

# Financial Reporting Quality and Information Asymmetry (A case of Iranian Firms)

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## Abstract

The purpose of this paper is to examine empirically the impact of financial reporting quality on information asymmetry in Iran. Using three different attributes of financial reporting quality including: accruals quality, earnings persistence and earnings predictability, data analysis over a period of five years (2008–2012) revealed that accruals quality is negatively and significantly associated with information asymmetry. We also find that, firms with more earnings predictability have lower level of information asymmetry. However, contrary to expectation, we fail to find a significant association between earnings persistence and Iranian firm's information asymmetry. These findings have implications for policy makers, managers, investors and researchers in general and those in emerging markets in particular.

**Keywords:** Accruals quality, Earnings predictability, Earnings predictability, Information asymmetry.

## Introduction

Information asymmetry exists when certain parties in a transaction have more information than the others. Therefore, there is possibility that those with more information take advantage of those with less information. There are two problems relating to information asymmetry: adverse selection and moral hazard. Due to lack of information, sub-optimal decision may have results, also known as adverse selection problem. Information asymmetry may also lead those with more information to take advantage of those without information, or moral

hazard problem. These problems cause investors to stay away from the market. This could lead to less liquid and less efficient capital market (Akerlof, 1970). Now, the question that arises is how to reduce information asymmetry? To do so, several mechanisms have been proposed in accounting and finance literature, including financial reporting quality. Studies in the areas of accounting and finance have endorsed the role of financial reporting quality in reducing agency problems. The quality of financial reporting is considered as a basis for compensation contracts and on the other hand, as an important information source for shareholders for monitoring managers and hence, reducing the consequences of information asymmetry (Lambert, 2001). Financial reporting quality has received a great attention to the academicians and several researches is done both in developed and developing countries. However, a little attention is paid to the emerging countries in general and Iran in particular. As such, the focus of the study is to acquire an understanding of whether the dimensions of financial reporting quality affect the level of information asymmetry amongst Iranian public listed companies. This study also aims to provide additional evidence that supports or rejects prior research findings in developed countries and to determine whether the findings can be generalized in Iranian market. Using a sample of 380 firm-year observations during the period 2008–2012, we find that accruals quality is negatively related to information asymmetry. In addition, we find that the information asymmetry decreases if the earnings predictability increases. On the other hand, earnings persistence was not found to have any significant impact on information asymmetry. These findings contribute to the debate regarding the role of finan-

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cial reporting quality in reducing the level of information asymmetry and provide valuable insights for managers, investors, regulators and accounting professionals. The remainder of the present paper is structured as follows. Section 2 reviews prior literature and includes our hypotheses. Section 3 discusses the research design and Section 4 presents the results of the empirical analyses and final section contains the conclusions of the study.

## Literature review and hypothesis development

The conceptual definition of financial reporting quality is the precision with which financial reporting conveys information about the firm's operations, in particular its expected cash flows, in order to inform investors in terms of equity investment decision (Verdi, 2006). This definition is consistent with the FASB- SFAC No.1 which states that one objective of financial reporting is to inform present and potential investors in making rational investment decisions and in assessing the expected firm cash flow. Financial reporting quality is multidimensional and there is no single characteristic that can be used as a proxy for it. Since accounting earnings is regarded as being of paramount importance by investors, some researchers have used earnings attributes as a measure of financial reporting quality. These attributes include accruals quality, earnings persistence and predictability. Several studies have been conducted about various aspects of the financial reporting quality. Affleck -Graves et al. (2002) in the research entitled "Earnings predictability, information asymmetry and market liquidity" and selecting a sample of 247 NASDAQ firms over a period from 1985 to the 1990 investigated the relationship between earnings predictability and information asymmetry. Using multivariate regression model, the results of this study indicated that, firms with higher earnings predictability have lower information asymmetry.

Francis et al. (2004) examined the relationship between some earnings attributes including accruals quality, earnings persistence, predictability, smoothing, value relevance, timeliness and conservatism with cost of equity, for a sample of 3917 companies from 1975 to 2001. The results showed that there is a significant negative association between cost of equity with accruals quality, earnings persistence, smoothing, value relevance and time-

liness. However, no significant relationship was found between earnings predictability and conservatism with cost of equity.

