The Effect of Earnings Management on Stock Liquidity of Listed Companies in Tehran Stock Exchange

Saeid Fathi
Assistant professor of Management, the University of Isfahan, Iran

Seyyd Abbas Hashemi
Assistant professor of Accounting, the University of Isfahan, Iran

Zahra Firuzkuhi
M.A. Candidate in Financial Management, University of Isfahan, Iran

Abstract
Stock liquidity providers (market makers or specialists) for firms that manage earnings face greater uncertainty about the true value of their inventory of stocks of such firms and a possible of loss while trading against more informed traders. This study examines the effect of earnings management on stock liquidity of listed companies in Tehran stock exchange. To investigate this effect, panel data techniques is applied on a sample of 81 companies, over the period of 2004-2009. Earnings management is identified using Jones model. The empirical analysis shows that firms that manage earnings have wider bid-ask spreads. So the empirical results indicate that companies with higher earnings management suffer lower stock liquidity.

Keywords: Earnings management, Bid-ask spreads, Jones model, discretionary accruals

1. Introduction
For a long time, the reported earnings amounts in financial statements are always attractive to investors, creditors, employees, financial analysts, customers and suppliers. Users of financial statements generally make decisions depending on the information derived from the financial statements. Therefore, the financial reporting has to effectively communicate financial information to outsiders in a timely and credible manner. However, managers are given opportunities to mislead the users of financial statements in this way. In many cases, managers manipulate earnings amount to meet specific intentions (Ayers, Jiang, & Yeung, 2006; Bergstresser & Philippon, 2006).

For instance, when the compensation or bonus is related to the financial performance, managers have stronger incentives to manage earnings to meet the target or financial analysts’ expectation. Once the financial statements are manipulated excessively, it is hard for the users of financial statements to evaluate the financial position and the operating performance. Thus, the cosmetic financial statements or financial reports may mislead the users, as well as causing tremendous, even destructive consequences (Chih-Fong Tsai, 2009). Growing anecdotal and systematic evidence supports the argument that earnings management is a common practice in firms (Richardson, 2000).
Healy and Wahlen (1999: 368) note that: “Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”. Therefore earnings management could be used to obscure the actual performance of the firm from shareholders and others, as reported numbers are not necessarily reflective of the underlying financial fundamentals of the firm (Healy and Wahlen, 1999).

Stock liquidity is important as it affects the stock expected returns and cost of capital. As a result, it has an impact on the flow of capital and growth and development of the market. Thus an understanding of whether corporate governance can facilitate more liquidity in the market, especially in an emerging economy is important. Levine and Zervos (1998) suggest that stock market liquidity is positively and robustly correlated with contemporaneous and future rates of economic growth, capital accumulation, and productivity growth (Yee-Boon Foo, 2010).

Reported earnings are composed of cash flows from operations and accruals. GAAP allows accruals to mitigate timing problems and to achieve better matching of revenues and expenses when measuring corporate performance over year-long time intervals. However, as recognized by Dechow and Skinner (2000), a potential shortcoming of accrual accounting is that it creates opportunities for earnings management. Managers can exercise significant discretion in deciding the size of accruals, and therefore can use accruals to hide bad operating performance or delay recognizing income until later periods of low income (Gupta et al, 2009).

Although, the motivation behind managing earnings may not necessarily be as sinister as in the above examples, but earnings management reduces the reliability of the reported earnings. The increased uncertainty (information risk) about how well the reported earnings represent the true earnings results in greater uncertainty about the true value of the firm. In fact the information risk about the true earnings of a firm is priced is shown by Francis, LaFond, Olsson and Schipper (2005). Earnings management is also related to higher cost of equity (Flos, 2004) and cost of debt (Gupta et al, 2009; Prevost, 2006).

From a microstructure standpoint, a firm with lesser reliability of reported earnings creates two problems for a liquidity provider (market makers or specialist). First, there is a greater uncertainty of the true value of the stock of the firm that manages earnings. This results in greater uncertainty of the value of the inventory of stocks held by the market maker. Second,
uncertainty about the true value of the stock raises the possibility of loss while trading with a trader with superior information (informed trader) about the true value of stock. Confronted with the potential loss, the liquidity providers may widen the bid-ask spread to avert such loss (Gupta et al, 2009).

