The Effect of Earning Management and Mandatory and Voluntary Disclosure on Information Asymmetry in Firms Listed in Tehran Stock Exchange

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Abstract: The aim of the present study is to investigate the effect of earning management and mandatory and voluntary disclosure on information asymmetry in firms listed in the Tehran Stock Exchange. 100 firms listed in Tehran Stock Exchange are selected to be studied during the period 2007 to 2014. The results indicate that earnings management and mandatory disclosure have positive and significant impact on information asymmetry. In addition, voluntary disclosure has a significant negative impact on information asymmetry. Finally, control variables of firm size, financial leverage and return on assets have not a significant impact on information asymmetry.
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Introduction

In the last years, authorities and market regulators considered accounting disclosure as crucial key instruments for investor protection and the functioning of capital markets. This protection namely refers to the reinforcement of the administrators' loyalty and responsibility, the role of the non-executive independent, administrators as supervisors, the structure of supervision and, within the purpose of this work, the transparency between the company and the market (Alves et al., 2015). Accounting disclosures can be defined as ''disclosures in excess of requirements, representing free choices on the part of company managements to provide accounting and other information deemed relevant to the decision needs of users of their annual reports''. Studies in this area have mainly focused on the impact of company characteristics on the extent of voluntary disclosure (Chau and Gray, 2002). Decision of voluntary disclosure is one of important and challenging issues in firm's management. Accounting disclosure plays an important role in individual and corporate decision making. In particular, a fundamental use of accounting information is to help investors make an effective decision concerning their investment portfolios (Elsayed and Hoque, 2010). Economic theory suggests that disclosing more information should lower the information asymmetry component of a firm's cost of capital (Leuz and Verrecchia, 2000). However, accounting disclosure is very important to all stakeholders and provides them with the necessary information to reduce uncertainty helping them to make suitable economic and financial decisions (Amer et. al, 2013). On the other hand, accounting standards allow for managerial discretion in the application of accounting methods used to report firm performance. When this discretion is used with the intent to manipulate reported results, it is called earnings management. Growing anecdotal and systematic evidence supports the argument that earnings management is a common practice in firms. Managers possess private information about the firm and its current and prospective earnings streams that current and potential shareholders do not have (i.e., information asymmetry exists between managers and shareholders) which may allow manage them to manage earnings. However, it is expected that when information asymmetry is high, stakeholders do not have sufficient resources, incentives, or access to relevant information to monitor manager's actions, which gives rise to the practice of earnings management (Richardson, 2000).

Considering aforementioned issues, this paper investigates the effect of earning management and mandatory and voluntary disclosure on information asymmetry in firms listed in Tehran Stock Exchange. The results may have an important contribution in accounting through investigating simultaneous impact of earning management and mandatory and voluntary disclosure on information asymmetry while previous studies only take into consideration one of these issues. Also, in this study, firm's disclosure practices break into two voluntary and mandatory disclosures to scrutinize the actual effects of them considering that they may have different impacts on information asymmetry. The results will help vast range of market

participants and also scholars in recognizing the actual impact of disclosures on information asymmetry highlighting the opportunities for their improvements. In addition, regulators may recognize more factors affecting on information asymmetry and rule standards to mitigate it. Finally, the study reinforces accounting theories by exploring logical relationship between variables.

Literature

Ho and Wong (2001) test effect corporate governance attributes on the extent of voluntary disclosure in listed firms in Hong Kong. These corporate governance attributes in their study are the proportion of independent directors to total number of directors on the board, the existence of a voluntary audit committee, the existence of dominant personalities (CEO/Chairman duality), and the percentage of family members on the board. Their results indicate that the existence of an audit committee is significantly and positively related to the extent of voluntary disclosure, while the percentage of family members on the board is negatively related to the extent of voluntary disclosure.

Chau and Gray (2002) examine the association of ownership structure with the voluntary disclosures of listed companies in Hong Kong and Singapore. Their results show that the extent of outside ownership is positively associated with voluntary disclosures. In particular, the results also indicate that the level of information disclosure is likely to be less in ‘‘insider’’ or family-controlled companies.

Petersen and Plenborg (2006) examined if the level of voluntary disclosure affects information asymmetry for industrial companies listed on the Copenhagen Stock Exchange. The results indicate that voluntary disclosure is negatively associated with proxies for information asymmetry.

