capital and reduces the cost of capital (Diamond & Verrecchia, 1991). In respect of Macedonian financial reporting environment I expected that larger firms and commercial banks have more appropriate disclosures for the fair value in the financial statements. Therefore I express the first hypothesis:

*H1. It is expected that larger companies will have superior levels of disclosures in comparison to smaller companies.*

The industry in which the company operates can impact the motivation of the management to disclose more or less in the financial statements. According to Lopes and Rodrigues (2007), firms that operate in the same industry are interested in providing the same level of disclosures as the competition, in order to avoid adverse connotation of their behavior and negative market repercussion. Furthermore, the pressure created by institutions can be observed as industry related. Therefore, I phrase the second hypothesis in relation to the industry as:

*H2. Information disclosure practices are related to the type of industry of the company in question.*

Auditors can play an important role motivating the management to disclose more information. Usually big audit firms are associated with better financial reporting practices. According to DeAngelo (1981), big audit firms have large number of clients and greater motives to maintain their independence. Because of these reasons, they tend to report on misstatement in financial statements and incompliance with accounting standards disclosure requirements. Chalmers и Godfrey (2004) note that large accounting firms insist on appropriate disclosures in clients' financial statements in order to maintain reputation and reduce related risks and costs. It is usually argued that big audit firms possess greater expertise and knowledge on complex applicability of IFRS. Associated cost for implementation of IFRS and respective audits are lower for big firms in comparison to small or local audit firms. However, the empirical researches of associations between the size of engaged audit firms and the quality of disclosures in financial statements for different authors provide different results. Ahmed and Nicholls (1994), Wallace and Naser (1995) find a positive relationship between the size of the audit firm and the quality of disclosures in financial statements, however Firth (1979), Malone (1993), Ali et al. (2004) in their research find no evidence of statistically significant relationship.

Considering the audit environment in Macedonia, I was anticipating that the research will provide evidence of positive relationship between the appointment of a "Big Four" auditor and the level of disclosed fair value information in financial statements. Macedonian audit market has specific characteristic where significant market share is in possession of "Big Four" audit firms, in addition to large market share taken by former local firms who successfully joined international networks of professional accounting firms. Therefore, for this independent variable I have formulated two alternative hypotheses:

*H3. The disclosure of fair value information is more appropriate for companies audited by "Big Four" audit firm.*

*H4. The disclosure of fair value information is more appropriate for companies audited by international network audit firm.*

The ownership structure of the company influences the motivation of the management to disclose information and comply with regulatory requirements. According to the principle arguments of the agency theory largely distributed ownership structure (large number of small shareholders) results in greater request for information in order to enable shareholders to perform adequate monitoring of their investments (Jensen & Meckling, 1976). Several research studies provide empirical evidence supporting these claims. The research results verify the positive relationship between the level of information disclosure and the level of distribution of ownership structure, non-familiarity in ownership or the independence of the majority represented at board of directors (Chau & Gray, 2002; Ho & Wong, 2001; Prencipe, 2004). I predict for an inverse relationship between the ownership concentration and the quality of disclosed information in financial statements of listed entities.

*H5. The quality of disclosures on fair value is expected to be lower for companies showing greater ownership concentration (owned by small number of shareholders).*

Companies with greater internationalization in their operations are more motivated to disclose information, in order to present themselves more appropriate in front of different stakeholders. According to Cooke (1989), companies that operate in more geographical regions have superior management control systems due to the complexity of their activities. Sophisticated control and reporting systems provide information without additional costs. It is expected that these companies will provide more information in their financial statements.

