

The Relevance of Accounting Information in Bond Market

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ABSTRACT

Previous empirical research on accounting information has focused on stock market, and has not examined for bond market. The accounting information should differ for stockholders and bondholders. This paper investigates the role of accounting quality in improving bond liquidity. High accounting quality not only reduces information asymmetry, but also decreases overall uncertainty in the market, thereby improving liquidity. The objective of this study is to examine the role of accounting quality in the bond market, and the results highlight the importance of information quality in improving liquidity. I use earnings quality as accounting quality's measurement. The result showed that accounting information had influence in bond market

Keywords: *Accounting information, accounting quality, bond liquidity*

1. INTRODUCTION

Accounting information is expected to be helpful when it is used in economic decision, which means that it should be able to make distinction in the decision. If the information does not affect decision, it is assumed that the information is not relevant. Relevant information can help users predict the results of past, present, and future occurrences. There have been many empirical accounting researches that have tried to discover the value relevance of accounting features in order to improve financial report analysis. Accounting features are assumed value-relevant as they are linked to stock price. One monumental research from Ball and Brown (1968) and some other researches about information content indicates that accounting income and other components hold information contained in stock price.

During financial crises, unpredictability of debt security values cause depreciation of liquidity and price in the debt market. The fall of debt market affects financial structure and other markets (Krisnamurthy, 2009). Such condition proves both the importance of debt market in the economy, and the importance of liquidity and quality of information in debt market. The significance of information, especially the value of accounting information towards debt market is the main focus in this research.

Characteristics of bonds include bond issuing, seniority rate, credit rating, bond payday, coupon, type of coupon, and the frequency of coupon paying. Fabella and Madhur (2003) state that decisions regarding bond investment are influenced by bond market indicators, based on Financial Sector Development Indicators (FSDI), consist of size, access, efficiency and stability. Another influential factor is that the permanent effect of company specification and time is also different between bond sales and issuing in the company (Wang, 2009). Although there have been many indicators taken into considerations in deciding bond investment, accounting information has a significant contribution in debt market (Francis et al., 2005; Core et al., 2008; Hughes et al., 2009).

Accounting information provided through financial report is intended to give valuable information in economic decision making for potential clients, especially investors and creditors (*Statement of Financial Accounting Concepts (SFAC)*) No.1 (1978). Decisions include those related to investment, credits, and other decisions. Financial reports provide a range of information, such as information about income. Normatively, investors and creditors can utilize income information in decision making, both investment and credit.

Bonds and stocks have different characteristics. Bonds are *fixed claims*, while stocks are *residual claims*. Bondholders are *fixed claims* towards assets as no matter how much income made by companies, they will only receive income in the form of interest and nominal value of bond in the payday. Other than that, both the trend and promptness of bond market reaction has a positive influence versus the negative earnings surprises. Shareholders or stockholders are *residual claims* as the dividends they receive will depend on the amount of companies' income after reduced for interest payment and principal debt for creditors. Based on those characteristics, income information should also be different between bondholders and shareholders.



Datta & Dhillon (1993) and Hotchkiss & Ronen (1999) conducted a research about the response of bond market towards unexpected earnings announcements. A research by Ratna and Baridwan (2005) showed that the quality of income has an influence towards bond yields. The results of those researches illustrated that income has information contents in bond market, although bonds are fixed claims. Francis et al. (2005) argued that income information is capable of showing companies cost of debt. A research by Elliot et al. (2009) demonstrated that bondholders expect to gain advantaged when income is low, while shareholders expect to get advantages when income is high. DeFond and Zhang (2009) stated that unexpected earnings indicate the unexpected improvement of company's value which can reduce the risk of failure and potentially increase bond value. On the contrary, negative earnings surprises (*bad news*) indicate the decline of company's value which increase the risk of failure and potentially cut bond value. However, the asymmetric paying function of bondholders affects how unexpected earnings influence stock value. Specifically, fixed claims bondholders assert that bond value is more sensitive in declining company's value, rather than improving it. Bond value has a stronger reaction towards negative unexpected earnings, rather than positive ones.