Esmailzadeh Mogri and Sherbaf (2009) investigated the effects of voluntary discloser on stock prices in firms listed in Tehran Stock Exchange. They find that voluntary discloser has not a significant impact on stock prices in firms listed in Tehran Stock Exchange.

Noravesh and Hossieni (2009) explored the relationship between firm’s disclosure quality and earning management. They show that there is a negative significant relationship between firms disclosure quality.

Bulu et al. (2010) investigated the effect of independent auditor rotation on financial transparency of firms listed in Tehran Stock Exchange. They indicate that independent auditor rotation has not significant effect on financial transparency of firms listed in Tehran Stock Exchange.

Babajani et al. (2014) investigated the relationship between information asymmetry and earning quality. Their results indicate that information asymmetry has a positive significant effect on earning quality.

Plumlee et al. (2015) examines the relationship between the quality of a firm’s voluntary environmental disclosures and firm value by exploring the relationship between the components of firm value and voluntary environmental disclosure quality. Their analyses provide evidence that voluntary environmental quality is associated with firm value through both the cash flow and the cost of equity components. However, they demonstrate that both the type and nature of the environmental disclosures is informative in establishing the predicted relations.

Alves et al. (2015) analyzes the direct and indirect relation between the governance rules and information asymmetry, through the voluntary disclosure and organizational performance. Their results show that for firms with high levels of disclosure the bid-ask spread is lower. However, in firms with high ownership concentration investors tend to increase the bid-ask spreads and trade less.

Khodadadi et al. (2015) investigate the interactive effect of environmental uncertainty on the relationship between earning quality and information asymmetry. Their results indicate that there is positive significant relationship between earning management and information asymmetry. In addition, with increasing environmental uncertainty, momentum of the relationship between earning management and information asymmetry decreases.

Chen (2016) explore the effect of mandatory disclosure requirements and disclosure types of auditor fees on earnings management. The results show that the enhanced information transparency induced by the mandatory disclosure requirements of auditor fees is useful to reduce both positive accruals-based earnings management and real earnings management. Furthermore, firms that disclose their auditor fees in the form of individual amount have lower positive accruals-based earnings management than those in the form of fee range. The overall findings are consistent with the notion that the enhanced information transparency related to auditor fees is associated with enhanced auditor independence.

Sepasi et al. (2016) investigate the relationship between ownership structure and disclosure quality. They use scores of the firms’ disclosure quality which is published by Tehran Stock Exchange to measure the disclosure quality. Their results reveal that managerial ownership has a negative and significant effect on disclosure quality, but no significant relationship was observed between governmental ownership and disclosure quality. The results show that the governmental ownership does not affect the

quality of disclosure, meaning these companies have a low attention and concern on the quality of their disclosures. Adversely, private companies because of the need to absorb capital from market try to enhance the quality of their disclosures.

Research hypothesis

Hypothesis 1: earning management affects information asymmetry in firms listed in Tehran Stock Exchange.

Hypothesis 2: mandatory disclosure affects information asymmetry in firms listed in Tehran Stock Exchange.

Hypothesis 3: voluntary disclosure affects information asymmetry in firms listed in Tehran Stock Exchange.

Methodology and data collection

This study is semi-empirical correlation research in the positive accounting research filed using information of financial statements and notes to financial statements of TSE firms. In addition, the research can be classified as quantitative, inductive, applied and post facto study which aims to find a relationship between variables.

The population and statistical sample

The statistical population of study contains all firms listed in TSE. However, to reach homogenous statistical sample, following conditions are considered:

1- Required information for the period of 2007 to 2014 must be available.

2- Fiscal year must be ended at the end of year and must not have changed its fiscal year during the period of 2007 to 2014.

3- Firms stock must be traded continually during the period of 2007 to 2014.

4- Sample firms must not be of financial, investment, bank.

As a result of putting these conditions a sample of 100 firms is obtained to be studied during the period of 2007 to 2014. The data for analysis is gathered from TSE database.

Variables and model

Independent variable

In this study mandatory, voluntary disclosure and earning management are considered as independent variable and measured as following:

Mandatory disclosure

For measuring mandatory disclosure, score issued by Tehran Stock Exchange is applied. This score is calculated through weighted mean of information disclosure timeliness and reliability with weight of two- third and one –third.