*H6 : The level of fair value disclosures is expected to increase as the internationalization in operations of the company increases.*

The agency theory and cost of capital theory offer suitable explanation for the association of the capital structure and debt to equity ratio of the firm and the quantity of disclosed information in financial statements. Higher rates of leverage motivate companies to disclose more information in order to reduce agency costs, reduce information asymmetry and consequently costs of capital. This hypothesis has been set in empirical researches of Wallace and Naser (1995) and Tarca et al. (2013). However, authors are found in the literature hypothesizing in opposite direction, providing empirical evidence of inverse relationship between the leverage and information disclosure level (Abd-Elsalam & Weetman, 2003; Zarzeski, 1996). According to these authors, firms with high debt to equity ratios belong to financial systems dominated by the banks where dominant way of funding is through bank loans. In such system, capital markets are not considered as primary source of capital, therefore information on companies' activities are considered as part of the private relationship that each firm is building separately with its bank. General purpose financial statements are not considered as prime media that distributes accountability information. In my research, the hypothesis for the association between the leverage and degree of the disclosures on fair value is not limited on the sign, due to different directions of influence of this determining factor.

*H7: The degree of disclosures on fair value depends on the leverage of the company.*

### 3. Research methodology

The empirical research whose results are provided in this paper started with content analysis of audited financial statements of companies listed on the official market of Macedonian Stock Exchange for the year 2010. The objective was to identify accounting practices of disclosure of information regarding fair value and factors that are determining these practices. I took year 2010 as a referent financial reporting period, since at the end of 2009, International Financial Reporting Standard (IFRS) as published by International Accounting Standards Board (IASB) with effective date of January 1, 2009, have been translated and published for use in Macedonia. These standards were mandatory and to be used by all large and medium size entities in preparation of financial statements starting January 1, 2010. However Macedonian listed entities show different practices in applying financial reporting standards. Most companies prepare and publish financial statements according to IFRS as translated and published in Macedonia (i.e. "statutory financial statements"). Some companies prepare and publish their financial statements according to updated IFRS as published by IASB, while some publish both types of statements. Because of these reasons, the differences in prepared financial statements and disclosed information because of different financial reporting frameworks applied are lowest for 2010. Additionally, I have reviewed the changes in IFRS published by IASB in 2010 and concluded that there were no changes in requirements related to disclosure of information on fair value. In 2010, IASB published IFRS 9 Financial instruments, standard that covers issues related to classification and measurement of financial instruments, but its mandatory use was prolonged for January 1, 2013.

In order to test the determinants of disclosure quality, I use a model in which the dependent variable is the disclosure index constructed on the basis on relevant requirements of IFRS 2009 for disclosure of information on fair values of different assets and liabilities. The index is composed of 51 disclosures connected to fair value and classified in 8 categories according to the accounting standard. The structure of the index is presented in the following table.

Table 1.1 The structure of disclosure index according to applicable accounting standards

<b>Standard</b>	<b>Name of the standard</b>	<b>Number of disclosures</b>
IFRS 2	<i>Share-based Payment</i>	5
IFRS 3	<i>Business Combinations</i>	4
IFRS 7	<i>Financial instruments: disclosures</i>	16
IAS 1	<i>Presentation of Financial Statements</i>	1
IAS 16	<i>Property, Plant and Equipment</i>	2
IAS 19	<i>Employee benefits</i>	2
IAS 28	<i>Investments in Associates</i>	1
IAS 36	<i>Impairment of Assets</i>	2
IAS 38	<i>Intangible assets</i>	3
IAS 40	<i>Investment property</i>	7
IAS 41	<i>Agriculture</i>	8
<b>Maximum number of disclosures</b>		<b>51</b>

The constructed disclosure index is a dichotomous, unweighted and adjusted for disclosures which are not applicable for respective companies and their financial statements. Dichotomous means that each disclosure included in the financial statements or in the notes is assigned with the score 1 in the total sum for the index, otherwise the absence of applicable disclosure is scored 0. The total of the index for a certain company is calculated as:

$$T = \sum_{i=1}^m d_i$$

where  $d_i$  is 1, if the information  $i$  is disclosed, otherwise 0;  $m$  being the maximum number of disclosures ( $m=51$ ).