Verdi (2006) examined the relationship between financial reporting quality and investment efficiency, in a sample of 38,062 firms -year observations during the period of 1980 to 2003. Using accruals quality as a proxy of the financial reporting quality, the results indicated a significant negative relationship between under-investment and over-investment with financial reporting quality. This finding suggests that the quality of financial reporting reduces information asymmetry due to agency problems and will result in improved investment efficiency.

NG (2008) investigated the impact of accounting information quality on liquidity risk during the 1987 to 2006. Using some earnings attributes such as accruals quality, earnings persistence and value relevance and also some attributes of the quality of management earnings forecasts including precision, frequency and accuracy of management earnings forecasts, as proxies for accounting information quality, the findings indicated that accruals quality, earnings persistence, precision and frequency of management earnings forecasts are negatively related to liquidity risk. However, no evidence found linking value relevance and accuracy of management earnings forecasts with liquidity risk.

Bhattacharya et al. (2008) in their study investigated the association between earnings quality and information asymmetry. In this study by selecting a sample of 11893 firm-year observations of NYSE and NASDAQ firms during the years 1997 to 2004, the impact of earnings quality on information asymmetry were tested. Using accruals quality as a measure of earnings quality, the results revealed that higher earnings quality decrease the information asymmetry around earnings announcements.

Hakim et al. (2008) examined the association between earnings quality and equity liquidity of Tunisian listed firms. They used accruals quality as a proxy for earnings quality and also used bid-ask spread to measure liquidity. Based on a sample of 120 firm- year observations over a period from 2000 to 2005, they found that there is a statistically significant relationship between proxy of earnings quality and liquidity. Their results support that firms with higher accruals quality have lower bid-ask spread and lower adverse selection spread components.

Biddle et al. (2009) in their study named “How does financial reporting quality relate to investment efficiency?”, and selecting a sample of 34,791 firms - year observations from 1993 to 2005, examined the association between the quality of financial reporting and investment efficiency. The results indicate that higher financial reporting quality increases investment efficiency by reducing information asymmetry and leads to reduction of over-investment (under -investment).

In the light of this theoretical and empirical literature, it is possible to formulate the following hypotheses:

H1: There is a significantly negative association between accruals quality and information asymmetry.

H2: There is a significantly negative association between earnings persistence and information asymmetry.

H3: There is a significantly negative association between earnings predictability and information asymmetry.

## Materials and Methods

### Sample

We select all publicly- listed companies in Tehran Stock Exchange (TSE) over the entire duration of the estimation time period (2008–2012) as initial samples. Of these initial samples, companies whose stock trading days are less than 25 in a quarter and firms that are either missing financial variables or that have insufficient data are eliminated. Financial institutions, banking, finance and investment firms are also eliminated, since their accounting and reporting environments differ from those in other industries. This gives a final sample of 380 firm-year observations from the fiscal years 2008 to 2012.

### Variables measurement

#### Dependent variable

The proxies we use to measure information asymmetry as the dependent variable, are bid-ask spread, share turnover and Amihud (2002) measure of illiquidity. The choice of proxies used in our study is supported by prior literature (Lang and Lundholm, 1996; Hakim et al., 2008 and Liao, 2009). We compute bid-ask spread as the daily closing ask price minus the closing bid price divided by the average of the closing ask and bid prices. We measure share turnover as the average daily turnover during

a fiscal year, where daily turnover is the ratio of the number of shares traded each day to the number of shares outstanding at the end of the day. The Amihud (2002) measure of illiquidity, ILLIQ, is defined as the absolute value of daily stock return, divided by the daily dollar trading volume. It measures the trading volume needed to move the stock price. Because each proxy measures the information asymmetry with noise and we are interested in the overall information asymmetry, we create a combined index based on the average docile ranking across the three measures. To do so, we rank these three individual proxies for information asymmetry (bid-ask spread, share turnover and Amihud’s illiquidity measure) into docils with the least transparent firms taking a value of 10 and the most transparent firms taking a value of 1. We then sum across the three rankings and scale them by a factor of 30 (total possible points) and obtain a combined information asymmetry index (SUM). SUM ranges from 0.1 to 1, with higher values of SUM indicating more information asymmetry.