Foster (1986) implied that the value of company can be determined through figuring out the present value towards income flow expected to be received by the company. When the company's financial condition is excellent, income changes are crucial for shareholders because their claims will depend on how big the income achieved by the company. On the contrary, bondholders will only receive the same amount as the interest and debt principal.

Plummer and Tse (1999) examined liquidation option hypothesis and theoretical prediction created by Fisher and Verrecchia (1997). Their research used bond rating as the measurement tool of financial condition. The result showed that when the company's financial condition is poor, there is a decreasing of income influence towards stock value, and an increasing influence towards bond value. When financial condition is fine, income influence towards stock value increases, yet decreases towards bond value. Bharath and Sunder (2009) argued that investors perceive accounting information to identify company's financial health so that they are able to accurately estimate present as well as future performance. Substantial deviation between income and cash flow makes it difficult for investors to understand company's economic performance. Bharath and Sunder (2009) found out that company with poor quality of accounting will reflect significant difference between income and cash flow. The quality of accounting information also affects the plan of debt contracts. In bond market, high risks are represented by companies with poor quality of accounting and they are reflected in the interest rate.

Subramanyam (2010) examined the influence of accounting information in bond market, which advanced the research done by Francis et al. (2005) about the relation between quality of accounting information and bond liquidation, linked with the cost of debt. Quality of accounting information shows two reasons for bond liquidations. First, high quality accounting information will reduce asymmetric information which is shown through the decrease of bid-ask spreads (Kyle, 1985). Second, it will also enhance market information which is shown through the reduction of unpredictability of assets value and trade information facility. Low unpredictability will lessen market maker's inventory and search cost. Although the utility of financial information requires quality, researches have demonstrated that financial or accounting information is not always in high quality. This research analyzes the quality of accounting information with the focus income information as the important information in making investment decisions.

This research is aimed to examine the influence of accounting information quality towards bond market liquidation. This research is expected to create contributions to other researchers and academicians, develop as a study object and concern as well as an opportunity for similar researchers to enhance the research, give contributions in the development of financial accounting science related to the importance of the quality of accounting information in order to make investment decisions in debt security Indonesia Capital Market, and give contributions to institutional and individual investors in planning accurate investment strategies through taking into account the impact of accounting information towards bond liquidity.

2. THEORETICAL STUDY AND HYPOTHESIS DEVELOPMENT

2.1 Signaling Theory

Signal Theory describes the motivation behind companies' intention to share information regarding financial report to externals. The motivation usually comes where there is a distinction between the information from the companies and the one from the externals. Companies should know about their situation as well as future prospects more than investors or creditors from the external side. The lack of information will cause externals tend to protect themselves by putting low values to the companies. In order to increase their value, companies should reduce this asymmetry through giving the right signals to externals. One of the examples is to provide a trustworthy financial information which should minimize the unpredictabilities of future prospect (Wolk et al., 2000). The Signaling theory provides guidance to



companies in giving the right signals to financial report clients. These signals should provide information about what has been done by the management board to achieve the owner's goals, such as promotion, or other information which tells satisfactory achievements about the companies compare to others.

Financial reporting should provide useful information for investors and creditors in making decisions regarding investment, credits, and similar decisions. Income, as part of financial report, should also be useful for credit decisions. Income information can be used to measure the prospect of the companies, such as (a) to evaluate management performance, (b) to estimate earning power, (c) to predict upcoming income, (d) to assess the risk of investment, or loan to companies (FASB, 1978).