The total score is computed as the unweighted sum of the scores of each item. The implied assumption is that each item is equally important for all user groups. This assumption may not be realistic, but I think that the resulting bias is smaller than the one that would result from assigning subjective weights to the items. The majority of disclosure studies use this approach of unweighted indices (Chalmers & Godfrey, 2004; Cooke, 1989; Meek, Roberts, & Gray, 1995; Raffournier, 1997). The main argument for using this type of indices is related to the insignificance of the weighting, since different users of financial statements will determine different weighting factors for different disclosures dependent on their different needs. The end result, if different requirements of different users are respected, will be netting of different weighting factors and their opposite effects.

The disclosure index specifies the maximum number of individual fair value information to be included in financial statements, if the company is involved in transactions with all possible assets and liabilities. As a condition, this is highly unlikely to be satisfied, therefore each reporting company has unique transactions and economic events that generate specific portfolio of assets and liabilities. For example, it is highly unlikely for a listed bank to present biological assets in its financial statements. As a result, when valuing disclosures and determining disclosure index of each company, importance should be given to the applicability of disclosures. I have given appropriate consideration to the applicability of disclosures when the index was cal-

culated in order not to decrease the result of the company for items that are not disclosed, and are irrelevant. Therefore, the maximum result for each company is determinable by the formula:

$$M = \sum_{i=1}^n d_i$$

where  $d_i$  is disclosed information;  $n$  is the number of disclosures applicable for the company ( $n \leq 51$ ). The procedure for adjustment of the index has been applied in other relevant research papers (Cooke, 1989; Meek et al., 1995; Raffournier, 1997). The result for the index at each company as dependent variable is described through the following formula:

$$IndexOb = \frac{\text{actual result in disclosures of the company}}{\text{maximum result of applicable results for the company}}$$

According to the hypotheses give above, determinants of disclosures subject to testing are: the size of the company, the industry in which it belongs, the type of auditor, internationalization in operations, leverage and ownership concentration. The size of the company can be measured according to different criteria. According to the Trade Company Law, companies are classified as micro, small, medium or large, according to three criteria: total assets, total income and number of employees. In the model applied, the size of the company (SIZE) as continuous variable is measured according to two criteria: total income (TotInc) and total assets (TotAss) expressed in thousand denars. Usually these criteria for company size are used in other disclosure studies.

The industry to which the company belongs is defined as dummy variable (IND) that can take score 1 if the company belongs to the financial sector or 0 if the company belongs to non-financial sector. In the literature there is no unique way to categorize industries in order to make the best exploration of their effect on the quality of financial reporting. I believe that classification approach considered is best suited for the circumstances and the environment of the financial reporting process in Macedonia. The quality of financial reporting of Macedonian banks in general is superior in comparison to the financial reporting of commercial entities from other industries, as a result of the significant role of the Central bank of Republic of Macedonia as an effective regulator and supervisor of banks' operations.

The type of engaged audit firm is considered as dummy variable (AUD) , in this case scored 1 if the audit firm belongs to the "Big four" group (Deloitte, PWC, Ernst & Young, KPMG) or 0 if it is another audit firm. In my research of the type of auditor as determining factor of disclosure quality I've formulated an alternative model where the independent variable will take the score 1 if the audit firm is part of international network of professional firms. In that group, considering the Macedonian audit market, I've included local offices of Grant Thornton and Moore Stephens and I've reexamined the explanatory power of this variable.

Concentration of ownership (OWN) as independent continuous variable can inversely influence the degree of disclosures in financial statements. Macedonian capital market is characterized with the presence of small number of listed entities and high ownership concentration, even for listed entities which often act as family owned firms. The corporate governance environment is characterized with inappropriate separation of management and ownership of the company, where dominant shareholders often occupy top executive positions. In such companies, there is an absence of systems that will inform current and potential shareholders timely and correctly. The degree of internationalization (INT) is considered as continuous independent variable measured through foreign sales as percentage of total income.