#### Independent variables

In terms of independent variables, because there is no agreed-upon metric for the financial reporting quality construct, we use three different measures as follows:

#### Accrual quality

Our measure of accrual quality (AQ) is based on McNichols’s (2002) modification of Dechow and Dichev’s (2002) model, which separates accruals based on their association with cash flows by regressing working capital on cash from operations in the current period, prior period, and future period, as well as the change in revenues and property, plant, and equipment (PP&E):

$$\frac{\Delta WC_{i,t}}{Assets_{i,t}} = \beta_0 + \beta_1 \frac{CFO_{i,t-1}}{Assets_{i,t}} + \beta_2 \frac{CFO_{i,t}}{Assets_{i,t}} + \beta_3 \frac{CFO_{i,t+1}}{Assets_{i,t}} + \beta_4 \frac{\Delta Sales_{i,t}}{Assets_{i,t}} + \beta_5 \frac{PPE_{i,t}}{Assets_{i,t}} + v_{i,t} \quad (1)$$

Where:

$\Delta WC_{i,t}$  = firm i’s change in working capital accounts between year t–1 and year t;

$Assets_{i,t}$  = firm i’s average total assets in year t;

$CFO_{i,t-1}$  = firm i’s cash flow from operations in year t-1;

$CFO_{i,t}$  = firm i’s cash flow from operations in year t ;

$CFO_{i,t+1}$  = firm i’s cash flow from operations in year t+1;

$\Delta Sales_{i,t}$  = firm i’s change in sales between year t–1 and year t;

$PPE_{i,t}$  = firm i’s gross value of property, plant,

and equipment in year  $t$ ;

$v_{i,t}$  = firm  $i$ 's error term in year  $t$ .

For each firm-year, we estimate equation (1) using rolling ten-year windows. These estimations yield a series of firm and year-specific residuals, which form the basis for the accruals quality measure. Accrual quality is equal to the negative value of the standard deviation of firm  $i$ 's estimated residuals from equation (1),  $AQ_{(i,t)} = -\sigma(v_{(i,t)})$ . A low negative value for AQ indicates good accrual quality.

### Earnings Persistence

Earnings persistence (PERS) can be measured as the slope coefficient estimate,  $\phi_{(i,t)}$ , from an autoregressive model of order one (AR<sub>1</sub>) for annual earnings per share. (Francis et al., 2004; Kiattikulwattana, 2008):

$$X_{i,t} = \phi_{0,i} + \phi_{1,i} X_{i,t-1} + v_{i,t} \quad (2)$$

Where:  $X_{i,t}$  is firm  $i$ 's net income before extraordinary items in year  $t$  divided by the weighted average number of outstanding shares during year  $t$ .

For each firm-year, equation (2) is estimated by using maximum likelihood estimation and rolling ten-year windows. The value of the coefficient is used for measuring the persistence level.

$PERS = \phi_{1,i}$ . A greater PERS value indicates more earnings persistence.

### Earnings Predictability

Our measure of earnings predictability is also derived from the firm and year-specific AR1 model. Based on Francis et al. (2004) and Kiattikulwattana (2008), we use the negative value of the standard deviation of the residuals from equation (2),  $PRED = -\sigma(v_{i,t})$ . A low negative value for PRED indicates that earnings can be predicted by previous earnings which implies a good predictability attribute.

### Control variables

This study also includes several variables that are frequently used in prior research to control for other factors influencing firm's information asymmetry. Among these factors are firm size, stock return volatility, growth opportunities and return on equity (ROE). Large firms may face less information asymmetry because they tend to be more mature firms, have established and time-tested disclosure policies and practices, and receive more attention from the market and regulators (Harris, 1994; Wasan and Boone, 2010). Chakravarty

et al. (2004) suggest that stock volatility (VOL) reflects the level of uncertainty and can be used as a control variable for information asymmetry because greater uncertainty stimulates the acquisition of private information, which leads to a higher degree of information asymmetry. Thus, Stock return volatility is also adopted as a control variable. Another important control variable is growth opportunities (GWTH), High-growth firms have greater information asymmetry because firms with higher growth prospects are less likely to provide sensitive operating information in order to protect their competitive advantages and avoid attracting new entrants or increased competition from existing competitors (Liao, 2009). Finally, ROE is used as a control variable because income-generating firms disclose more information to communicate investors of their good performance (Wallace et al., 1994; Liao, 2009), therefore we expect a negative relationship between firm profitability and information asymmetry.