Voluntary disclosure

In this study a list with 30 items is applied for measuring voluntary disclosure. In case of each item disclosure, score of 1 otherwise 0 is attached and then sum of scores for each firm calculated and divided by 30 yielding voluntary disclosure score.

Earning management

To measure earning management, total accrual is measured through following relation:

$TAC_{it} = E_{it} - OCF_{it}$

:total accruals for time t and firm iTACit

: operating income for time t and firm iE_{it}

: cash flow from operating activities for time t and firm iOCF_{it}

After calculation of total accruals, nondiscretionary accrual is measured through modified Jones model as following:

$$\frac{\mathbf{TAC_{it}}}{\mathbf{TA_{it-1}}} = \boldsymbol{\alpha_1}\left(\frac{\mathbf{1}}{\mathbf{TA_{it-1}}}\right) + \frac{\boldsymbol{\alpha_2}(\mathbf{\Delta REV_{it}} - \mathbf{\Delta REC_{it}})}{\mathbf{TA_{it-1}}} + \boldsymbol{\alpha_3}\left(\frac{\mathbf{PPE_{it}}}{\mathbf{TA_{it-1}}}\right) + \mathbf{e_{it}}$$

TAC_{it}: total accruals for time t and firm i

TA_{it-1}: total assets for previous time and firm i

TACit: total accruals for time t and firm i

ΔREV_{it}: change in revenue for previous time and firm i

ΔREV_{it}: change in receivables for previous time and firm i

PPE_{it}: gross propriety, plant and equipment

e_{it}: regression error

After calculation of coefficients, following model is fitted for each industry separately

$$NDA_{it} = \alpha_1\left(\frac{1}{TA_{it-1}}\right) + \frac{\alpha_2(\Delta REV_{it} - \Delta REC_{it})}{TA_{it}} + \alpha_3\left(\frac{PPE_{it}}{TA_{it-1}}\right)$$

NDA: non-discretionary accruals

Finally total discretionary accrual is obtained from following relation:

$$DA_{it} = \frac{TAC_{it}}{TA_{it}} - NDA_{it}$$

Control variables

Firm's size: natural logarithm of firm's market value is considered as a proxy for firm's size.

Firms leverage: total liabilities to total assets is considered as a proxy for firms leverage.

Firm's profitability: Firm's profitability is obtained from dividing net income to total assets.

Dependent variable:

Information asymmetry

In order to examine the association between disclosure and information asymmetry, a measure of information asymmetry must be provided. However, a firm's information asymmetry cannot be observed

directly. Literature applies the bid–ask spread and the turnover ratio as two complementary proxies for information asymmetry. The bid–ask spread is commonly thought to measure information asymmetry explicitly. The turnover ratio reflects the willingness of some investors to sell shares and others to buy. This willingness to trade shares should be inversely related to the existence of information asymmetry (Leuzand Verrecchia, 2000). Both the bid–ask spread and turnover ratio seem to be appropriate measures for information asymmetry. However, in this study bid-ask spread is considered as a proxy for information asymmetry:

$$SPREAD = \frac{(AP - BP)}{\frac{(AP + BP)}{2}} \times 100$$

SPREAD: bid- ask spread
AP: ask price which is mean of sell price
BP: bid price which is mean of buy price

Models

In this study three regression models are used to test research hypotheses as following:

Model 1 $INFOASY_{it} = \beta_0 + \beta_1 EM + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROA + \varepsilon_{it}$

Model 2 $INFOASY_{it} = \beta_0 + \beta_1 VODSC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROA + \varepsilon_{it}$

Model 3 $INFOASY_{it} = \beta_0 + \beta_1 DSC + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROA + \varepsilon_{it}$

: Information asymmetry $INFOASY_{it}$

: earning management EM_{it}

$VODSC_{it}$: Voluntary disclosure

DSC_{it}: mandatory disclosure

$SIZE_{it}$: firm's size

LEV_{it}: financial leverage

ROA_{it}: return on assets

ε_{it}: model residual

Empirical results

Descriptive statistic

Descriptive statistic of research variables in indicated in Table 1.