Another independent continuous variable used in the study to explain the disclosure index of each company, is the leverage of the company (LEV). I measured this variable through the debt to equity ratio. I try to explain the quality of disclosures on fair value through another independent variable, and that is the ratio of company's fair value and its book value of total assets (GROWTH). This variable reflects market perceptions

for the company's opportunities for growth. Greater the ratio, greater expectations for future growth exist (Gaver & Gaver, 1993; Smith Jr. & Watts, 1992). Companies that demonstrate greater growth are expected to disclose more information, because their agency costs and information asymmetry increase (Eng & Mak, 2003).

Based on explanations presented above regarding dependent and independent variables, the research model that describes the actual disclosure index is defined according to the following equation:

$$IndexOb = \alpha_0 + \alpha_1 SIZE + \alpha_2 IND + \alpha_3 AUD + \alpha_4 OWN + \alpha_5 INT + \alpha_6 LEV + \alpha_7 GROWTH$$

where

*Index Ob* = is the disclosure index result of the company;

*SIZE* = log of total assets or log of total income

*IND* = dummy variable for the industry; 1 for financial companies, 0 for non-financial companies;

*AUD* = dummy variable for the audit firm; 1 for Big Four or International network firm, 0 for other audit firms;

*OWN* = percentage of ownership concentration for shareholders in possession of more than 5% of common shares;

*INT* = ratio of foreign sales/ total sales income;

*LEV* = ratio total debt/ book value of equity;

*GROWTH* = market value of the company or market capitalization/ book value of total assets.

## 4. Results

### 4.1 Sample selection and descriptive statistics

All companies listed on Macedonian Stock Exchange as at June 30, 2011 were considered for the sample used in this study. I've decided for this cut-off date, cause the majority of listed companies fulfill the requirement to submit audit financial statements for the financial 2010 by the end of June 2011. The total number of listed entities whose financial statements were subjected to content analysis was 33, however the final sample included 32 of them. One company was excluded, since its publicly available audited financial statements were incomplete (parts of the notes to the financial statements were omitted). The following table shows the industry distribution of the sample according to the predominant business activity of listed entities.

**Table 1.2.**

Industry distribution for sampled listed entities

Predominant business activity	N	%
<i>Banking</i>	4	12.5%
<i>Manufacturing</i>	11	34.4%
<i>Hospitality</i>	3	9.4%
<i>Services</i>	6	18.8%
<i>Agriculture</i>	1	3.1%
<i>Construction industry</i>	2	6.3%
<i>Trade</i>	5	15.6%
	<b>32</b>	<b>100%</b>



The descriptive statistic and analysis of the sample demonstrate interesting results. The analysis of ownership concentration of Macedonian listed companies shows the mean of 49.54% implicating that the ownership is concentrated within small number of dominant shareholders, while companies that are in essence publicly owned are in minority. In my sample 18 out of 32 companies had few dominant shareholders (owning more than 50% of shares with voting rights).

**Table 1.3** Descriptive statistic of the sample

	<b>N</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.D</b>
<i>Total assets (000 mkd)</i>	32	119,371	70,830,806	5,493,156	12,502,690
<i>Total income (000 mkd)</i>	32	15,131	21,483,768	2,095,351	3,933,236
<i>Foreign sales/total sales</i>	32	0.00	0.62	0.12	0.19
<i>Total interest debt/ equity</i>	32	0.00	3.05	0.61	0.71
<i>Market value/total assets</i>	32	0.04	0.72	0.23	0.19
<i>Ownership concentration %</i>	32	5.94	94.07	49.54	23.88
<i>Disclosure index</i>	32	0.17	1.00	0.60	0.23

  

	<b>N</b>	<b>%</b>
<i>Audit firm</i>		
„Big four“	6	18.8%
Others	26	81.3%
<i>Audit firm<sup>2</sup></i>		
International network	21	65.6%
Local firms	11	34.4%

\*Standard Deviation

The data on ownership concentration were analysed from the notes to the financial statements for 2010, however financial statements of 5 listed entities included no information of ownership concentration. For these companies the data was provided in the database of the Central Depository for Securities showing ownership concentration among shareholders with more than 5% ordinary shares as at December 31, 2010.