2.2 Agency Theory

Jensen dan Meckling (1976) define 'agency' as a contract between agents and company principals. One or more principals assign rights and authorities to agents to perform principals' interests. Managers, assigned the authorities of company activities and are obliged to provide financial report have the tendency to inform a report which maximizes their effectiveness, and this can trigger agency conflicts. There are three types of agency problems. First, agency problem between managers and shareholders. Second, agency problem between shareholders and creditors. Third, agency problem between companies and costumers. This research investigates *liquidation option hypothesis* based on the Agency Theory. *Liquidation option hypothesis* focuses on the agency problem between shareholders and bondholders. Jensen dan Meckling (1976) state that the issue of debt contracts can cause problems between managers, shareholders, and creditors, but at the end, creditors are the one who will experience loss; if the investment is successful, they will receive their pay-off, on the contrary, if it is unsuccessful, creditors will have to receive the same amount of loss with the one experienced by the shareholders.

Along with these facts, it is implied that benefits for bond-holding is equal to return effects consist of company assets and concise position of *call option* upon written assets (Black and Scholes [1973] and Merton [1973]). Based on the research by Zhang (2006), there have been three predictions regarding the role of income in bonds. First, loss will be more relevant to bondholders than income. This is concluded from the fact that maximum return obtained by bondholders shows bond value. Thus, the relation between bond returns and income will be weak, or in other words, will not show that positive news about future cash flow will be reflected through income. On the other hand, the potential of *downside trivial* is linked to bond investment. Therefore, if income reflects bad news about company future cash flow, revision of expectation reduction upon future coupon payment will be simultaneous, and thus, there will be a positive relation between the return of bond and income. This prediction is compatible with the statement of Allen et al. (2004) who evaluated the level of return based on proposition level distributed in bond secondary market. They demonstrated that during income announcement, bond returns are zero when companies earn profit, yet there is a significant change occur when companies experience loss. The second prediction argued that income will be more relevant to speculative bondholders than investment bondholders. This is due to the fact that there is bigger possibility of default occurs in speculative bonds than in investment bonds. Therefore, call option held by speculative bondholders is relatively closer to what comes out from the fund *vis-à-vis* call option in investment grade bonds. This means speculative bondholders experience more unpredictabilities. Therefore, the quality of accounting information will be more relevant.

2.3 Value-Relevance

The value-relevance of accounting information refers to the capability of accounting information in describing company value (Beaver, 1968). Research about value relevance becomes important as there is a claim stated that historical cost-based financial report has lost its relevance to investors caused by significant changes in the economy, namely the transformation from industrial economy to high-tech economy and service-oriented (Francis and Schipper, 1999). The use of accounting information, especially income information, cash flow, and book value, has dropped because of the impact of changes in company actions and, moreover, the condition of economy is not sufficiently reflected in the report system (Lev and Zarowin, 1999). Lev (1999) argued that the relevance of accounting value is characterized by the quality of accounting information. According to Francis and Schipper (1999), there are four possibilities of interpretation regarding value relevance construction. First, financial report information influences stock values as it contains stock intrinsic value. Second, accounting information is value-relevant if it contains useful variable in appraisal model or in predicting the variable. Third, statistical relation is used in evaluating if investors actually use accounting information in determining the price, so that the value-relevance is measured through the ability of accounting information in influencing stock value. The concept of value-relevance is linked to the relevance criteria of standard accounting as the total number of accounting will be relevant if it reflects relevant information towards the appraisal of a company (Foster, 1986).



2.4 Value-Relevance of Earnings

Earnings report is considered as the source of valuable information from all types of annual reports provided by companies. In England, financial report becomes the first priority of institutional investors and earnings report is considered to be more important than balance sheet for financial analysts and investors. Meanwhile in New Zealand, financial report is viewed as the main source of information for financial analysts used by clients in the making of investment decisions and earnings report becomes a relatively more important source of information than balance sheet (Foster 1986).