Table 1: Descriptive statistic

	DIS	EM	INFOASY	LEV	ROA	SIZE	VDIS
Mean	70.93118	-0.009547	0.021838	0.657313	0.070413	13.73960	0.657816
Median	70.75200	-0.012000	0.022000	0.670613	0.050373	13.69225	0.641500
Maximum	98.84200	0.760000	0.055000	0.930011	0.326366	18.49043	1.000000
Minimum	22.63600	-0.640000	0.000000	0.244392	-0.175198	10.49676	0.200000
Std. Dev.	14.70102	0.094560	0.009700	0.149923	0.078215	1.146054	0.184815
Skewness	-0.238306	1.802211	-0.202305	-0.276816	0.557684	0.409770	0.135088
Kurtosis	2.626707	24.03045	3.261557	2.582415	3.648692	4.339659	2.256669
Jarque-Bera	7.635568	9484.829	4.835877	10.01843	34.68430	51.38191	13.03201
Probability	0.021976	0.000000	0.089105	0.006676	0.000000	0.000000	0.001480
Observations	500	500	500	500	500	500	500

Table 1 indicates a picture of research data distribution. Mean of mandatory disclosure is 70.93 and voluntary disclosure is 065 showing that firms disclose more than average. Mean of leverage is 0.65 indicating Tehran capital market is based on debt financing while Chau and Gray (2002) indicate in Hong Kong and Singapore capital market it is 0.21 and Chen (2016) indicates it is 0.37for Taiwan capital market and Ball et al. (2012) reports 0.22 for US capital market. Return on assets mean is 0.07 showing that Tehran Stock Exchange obtains a return approximately 7 percent out of their assets.

Normality test of dependent variable

To test normality of dependent variable Kolmogorov Simirnov test is applied which results indicated in table 2.

Table 2: Kolmogorov Simirnov test

	N	Normal Parameters[a,b]		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
INFOASY	500	.02184	.009700	.064	.044	-.064	1.423	.135

Table 2 shows that dependent variable of information asymmetry is normal which is critical concern in regression analysis.

Correlation

Correlation of research variables is indicated in table 3.

Table 3: Correlation matrix

		INFOASY	EM	VDIS	DIS	SIZE	LEV	ROA
INFOASY	Pearson Correlation	1	.153**	-.150**	.164**	-.006	.021	.035
	Sig. (2-tailed)		.001	.001	.000	.896	.645	.439
EM	Pearson Correlation	.153**	1	.054	.019	-.060	-.141**	.117**
	Sig. (2-tailed)	.001		.229	.676	.179	.002	.009
VDIS	Pearson Correlation	-.150**	.054	1	-.091*	-.061	.020	-.032
	Sig. (2-tailed)	.001	.229		.042	.176	.661	.472
DIS	Pearson Correlation	.164**	.019	-.091*	1	.106*	-.074	.216**
	Sig. (2-tailed)	.000	.676	.042		.018	.100	.000
SIZE	Pearson Correlation	-.006	-.060	-.061	.106*	1	-.080	.232**
	Sig. (2-tailed)	.896	.179	.176	.018		.075	.000
LEV	Pearson Correlation	.021	-.141**	.020	-.074	-.080	1	-.458**
	Sig. (2-tailed)	.645	.002	.661	.100	.075		.000
ROA	Pearson Correlation	.035	.117**	-.032	.216**	.232**	-.458**	1
	Sig. (2-tailed)	.439	.009	.472	.000	.000	.000	

The most correlation is between financial leverage and return on assets which is negative and significant. That is, when return on assets decreases, financial leverage increases and vice versa approximately 0.45 percent. The lowest correlation is between firms size and information asymmetry which is not significant. In addition, earning management and mandatory disclosure has positive significant and voluntary disclosure has a negative significant effect on information asymmetry.

Hypotheses test

Before testing the hypothesis, it is necessary to test which type of model must be applied. For this purpose, firstly F Limer test is used and its result is indicated in Table 4.

Table 4: F Limer test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.029476	(99,396)	0.4149
Cross-section Chi-square	114.510728	99	0.1365

The results indicate that the fittest model is pool regression model.

First hypothesis test

To test first hypothesis, model 1 is applied which results indicated in table 5.