Considering the type of engaged auditor, only 6 out of 32 listed companies engaged “Big four” auditor, which makes the Macedonian audit market as untypical. Many research papers on foreign audit markets investigating different issues and problems related to the audit, report market share above 70% of listed companies audited by “Big four” audit firm (Dumontier & Raffournier, 1998; Hassan & Mond-Saleh, 2010; Lopes & Rodrigues, 2007). However, the picture on audit market share concentration changes if audit engagements in listed companies are analyzed for all audit firms that are part of international network of firms. In this case 65.7% of all listed entities are audited by an audit firm which is part of international network (“Big four” plus Grant Thornton and Moore Stephens).

As it can be analysed in table 1.3, on average Macedonian listed entities disclosed 60% of applicable information on fair value in their financial statements. Individual transparency of each listed company varies from 17% to the maximum 100% of applicable disclosed information. I’ve further analyzed the disclosure index according to the accounting standard imposing the disclosure requirements. Analysis of the statistic presented in table 1.4, shows that for all listed entities the requirements of IFRS 7 Financial instruments: disclosures and IAS 1 Presentation of financial statements were applicable. The companies have been most successful with the disclosures of fair value as per the requirements of IFRS 3 Business combination and IAS 40



Investment property. The requirements of IFRS 7, that took major part of the whole disclosure index (16 out of 51 total information disclosures) were partly satisfied, i.e. companies on average disclosed 52% of applicable information.

**Table 1.4.** Disclosure index statistics according to the applicable IFRS

<b>Disclosure index</b>		Number of companies	Mean	max	min	S.D
IFRS 2	<i>Share-based Payment</i>	0	0.00	0.00	0.00	0.00
IFRS 3	<i>Business Combinations</i>	1	1.00	1.00	0.00	0.18
IFRS 7	<i>Financial instruments: disclosures</i>	31	0.52	1.00	0.00	0.28
IAS 1	<i>Presentation of Financial Statements</i>	32	1.00	1.00	1.00	0.00
IAS 16	<i>Property, Plant and Equipment</i>	2	0.25	0.50	0.00	0.09
IAS 19	<i>Employee benefits</i>	0	0.00	0.00	0.00	0.00
IAS 28	<i>Investments in Associates</i>	3	0.33	1.00	0.00	0.18
IAS 36	<i>Impairment of Assets</i>	0	0.00	0.00	0.00	0.00
IAS 38	<i>Intangible assets</i>	0	0.00	0.00	0.00	0.00
IAS 40	<i>Investment property</i>	5	0.67	1.00	0.00	0.28
IAS 41	<i>Agriculture</i>	2	0.50	0.67	0.00	0.13

The analysis of disclosure index according to the industry of listed entities and the type of engaged auditor, presented in table 1.5, reveals interesting information on average transparency of. Greatest transparency in respect of fair value information is shown by companies with predominant banking or trade business activity. Banks show smallest difference in the quality of disclosure practices compared within their industry (as analyzed through the lowest standard deviation of the index). Furthermore, my analysis of the disclosure index as per the type of engaged auditor illustrates that listed companies with "Big four" auditor have largest score for the index, with smallest difference in disclosure levels (standard deviation = 0.17). The differences in disclosure quality change when listed entities are observed as being audited by international network firm in comparison to being audited by local firm (disclosure index of 0.69 compared to 0.43, respectively). Based on these figures it can be concluded that audit firms part of international network drive towards improvement of the quality of financial reporting in Republic of Macedonia.

**Table 1.5.**

Descriptive statistics of disclosure index for independent variables industry and type of auditor

<b>Industry</b>	<b>Mean index</b>	<b>S.D</b>
Banking	0.63	0.06
Construction	0.60	0.04
Agriculture	0.57	0.00
Manufacturing	0.61	0.25
Trade	0.71	0.25
Hospitality	0.46	0.27
Services	0.55	0.29
<b>Type of auditor</b>	<b>Mean index</b>	<b>S.D</b>
„Big four”	0.72	0.17
Others	0.58	0.23
International network	0.69	0.18
Others	0.43	0.20

## 4.2. Content analysis results

The content analysis of audited financial statements of listed companies for 2010 allowed for construction of the disclosure index, however it provided interesting insights into areas of disclosure where companies are not complied with IFRS requirements.