### Regression models

To investigate the association between financial reporting quality and information asymmetry, the authors estimate the following multivariate regression models:

$$SUM_{i,t} = \beta_0 + \beta_1 AQ_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 VOL_{i,t} + \beta_4 GWTH_{i,t} + \beta_5 ROE_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$SUM_{i,t} = \beta_0 + \beta_1 PERS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 VOL_{i,t} + \beta_4 GWTH_{i,t} + \beta_5 ROE_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$SUM_{i,t} = \beta_0 + \beta_1 PRED_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 VOL_{i,t} + \beta_4 GWTH_{i,t} + \beta_5 ROE_{i,t} + \varepsilon_{i,t} \quad (5)$$

Where, for firm  $i$  at the end of year  $t$ :

SUM = combined information asymmetry index based on the average docile ranking across bid-ask spread, share turnover and Amihud's illiquidity measure;

AQ = accrual quality, measured as the negative value of standard deviation of residuals from McNichols's (2002) model;

PERS = earnings persistence, measured as the slope coefficient from an AR1 model of annual earnings per share;

PRED = earnings predictability, defined as the negative value of the standard deviation of the residuals from AR1 model;

SIZE: firm size, defined as log of firm's total sales;

VOL: Stock return volatility, measured as the



standard deviation of daily Stock returns;

GWTH: firm growth opportunities, defined as the market value of equity divided by book value of equity;

ROE: return on equity, defined as income before tax and interest to total equity;

$\varepsilon$ : the error term.

## Results

### Descriptive statistics

The descriptive statistics of variables used in the sample are shown in Tables I. As shown in Table I, mean of information asymmetry of the sample companies is 0.506, ranging from 0.1 to 0.92. We

also observe that the mean and median estimate of accruals quality (AQ) are -0.023 and -0.011, respectively. Similarly, the mean (median) values for earnings persistence and earnings predictability are 0.715(0.765) and -0.045(-0.014). Firm size, determined as the natural logarithm of total sales has a mean (median) of 11.777 (11.693). Moreover, sample firms can be seen as companies with increased growth opportunities, as their market value of equity exceeds their book value by almost five times. Finally, in terms of profitability, the mean (median) ROE is 0.195 (0.188), respectively. These results suggest that Iranian listed firms have relatively poor profitability during the test period with respect to ROE.

**Table I. Descriptive statistics of the sample variables (2008–2012)**

Variable	Mean	Median	Min	Max	Std dev.
<i>SUM</i>	0.506	0.515	0.100	0.921	0.192
<i>AQ</i>	-0.023	-0.011	-0.190	-0.0005	0.030
<i>PERS</i>	0.715	0.765	-0.317	1.837	0.408
<i>PRED</i>	-0.045	-0.014	-0.461	-0.0008	0.078
<i>SIZE</i>	11.777	11.693	10.634	13.994	0.585
<i>VOL</i>	3.078	2.248	0.241	25.305	2.866
<i>GWTH</i>	1.684	1.389	0.239	4.972	1.071
<i>ROE</i>	0.195	0.188	-0.217	0.673	0.151

Notes: *SUM* - combined information asymmetry index based on the average docile ranking across bid-ask spread, share turnover and Mahmud's illiquidity measure ; *AQ* - accrual quality, measured as the negative value of standard deviation of residuals from McNichols's (2002) model; *PERS* - earnings persistence, measured as the slope coefficient from an AR1 model of annual earnings per share; *PRED* - earnings predictability, defined as the negative value of the standard deviation of the residuals from AR1 model; *SIZE* - natural log of firm's total sales; *VOL* - Stock return volatility , measured as the standard deviation of daily Stock returns ; *GWTH* -firm growth opportunities , defined as the market value of equity divided by book value of equity and *ROE* - return on equity defined as income before tax and interest to total equity.

### Regressions results

Table II presents the results for each of the estimated models. As can be noted from Table, the F-statistic is significant at the 1 percent level in each of

our three regression specifications, and several control variables are statistically significant. The models have high explanatory power, with adjusted R2 ranging from 66 percent (model 1) to 67 percent (model 3).