The research, conducted by Beaver et al. with a new approach (simultaneous approach), was criticized by Allen et al. (1999). The method applied by Beaver et al. failed in several developments of time-series econometrics. The critics, based on a research, illustrated that prices significantly influence earnings, and earnings relatively influence prices. A study emphasized on the evaluation of the value relevance of accounting numbers (such as earnings and book value) was investigated by creating a link between those accounting numbers with market value (level and changes) (Dontoh et al. 2000). The study adopted a different approach, which used the content of prediction in earnings and value signal. The result showed that the content of prediction in earnings is higher than the value. Another research, investigated the systematic changes of value-relevance of earnings and book value, was done by Collins et al. (1977). The results were:

1. Contradicts to literature, the earnings value-relevance and book value combination has not decreased in 40 years and it seems that it slowly increases.
2. The added value-relevance of *bottom line earnings* decreases and it was replaced by the increasing of book value relevance.
3. There have been many transformations in earnings value-relevance into book value, which can be explained through the increasing in negative earnings frequency and changes in the average of company measurement and invisible intensity.

Ali (1994) examined the information content in income, operation working capital, and cash flow by applying the linear and non-linear regression method. The result showed that cash flow will contain information when non-linear model is applied, yet the contrary happens when linear model is applied. The research has shown that the existence of both operation working capital and cash flow weakened along with their increasing absolute change value. This result suggested that there is a possibility of non-linear connection between return and other non-earnings data.

Previous study has stated that incremental information content in earnings, operation working capital, and cash flow, was assumed to have linear relation between abnormal returns and unexpected components from the three variables and provided a proof which did not mention about incremental information content in operation working capital and cash flow. Based on Freeman and Tse (1992), Ali's study used a model which made it possible for nonlinearity in the relation between return and the three variables. This model declared that unexpected components from each variables decrease with an absolute number from the components. The result was consistent with the nonlinear relation between return and earnings, operation working capital, as well as unexpected cash flow which was applied in advance, and with the incremental information content from each variable. This result was convincing, especially from the analysis result based on portfolio and outlier behavior. An addition to operation cash flow and operation working capital, previous research did not clearly illustrate that other data, apart from earnings, such as inflation, adapted earnings, and current-cost earnings, are able to provide much more information than the one reflected in earnings (Bernard 1989). This result, together with Freeman's and Tse's (1992), stated that the assessment ability of incremental information content from some data other than earnings could increase by putting some unexpected response from data, which was various according to its components absolute value. The assessment with non parametric gave an explanatory ability which supported the non linear model.

2.5 Bond performance

Bond performance reflects the return which will be obtained by bondholders. It is highly influenced by bond values which reflect investors' behavior. According to Faerber (2001), there are four basic types of bond yields, which are: coupon yield, current yield, yield to maturity, and yield to call.

2.7 The Link between Quality of Accounting Information and Bond Liquidity

Theories have argued that information asymmetry contributes to unliquidity. Liquidity is a vital tool that performs the condition of bond market. The decline of liquidity can cause investors to shift their investment into other assets. Getter et al., 2007; Krisnamurthy, 2009; Akerlof ,1970 state that asymmetry information about the quality of products can



result in taking incorrect decisions and decline in market. To protect investors from taking incorrect decisions, market clients impose premium by increasing bid-ask spreads (Kyle, 1985; Glosten and Milgrom, 1985). Diamond and Verrechia (1991) argued that public information can improve liquidity by reducing accounting information. This corresponds to the theory argued that higher quality of accounting information will show how bond market liquidity reduce information asymmetry.

The objective of investors and creditors using income information is to assess the risk of investment or loan to companies, so that normatively income should be useful not only for shareholders but also for bondholders in making credit decisions. Research done by Ball and Brown (1968), Beaver and Dukes (1972), and Sloan (1996) demonstrated that income has information content in stock market. O'Bryan (1999), Khurana and Raman (2003), Bhojraj and Swaminathan (2003), Baridwan and Ratna (2005) investigated the influence of income towards bond returns; the research showed that accounting information, in this case, income, is valuable in credit decision making.

Holthausen and Verrechia (1990), supported by Krisnamurthy (2009) argued that accounting information quality influences securities trade aggressivity. The inexistence or low quality of accounting information can result in informational loss among the investors. High quality information will reduce the risk of unpredictabilities, the decline of bid-ask spreads, and increase liquidity. The improvement of liquidity resulted from high quality accounting information can also reduce information asymmetri and unpredictabilities (Subramanyam, 2010). Bhattacharya et al. (2009) argues that high quality accounting information will reduce information asymmetri and increase liquidity. This research is aimed at evaluating whether there is a positive impact of high quality accounting information towards bond liquidity.