I have identified several misstatements and omissions usually made by Macedonian listed entities when disclosing information regarding fair values:

- 1) In accordance with IFRS 7, for each class of financial assets and liabilities, entities should disclose the fair value of that class of assets and liabilities in a way suitable for making comparisons with the carrying amount. Only 42% of Macedonian listed companies have disclosed comparison of fair and book values. IFRS 7 allows for non-disclosure if fair values approximate book values or fair value can't be measured reliably. If the fair value can't be measured reliably, the company still has to disclose information that will enable users to perform judgment independently on possible differences between fair and book values. Only few companies that didn't disclose comparison disclosed information that fair values approximate book values. None of the companies that disclosed information about impossibility to measure fair value, provided additional required information to enable users of financial statements to perform judgment on possible differences between book and fair values.
- 2) According to IAS 16, if property, plant and equipment are recognized at revalued amounts, the company should disclose the methods and significant assumptions used in estimating fair values. The company should also disclose the extent to which fair values were determined directly by reference to observable prices in an active market or recent market transactions on arm's length terms or were estimated using other valuation techniques. Only two analysed companies used the revaluation method for property, plant and equipment. In both cases full disclosures are not made for the methods and assumptions used in estimating fair values, nor are information disclosed referring to the prices from an active market.
- 3) For investments in associates (ownership between 20% and 50%) IAS 28 requires disclosure of fair value if information exists on publicly quoted prices. Only one of three listed companies for which such disclosure was applicable has disclosed the information.
- 4) The assets portfolio of five listed companies included investment property. This is a property that is not used for the primary business activity, but the business model for the property is lease. Only one listed company in accordance to IAS 40 has chosen to measure investment property on the basis of fair value. Incompliant to the requirements of the standard, the company didn't disclose adequate information on methods and assumptions used in arriving at fair value, including statement that the fair value was estimated with market data or considering other factors due to the nature of the property and absence of observable market data.
- 5) In the group of sampled listed companies, two companies reported biological assets in their portfolio according to the requirements of IAS 41 Agriculture. The two companies failed to disclose information on the amount of fair value less selling cost estimated at the harvest point. One of the companies valued part of its biological assets at cost, failing to provide explanations why the fair value can't be measured reliably.

## 4.3. Regression results

OLS simple regressions were estimated to check for univariate relationships between the disclosure index and each variable. The results obtained are presented in table 1.6. For each explanatory variable data is pro-

vided on the appropriate regression coefficient and t- statistic. The explanatory power of the model is evaluated in two alternatives (Model A & B) depending on different proxies for the type of auditor ( "Big four" or "International network). If correlation coefficients are analysed for the different independent variables in the model it can be concluded that there are high coefficients between the proxies for the size of the company: total assets, total income, logarithms of the absolute figures. Multicollinearity, i.e. the existence of separate linear regression between independent variables can be a problem and result in inappropriate or biased conclusions for the linear regression model. Therefore, all these proxies should not be used in the same time in the model when estimating regression coefficients. In order to cover for this problem, I took the approach previously applied by Cooke (1989). I've repeated the regression analysis by changing the proxy for the audit firm (Model A where the classification is "Big four" or other and Model B where the differentiation is between international network firm and others). Also, using the Durbin-Watson statistic I checked for autocorrelation in order to be certain that errors (residuals) of the model are not correlated to each other and have different variance.

Based on the results of the two regression analysis, three of the hypothesis can be statistically confirmed. The first hypothesis H1 according to which there is positive relationship between the size of the company and the degree of disclosures of fair value in financial statements is confirmed at 5% significance level ( $p \leq 0.01$ ). The finding is consistent to the findings of Chalmers and Godfrey (2004), Ahmed and Nichols (1994) and Wallace and Naser (1995), whose empirical research provided evidence for positive relationship between the size of the companies and the quality of disclosed information on financial instruments.