The H1 states that there is a significantly negative association between accruals quality and information asymmetry. As presented in Table II, The AQ coefficient is negative, as predicted, and statistically significant at the 0.01 level, which indicates a significant negative relationship between accruals quality and information asymmetry; the analysis thus supports H1. The H2 predicts that earnings persistence is significantly negatively associated with level of information asymmetry. As reported in this table, the coefficient of PERS is not statistically significant at the 0.05 level; this indicates that earnings persistence has no significant effect on information asymmetry; thus this hypothesis is not supported. Finally, The H3 states that the earnings predictability is significantly negatively associated with information asymmetry. As shown in Table, the coefficient of PRED in the Model is negative,

as expected, and is significant at the 0.01 level. This result indicates a significant negative relationship

between earnings predictability and information asymmetry; thus providing support for H3.

**Table 2. Multiple regression results**

Variable	Exp. Sign	Model 1	Model 2	Model 3
Constant	?	1.578*** (3.61)	1.798*** (3.76)	1.689*** (3.64)
<i>AQ</i>	-	-3.768*** (-3.64)		
<i>PERS</i>	-		-0.074 (-0.919)	
<i>PRED</i>	-			-1.068*** (-2.78)
<i>SIZE</i>	-	-0.101*** (-2.68)	-0.107*** (-2.69)	-0.098** (-2.47)
<i>VOL</i>	+	0.000 (0.14)	0.000 (0.07)	0.000 (0.08)
<i>GWTH</i>	+	0.026** (2.44)	0.025*** (2.41)	0.023** (2.24)
<i>ROE</i>	-	-0.088 (-1.70)	-0.098 (-1.83)	-0.088 (-1.71)
Adjusted $R^2$		0.664	0.661	0.679
<i>F</i> -stat.		10.272***	10.137***	10.899***

Notes: t-statistics are reported in parenthesis; \*\*\*, and \*\* denote significance at the 0.01 and 0.05 levels, respectively; *AQ* - accrual quality, measured as the negative value of standard deviation of residuals from McNichols's (2002) model; *PERS* - earnings persistence, measured as the slope coefficient from an AR1 model of annual earnings per share; *PRED* - earnings predictability, defined as the negative value of the standard deviation of the residuals from AR1 model; *SIZE* - natural log of firm's total sales; *VOL* - Stock return volatility, measured as the standard deviation of daily Stock returns; *GWTH* - firm growth opportunities, defined as the market value of equity divided by book value of equity and *ROE* - return on equity defined as income before tax and interest to total equity.

Turning to control variables, the coefficients on *SIZE* confirms the negative relation between firm size and information asymmetry documented in other studies. In addition, the significantly positive coefficients on *GWTH* indicates that firms with higher growth opportunities are associated with greater information asymmetry. However, we do not find that *ROE* and Stock return volatility are associated with the information asymmetry.

## Conclusions

The purpose of this paper is to design an empirical test, and then to provide evidence consistent with this test, that enhances discussions as to whether and how financial reporting quality affects the information asymmetry. Using three measures of financial reporting quality (i.e. accruals quality, earnings persistence and earnings predictability), and based on a sample of 76 Iranian listed firms from 2008 to 2012, the results reveal that the accruals quality affects the firms information asymmetry negatively, indicating that firms with higher accruals quality have lower levels of information asymmetry. This finding is consistent with those found by Hakim et al. (2008) and Bhattacharya et al. (2008) who reported that accruals quality is associated with lower information asymmetry. We also find that, earnings predictability is negatively related to information asymmetry. In this regard, the finding is similar to that found by Afleck-Graves et al. (2002) who found a negative relationship between earnings predictability and information asymmetry. However, our study does not find evidence to support the notion that earnings persistence is effective on mitigating the information asymmetry.

Our findings have implications for policy makers, regulators, managers, investors and researchers in the emerging markets of Iran. While this study contributes financial reporting quality literatures, this study is not without limitations. Firstly, the sample only covers five years of Iranian data and an external validity problem exists that the results may not be transportable over different time periods and locations. Secondly, the model used in this study may omit some variables correlated with firm's information asymmetry. While we have added some control variables, we may not have successfully identified all potential correlated omitted variables. Future research could conduct a longitudinal study to examine factors that contribute to the change of information asymmetry over time.

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