Ha : There is a positive influence from high quality accounting information towards bond market liquidity.

3. RESEARCH METHODOLOGY

3.1 Sample Selection

The sample in this research is all companies who issue stocks and bonds. This research used the period of price data observation and daily yields in the years of 2007 – 2009. The sample evaluated in this research is company LQ45.

3.2 Variable and Variable Measurement

3.2.1 Accounting Information Quality Measurement and

Quality measurement of accounting information used the model developed by Dechow and Dichev (2002). The total calculation of current accrual is gained from the changes in current asset, current liability, cash, and debt in current liability. By using the operation cash and income ratio measurement, quality of accounting information is demonstrated through the proximity between income and operation cash flow.

3.2.2 Bond Liquidity Measurement

The research by Chen et al. (2007) applied a non-zero bond return and negative bid-ask spreads. The first liquidity measurement was obtained from daily bond value. The calculation of daily trade percentage of non-zero return in each bond divided by total sales in a year. The second liquidity measurement was based on bid-ask spreads. The calculation was conducted by measuring quarterly spreads divided by the average price of supply and sales.

3.3 Analysis Method

The analysis method applied in this research is the double regression. In order to get to know whether information quality affects *ceteris paribus* towards bond liquidity, regression was formulated through this equation:

$$Liquidity = \beta_1 + \beta_2 AQ + \beta_3 LOGAGE + \beta_4 LOGMATURITY + \beta_5 LOGOFFER + \beta_6 BM + \beta_7 LEV + \beta_8 LOGSIZE + \beta_9 ROA + \beta_{10} SDCFO + e$$

Notes:

AQ	= Accounting Information Quality
LOGAGE	= Bond Age
LOGMATURITY	= Bond Payoff
LOGOFFER	= Bond Offer
BM	= Book to market ratio
LEV	= Leverage



LOGSIZE = Company size
 ROA = Return on Asset
 SDCFO = Standard deviation of cash flow operation

4. ANALYSIS AND RESULT

4.1 Data Analysis

Samples of this research are 42 companies in total which issue stocks in the period of research from 2008 to 2009 (quarterly), and resulted in 252 observations. General descriptions of the whole research data is displayed in the descriptive statistic table below:

Table 4.1. Descriptive Statistic

Variable	Minimum Value	Maximum Value	Average Value	Standard Deviation
Yield	3403.00	14909.00	9619.6905	1287.84815
AQ	-219.54	706.25	9.9934	93.63545
ROA	-72.26	57.86	2.7658	12.88221
DER	0.04	15.68	4.6370	4.11030
BM	-0.47	1.52	0.5475	0.32528
Maturity	6	117	65.4286	22.60185
Age	24	120	54.9286	23.17753
Size	9.2	291	30.664	59.2140

Based on the table above, it was shown that on the average, sample companies produce yield three times bigger than the previous quarter. However, the interval between the minimum and maximum value is significant taking into account the fact that yield produced by companies among 14,909 from the lowest return, 3,403. Data about the quality of accounting information measured by using accruals showed that companies obtained premium as big as 9,9934 with the interval between -219.54 and 706.25. The profitability proxies with net income ratio divided by total asset (ROA) showed an average number of 2.7658 with standard deviation 12.8821, meanwhile the minimum value was -72.26 and maximum value was 57.86. Leverage proxies with total debt ratio divided by total equity (DER) showed an average number of 15.68 with standard deviation 4.11, meanwhile the minimum value was 0.04 and maximum value was 4.637. The value of the company measured by using the 'book to market ratio' showed that on the average, companies obtain premium from the investors as big as 0.5475 times from book value, with the interval between 0.47 to 1.52. Bond age showed an average number of 65.4286 with standard deviation 22.6082, meanwhile the minimum value was 24 and maximum value was 120. Company measurement proxies with the total asset showed an average number of 30.664 with standard deviation 59.214, meanwhile the minimum value was 9.25 and maximum value was 291.