The fourth hypothesis H4 according to which disclosures for fair value are expected to be better for companies audited by an audit firm part of international network, is statistically confirmed at 1% significance level ( $p \leq 0.01$ ). My findings are consistent with the research results of Hodgdon et al. (2009), Glaum and Street (2003) and Street and Gray (2002), providing evidence of significant positive relationship between the compliance with IAS requirements and type of engaged auditor.

At lower level of statistical significance of 10% ( $p \leq 0.1$ ) the empirical research provided evidence for the hypothesis H7, meaning that there is correlation between the leverage of the company and the degree of disclosures for the fair value. These findings are consistent with the research results of Abd-Elsalam and Weetman (2003) that provided evidence of correlation between the leverage of Egyptian companies and the level of disclosure of information in their financial statements.

**Table 1.6.** Regression analysis

<b>Model A (SIZE = log total assets; type of auditor= "Big four")</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	0.887765	0.623936	1.422847	0.1676
BIG_4	0.011025	0.154726	0.071255	0.9438
LEV	0.17822	0.07814	2.280795	0.0317
IND	-0.072474	0.181588	-0.399112	0.6933
INT	-0.003685	0.246116	-0.014971	0.9882
LOGTOTASS	-0.03964	0.095947	-0.413141	0.0032
GROWTH	0.060824	0.228628	0.266038	0.7925
OWN	-0.003028	0.002068	-1.46453	0.156
R-squared	0.243488			
Adjusted R-squared	0.022839			
Durbin-Watson stat	2.236637			
F-statistic	1.103506			
Prob(F-statistic)	0.392533			

**Model B (SIZE = log total assets; type of auditor= "International network")**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	0.832353	0.518666	1.604794	0.1216
Int net	0.257238	0.078933	3.258945	0.0033
LEV	0.143975	0.058723	2.451759	0.0219
IND	-0.10722	0.135594	-0.79077	0.4368
INT	-0.11134	0.199416	-0.55832	0.5818
LOGTOTASS	-0.06387	0.080098	-0.79743	0.0433
GROWTH	0.140472	0.185504	0.757246	0.4563
OWN	-0.00178	0.001727	-1.03085	0.3129
R-squared	0.475455			
Adjusted R-squared	0.322463			
Durbin-Watson stat	2.16231			
F-statistic	3.107704			
Prob(F-statistic)	0.017614			

## 5. Summary and Conclusions

The purpose of this paper was to analyse the disclosure practices of Macedonian listed entities in relation to fair value accounting and determine factors that influence the quality of disclosures, hence the quality of financial reporting. The results of the empirical research show that the quality of disclosed information in the financial statements depends on the size of the company, its leverage and the type of engaged auditors, while internationalization in operations, ownership concentration, industry and growth expectations are irrelevant for the quality of disclosed information.

All IFRS requirements related to disclosure of fair value information were taken into consideration, while the content analysis of audited financial statements of Macedonian listed entities showed the applicability of the requirements. The results of the content analysis facilitated the conclusions in respect of typical omissions of misstatements when disclosing information on fair value. Financial statements of Macedonian listed entities lack information on methods and assumptions used in estimation of fair value, information that will support users' judgment when fair value can't be measured reliably or information on observable market prices and the extent of their use to estimate fair values.

The design and the results of the empirical research on determinants of disclosure quality are limited by the immanent disadvantage of small official market of the Macedonian Stock Exchange. Only 32 listed companies were included in the sample, limiting the number of independent variables taken into consideration when the model was constructed.

The results and conclusion of this paper could be used in designing future research models investigating issues related to:

- determinants of the quality of financial reporting practices in Macedonia;
- determining the level of compliance and factors influencing compliance with IFRS ( basis for future disclosure index studies);
- comparative research and analysis of comparability of financial statements of Macedonian companies versus companies from other countries (disclosure indices are used to evaluate comparability of financial statements of entities operating in different regulatory and business environments).

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