Table 5: first hypothesis test

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.019658	0.005920	3.320401	0.0010
EM	0.016372	0.004654	3.518033	0.0005
SIZE	-5.45E-05	0.000403	-0.135322	0.8924
LEV	0.004115	0.003341	1.231982	0.2185
ROA	0.005541	0.006541	0.847135	0.3973
R-squared	0.031097	F-statistic		3.164612
Adjusted R-squared	0.021271	Prob(F-statistic)		0.008012
Durbin-Watson stat	1.988874			

The results of pool regression model indicate that earning management has a positive significant effect on information asymmetry. However, control variables fail to explain information asymmetry. Adjusted R squared is 0.021 indicating that 2 percent of information asymmetry is explained by independent and control variables. Durbin Watson is 1.9 manifesting that there is not an autocorrelation problem among models residuals.

Second hypothesis test

To test second hypothesis, model 2 is applied which results indicated in table 6.

Table 6: second hypothesis test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015654	0.006057	2.584338	0.0100
DIS	0.000107	3.03E-05	3.536167	0.0004
SIZE	-0.000251	0.000397	-0.632059	0.5276
LEV	0.002773	0.003296	0.841477	0.4005
ROA	0.003316	0.006562	0.505385	0.6135
R-squared	0.031116	F-statistic		3.166570
Adjusted R-squared	0.021290	Prob(F-statistic)		0.007980
Durbin-Watson stat	1.989925			

The results of pool regression model indicate that mandatory disclosure has a positive significant effect on information asymmetry. However, control variables fail to explain information asymmetry. Adjusted R squared is 0.021 indicating that 2 percent of information asymmetry is explained by independent and control variables. Durbin Watson is 1.9 manifesting that there is not an autocorrelation problem among models residuals.

Third hypothesis test

To test third hypothesis, model 3 is applied which results indicated in table 7.

Table 7: Results of third hypothesis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027685	0.006120	4.523527	0.0000
VDIS	-0.007831	0.002413	-3.245706	0.0013
SIZE	-0.000237	0.000398	-0.595381	0.5519
LEV	0.003129	0.003305	0.946683	0.3443
ROA	0.007265	0.006474	1.122116	0.2624
R-squared	0.027386	F-statistic		2.776287
Adjusted R-squared	0.017522	Prob(F-statistic)		0.017411
Durbin-Watson stat	1.990111			

The results of pool regression model indicate that voluntary disclosure has a negative significant effect on information asymmetry. However, control variables fail to explain information asymmetry. Adjusted R squared is 0.017 indicating that 1.7 percent of information asymmetry is explained by independent and control variables. Durbin Watson is 1.9 manifesting that there is not an autocorrelation problem among models residuals.

Discussion and conclusion

The aim of the present study is to investigate the effect of earning management and mandatory and voluntary disclosure on information asymmetry in firms listed in the Tehran Stock Exchange. 100 firms listed in Tehran Stock Exchange are selected to be studied during the period 2007 to 2014.The results indicate that earnings management has positive and significant impact on information asymmetry. One of assumptions that strengths information asymmetry is managers limited relation which cannot eliminated through contract arrangements. This issue stem from the fact that stock holders in an environment that have less information than management cannot see firms performance and future completely. In such environment, managers can utilize their discretion for earning management. In fact, ability of managers to apply discretionary accounting methods with a purpose of earning management increases as information asymmetry between he and stock holders increases. However, the results of the present study confirm theoretical framework and is according to the results of Babajani et al. (2014) and Khodadadi et al. (2015). In addition, the results manifest that mandatory disclosure has positive and significant impact on information asymmetry. That is, with increasing mandatory disclosure, information asymmetry decreases which is against our

anticipation. This result gives a signal to Tehran Stock Exchange regulator that more disclosure requirement leads to more information asymmetry. Finally, voluntary disclosure has a significant negative impact on information asymmetry which is according to the results of Petersen and Plenborg (2006). This is role that expected to be played by voluntary disclosure which is to mitigate information asymmetry. However, it may be suggested to market participants to consider firms with more voluntary disclosure have less information asymmetry then they can trust their financial statements. As to control variables, results indicate that firm size, financial leverage and return on assets have not a significant impact on information asymmetry. This results highlight that information asymmetry do not stem from firms special characteristics.

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