Earnings management and stock prices liquidity

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ABSTRACT

This paper attempts to examine the nature of relationship between the earnings management and market liquidity. A sample of 72 KSE listed companies was selected for the period of 2005-2009. Common effect model, fixed effect model and random effect model were applied. On the basis of Housman statistics, the fixed effect model was selected as the appropriate model. Results state that there exists a significant relationship between earnings management and liquidity. We find evidence that firms with highly manipulated earnings have small spread of stock prices, making their stock more liquid. These results are in line with the previous work done by Fathi et al. (2011). This paper suggests all types of investors to be better informed about the public information that companies provide to their users.

Key words: Earnings management, liquidity, discretionary accruals, modified Jones model.

INTRODUCTION

As far as Earnings management is concerned, many previously publish research articles were in held the view that firms with highly manipulated earnings have less volatile stock prices, therefore making it less transparent and facing high transaction cost and making their stock less liquid. Existing body of knowledge argues that firms with high level of earnings manipulation will experience future abnormal return (Sloan, 1996; Fathi et al., 2011).

Talking about stock prices, one of the vital characteristic of stock trading is liquidity. Because it does not only affects the cost of capital, but also the stock return. Along with that the stock liquidity providers (market specialists) are always facing uncertainty situation about the true value of the inventory of stocks of those firms who hires managers to manage their earnings in order to avoid the possible loss while trading against more informed traders (Fathi et al., 2011).

Information obtained from financial statement analysis helps to examine the accruals and cash flow not only for the purpose of predicting future earnings but also allows users of the financial statements such as investors, creditors, employees, financial analysts (specifically), customers and suppliers, to base their decisions on the information derived from these financial statement. A great amount of literature exists to provide evidence in the favor of this fact that managers mislead the users of financial statements through earning management (Klein, 2002). This is due to the use of the accrual based accounting system, which is used to measure earnings management. In this system managers get significant discretion to decide about the size of accruals, due to which they hide low income for a greater period of time (Dechow and Skinner, 2000).

The purpose of this paper is to examine the nature of the relationship between earnings management and stock prices liquidity. Discretionary accruals are used to measure the earnings management and high-low spreads are used as a proxy to measure the liquidity of the stock prices for the period of 2005 to 2009. The rest of the paper is fragmented...
as literature review, methodology, empirical results, discussion and conclusion.

LITERATURE REVIEW

This aspect of the work is distributed in three parts, one is relevant to the work done by the scholars on measuring and importance of earnings management in the field of corporate finance and the other part provides an insight of liquidity and the last part is about liquidity linkage and its relevance to the historical earnings management.

Earnings management

Numerous articles present different definitions of Earnings management including Healy and Wahlen (1998) and Klein (2002). They defined earnings management as the practice of misrepresenting the true financial performance of the company.

Healy and Wahlen (1998) review the existing academic evidence on earnings management and summarize its implication in their article “A review of the earnings management literature and its implications for standard setting, providing some fruitful areas for research on earnings management”.

Earlier, Levitt (1998) entitled earnings management as “Accounting hocus-focus” where flexibility in financial reporting is exploited by financial managers who were trying to meet earnings expectation as cited by Els (2002), similarly Mitani (2010) concluded based on the above definition that earnings management is just the window-dressing of financial statements. Earnings management detection is one of the important issues in the past decade.

Matsumoto (2002) discussed the case of earnings management, he argues that, managers must implicitly believe that users either are unable to detect earnings manipulations or do not find it cost effective to do so. The study provides evidence of ignorance either intentionally or unintentionally by the users for the earnings management.

McNichols (2000) discusses three research designs commonly used in the earnings management literature, namely those based on aggregate accruals, those based on specific accruals and those based on the distribution of earnings after management, later, on discussing the issues with these research designs, he concluded that aggregate accrual method is potentially miss specified and can result in misleading inferences, while suggesting the application of specific accruals tool and distribution based test for future progress in the earnings management literature.

A large amount of literature exists on measuring earnings management through discretionary accruals including those of Dechow et al. (1995), Kothari et al. (2000) and so on. These accruals were calculated by subtracting the non-discretionary accruals from total discretionary accruals.

Total discretionary accruals were obtained by two methods either balance sheet method or income statement (Shah et al., 2009).

Beest et al. (2009) presents an overview of measurement tool to assess the quality of financial reporting used in prior researches, argues that Accrual models are used to examine the level of earnings management as a proxy for earnings quality, furthermore it is easy to collect data in order to measure earnings management.