4.2 Assessment of Regression Assumption

Regression equation examined the relation between accounting information quality and yield. The initial regression equation, conducted based on the real data from research, showed that there was an infringement upon the normal residual distribution assumption of regression equation. This was seen through the result of the examination made by Kolmogorov-Smirnov, which proved that there was some significance in residual assessment that was 0.000. In order to overcome the infringement upon the assumption of normality, a transformation was made by abandoning the outliers' data. Thus, eventually there were 249 observations from the regression equation. Transformation regression equation met the linearity assumption. This was seen through the Kolmogorov-Smirnov value of 0.125, and the P-Plot which was getting closer to normal distribution. The result of co-linearity examination also demonstrated that regression equation did not infringe the assumption of multi co-linearity. The number of VIF value in each independent variable was 1.482 with tolerance level 0.675. Co-linearity diagnostics also did not show that there was multi co-linearity. Thus, the first regression assumption has accomplished the assumption of multi co-linearity. The result of hetero-skedasticity assessment by using the Glesjer test towards independent variable has shown that the significance of t value is not significant. This means that regression equation has accomplished the assumption of homo-skedasticity.

4.3 Hypothesis Examination

There were 7 variables examined in the regression equation, which were AQ, ROA, DER, BM, Maturity, Age, and Size. Regression assessment towards the whole observations in order to evaluate the impact of accounting information towards bond market has shown this result:

$$Liquidity = \beta_1 + \beta_2 AQ + \beta_3 ROA + \beta_4 DER + \beta_5 BM + \beta_6 MATURITY + \beta_7 AGE + \beta_8 LOGSIZE + e$$



Table 4.2
 Regression Result

Independent Variable	<i>Un-standardized Coefficient</i>	<i>Standardized Coefficient</i>	t	Sig (1-tailed)
Constant	-1.738	-	2.427	0.016
AQ	0.153	0.193	2.534	0.012
ROA	-7.735	0.077	-1.156	0.079
DER	2.097	-0.106	-1.245	0.215
BM	-26.750	0.077	-0.102	0.001
Maturity	0.752	0.014	0.047	0.963
Age	6.481	0.114	0.383	0.702
Size	-2.354	-0.108	-1.325	0.012

ANOVA Test : F= 0.494 (<i>p-value</i> = 0.018)
Adjusted R ² : 0.14
Dependent Variable: Yield

Based on the table above, it was shown that the value of F was 0.494 with p-value 0.018, which demonstrated that regression model might be used to predict returns. Variable AQ, BM and Size were significant with level of significance 5%. Variable ROA was significant with the level of significance 10%, meanwhile variable DER, Maturity, and Age did not show that they had impact to bonds. The value of adjusted R square showed that 14% bonds could be described through variables of AQ, BM, Size, ROA, DER, Maturity, and Age. Meanwhile, the rest was described through other variables.

The assessment result showed that accounting information had influence in bond market, supporting the result of the research by Subramanyam (2010); the research examined the influence of accounting information in bond market, which was the extension of research done by Francis et al. (2005), examining the relation between accounting information quality and bond liquidity, which were linked to the cost of debt. This result was in line with the research by Kyle (1985), who argued that the high quality of information will reduce the information asymmetry which is shown through the decline of bid-ask spreads (Kyle, 1985).

5. CONCLUSION

The result showed that accounting information had influence in bond market, supporting the result of the research by Subramanyam (2010); the research examined the influence of accounting information in bond market, which was the extension of research done by Francis et al. (2005), examining the relation between accounting information quality and bond liquidity, which were linked to the cost of debt. This result was in line with the research by Kyle (1985), who argued that the high quality of information will reduce the information asymmetry which is shown through the decline of bid-ask spreads (Kyle, 1985).

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