Furthermore, Chung et al.(2009) argues that income and expenses are reported as they occurs in the accrual based accounting system and also permits discretion in the financial statement to express better firm performance. Chung et al. (2009) also explains that the discretion available to managers in using accrual based accounting to intentionally manage reported results is so known as earnings management.

Similarly, Dechow and Skinner (2000) recognizes that accrual accounting provides opportunities for earnings management, that allows managers to exercise significant discretion in deciding the size of how accruals hide low income for a greater period of time.

Liquidity

Putyatin and Dewynne (1999) Defines liquidity as “The ability to transact immediately and with negligibly small impact on the price of security regardless of the size of the transaction” and explains that for a liquid market, trading should be both informational and transitonally efficient.

Breen et al. (2002) developed and use the measures of price impact to examine the liquidity, claiming that this tool covers important aspects of liquidity other than bid-ask spread and quoted depth. Recently, Kanasro et al. (2009) use three measuring tools to measures liquidity issues at Karachi stock exchange for the period of 1985-2006, comprising of liquidity analysis, turnover ratio and size of market, Kanasro et al. (2009) concludes that during the earlier mention period, Karachi stock market is illiquid, attracts less investors and affect the market size too.

In contrast to that, existing literature on liquidity focuses on the bid-ask spread as a tool to measure liquidity. For example, Putyatin and Dewynne (1999) focus on bid-ask spread to measure liquidity of stock market. Later on Jain (2002) also measured liquidity through bid-ask spread of several months. Similarly Graves et al.(2002) uses bid-ask spread to measure liquidity and many more.

Earnings Management and liquidity

This part of literature review, consist of a synthesis of literature based on the relationship that exists between earnings management and liquidity.

Richardson (2000) discuss that Bid-ask spread is one of the measures of market liquidity that has been used
extensively in previous research as a measure of information asymmetry between managers and the firm shareholders and for the existence of earnings management in a transaction, information asymmetry must persist throughout the transaction.

Later on, Chung et al. (2009) examines the influence of Earnings management on Bid ask spread and concludes that the liquidity providers react to the aggressive accounting practices of earnings management and tend to widen their bid-ask spreads to protect themselves.

Lang et al. (2010) documents that firms with greater transparency based on earnings management face less liquidity volatility in examining the transparency and liquidity uncertainty in crisis period. Again, Lang et al. (2010) in their Cross country research argue that firms with less evidence of earnings management have greater transparency and therefore face lower transaction cost and greater liquidity.

Furthermore, Fathi et al. (2011) argues that the stock liquidity provides greater uncertainty about the true value of their inventory of stocks and suffers the possibility of loss while trading against the more informed traders. Testing their sample (Fathi et al., 2011) they concluded that better earnings management overcome this effect and by having a greater bid ask spread and ultimately suffers lower stock liquidity.

On the basis of the earlier discussion, it was concluded that we should have a continuum in which on one hand, better earnings management leads to lower stock liquidity while on the other hand, we have poor earnings management leading to high liquid stock. This paper aims to study the relationship between earnings management and liquidity using discretionary accrual and bid ask spread.

**METHODOLOGY AND DATA**

This paper examines annual data of 72 listed companies of Karachi stock exchange for the time frame of 2005 to 2009. The data were collected from State bank of Pakistan (SBP) annual balance sheet analysis for calculating discretionary accruals (DA) and historical stock prices were collected from business recorder to calculate the average high low spread of stocks. Due to lack of data availability regarding bid-ask spread, the high low spread were used as a proxy instead of bid-ask spread to measure the liquidity of stock. The companies for which data was not available are excluded. For the purpose of study the paper hypothesized that:

\[ H_1: \text{Earnings management has no impact on stocks liquidity.} \]

**Stocks liquidity (dependent)**

To measure liquidity, this paper used the annual average high low spread as a proxy for bid-ask spread, for the sample firms during the sample time of 2005-2009. Due to the lack of availability of bid ask spread for the KSE listed companies, this spread was calculated as:

\[ \text{Spread} = \text{High} - \text{low} \]

These spread were then averaged out for the specific year denoted as t. and was finally regress upon the absolute discretionary accruals represented as ABSDA.

**Earnings management (independent variable)**

The paper adopts the Modified Jones method for measuring NDA (non-discretionary accruals). Total accruals were computed by taking the difference of net income and cash flow from operation for each year. As shown below in equation 1.

\[ \text{TA}_t = \text{NI}_t - \text{CFO}_t \]

Where \( \text{TA}_t \) represents the total accruals for the year \( t \). \( \text{NI}_t \) represents the net income for the year \( t \) and \( \text{CFO}_t \) represents the cash flow from operation for the year \( t \).

These total accruals were then used to calculate non-discretionary accruals by dividing it with total assets of the previous year for a particular year and are regressed upon the difference between change in receivables and change in fixed assets of the year divided by previous year total asset.

Equation 2 shows the Modified Jones model (1995) for measuring Accruals.

\[ \text{NDA}_t = \alpha_1 \left( \frac{1}{\text{TA}_{t-1}} \right) + \alpha_2 \left( \frac{\text{REV}_t - \text{REC}_t}{\Delta \text{REV}_t} \right) + \alpha_3 \left( \frac{\text{PPE}_t}{\Delta \text{REV}_t} \right) \]

Where \( \text{NDA}_t \) stands for non-discretionary accruals, \( \Delta \text{REV}_t \) represents the change in revenues and \( \Delta \text{REC} \) represents the change in net receivables for the year \( t \) with respect to year \( t-1 \). \( \text{PPE} \) represent the change in property and plant equipment for the year \( t \). \( \alpha_1, \alpha_2 \) and \( \alpha_3 \) are company specific parameter. All the variables were scaled by total assets of the previous year. Equation (3) shows the calculation of DA (discretionary accrual).

\[ \text{DA}_{i,t} = \frac{\text{Accruals}_{i,t}}{\text{TA}_{i,t-1}} - \text{NDA}_{i,t} \]

Where \( \text{DA}_{i,t} \) represents discretionary accruals for the ith cross section unit and time \( t \). \( \text{TA}_{i,t-1} \) represents the total assets of ith cross section unit for the previous year as represented as \( i+1 \) in subscript. \( \text{NDA}_{i,t} \) represents the non-
discretionary accrual for the ith cross section unit for the year t.

**Empirical analysis**

Before applying panel data techniques, data was arranged in the form of pool data. Then common, fixed and random effect model were employed.

In order to check for the appropriateness of the models applied, F statistics were employed between common effect model and fixed effect model.

\[
F = \frac{(R^2_{FE} - R^2_{CC})/(N - 1)}{(1 - R^2_{FE})/(NT - N - k)} \sim F(N - 1, NT - N - k)
\]

(4)

Where F represent the F-statistics with critical value 2. \(R^2_{FE}\) and \(R^2_{CC}\) represent the coefficient of determination for the fixed effect model and common effect model respectively. N represent the no of cross section and T represent the number of years as the data used in this paper is annual. K represent the no of independent variables used in the model. The null hypothesis of F statistics is that common effect model should be employed. The F-statistics obtained here is 2.98 which is significant comparing to the critical which is 2, therefore rejecting the null hypothesis, this alternatively leads to decide that fixed effect model should be employed.

In the next step, Housman test was applied to check whether fixed effect model or random effect model should be used. The results indicate probability value of 0.69. which is greater than 0.05 (standard p-value), which nullify null hypothesis for houseman statistic, which means that random effect should be applied. Another reason for applying fixed statistics is its appropriateness in explaining the larger data set, as this paper examines 72 companies for the period of 2005-2009. Consequently fixed effect model was applied on data and the results of fixed effect model is shown in Table 1. Table 1 represent the output obtained from applying fixed effect model on data.

Table 1 explains that there is inverse relationship between ABSDA and Spread with a Beta value of -0.266. Which indicate that the increase in the level of discretionary accrual by one percent of total asset will lead to the narrowing down of the high low spread by 0.266 Basis point.

**DISCUSSION**

On the basis of the results obtained, which explains that if company is engage in earnings management practice, it will have relatively low spread. It also explains that there is positive relationship between liquidity and earnings management. Hence the null hypothesis was rejected which states that “earnings management has no impact on the liquidity of stock prices”. The smaller the value of the spread, the greater the liquidity of the company stock. These results corroborated with previous published research works such as those of Fathi et al. (2011). The paper has a limitation of focusing only the relationship between earnings management and stocks liquidity and missed important control variables that are relevant to the firm. To better explain this nature of relationship, there is a need of incorporating other variables such as trade volume and other control variables for the spread.

**Conclusion**

This paper uses modified Jones (1995) model to measure discretionary accruals as a proxy to measure earnings management. Moreover, historical high low spread is used to measure stock price liquidity. All the three models used in panel data regression were applied on data and for appropriateness, F-statistics were used to decide between common effect model and fixed effect model, the results of F-statistics were in favor of fixed effect model and finally Housman test was used to check whether fixed effect model or random effect model is appropriate. The results of Housman test were also in favor of fixed effect model; hence fixed effect model was applied and reported in the paper. In the light of which, this paper concludes that there is positive relationship between earnings management and liquidity. The smaller the value of the spread, the greater the chance of the company stock been liquid.

**REFERENCES**


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