Since a good investor protection environment will minimize the costs of information asymmetry, and thereby reduce the probability of trading against informed traders, liquidity providers will incur relatively lower costs and therefore offer narrower bid–ask spreads. Conversely, a weaker investor protection environment with worse economic prospects will result in greater expropriation by managers, and thus, higher asymmetric information costs (Huimin Chung, 2006).

Our study is most closely related to Richardson (2000), Huimin Chung (2009) and Bhattacharya et al. (2010). Both studies examine the link between earnings management and information asymmetry. Richardson (2000) finds an association between quoted closing bid-ask spread and measures of abnormal accruals. His primary measure of abnormal accruals is based on Jones (1991). He also examines earnings management practices and levels of information asymmetry for a sample of seasoned equity offerings between 1986 and 1993 and finds heightened income increasing earnings management and greater information asymmetry in the event period. Huimin Chung et al use the modified Jones model (Jones, 1991) to measure discretionary accruals, and to estimate equity liquidity, they uses the variable averaged percentage spread. The empirical results of their studies indicate that companies with higher earnings management suffer lower equity liquidity. Bhattacharya et al. use a modified version of Dechow and Dichev (2002) as their measure of earnings quality. Their second earnings quality measure is based on operating accruals. Their measures rely on the intuition that accruals involve estimates of cash flows, and a higher (lower) level of error in estimation results in lower (higher) quality of reported earnings. They find that poor earnings quality is associated with higher information asymmetry. They find the impact of earnings quality on information asymmetry is significantly greater for small firms and firms with low institutional ownership. They also find that firms with poor earnings quality have a further decline in market quality around earning announcements, a period that has particularly high information asymmetry among market participants. They use effective spread and the price impact of a trade as proxies for information asymmetry. In contrast to the three studies above, we use bid-ask spreads to proxy for stock liquidity. Further, This study adopts the modified Jones model (Jones, 1991) to measure discretionary accruals.

2. Data source and variable definition

2.1 Sample selection

Our sample consists of a panel data set from 81 companies of listed companies in Tehran stock exchange over the time period of 2004-2009.

2.2 Empirical measures of liquidity and earnings management

I. To measure stock liquidity, this study uses the variable averaged percentage spread ($BA_{i,t}$) for each security from October to December of 2004-2009. $BA_{i,t}$ is calculated as:

\[ BA_{i,t} = \frac{AP_{i,t} - BP_{i,t}}{AP_{i,t} + BP_{i,t}} \]  

(1)
where AP\textsubscript{it} and BP\textsubscript{it} denote the intraday ask and bid prices at time t for security i.

II. Compared with other earnings management methods based on altering firm operations, such as selling assets and reducing spending on advertising and research and development, the manipulation of accounting accruals is expected to be easier and hence this instrument is prioritized over others (Peasnell et al., 2005). This study adopts the modified Jones model (Jones, 1991) to measure discretionary accruals. This approach estimates normal accruals as a function of revenue changes and discretionary accruals as the remaining portion of accruals. As noted by Dechow et al. (1995), the modified Jones model is extremely powerful in detecting sales-based manipulations. The parameters of the following cross-sectional OLS regression model are estimated:

$$\frac{TA_{it}}{A_{it,-1}} = k_1 + k_2 \frac{\Delta \text{SALES}_{it}}{A_{it,-1}} + k_3 \frac{PPE_{it}}{A_{it,-1}} + \epsilon_{it}$$

Where, for fiscal year t and firm i, TA represents the total accruals defined as $TA_{it} = \text{EBXI}_{it} - \text{CFO}_{it}$, where EBXI is the earnings before extraordinary items and discontinued operations and CFO is the operating cash flows (from continuing operations) taken from the statement of cash flows. $A_{it,-1}$ represents total assets, $\Delta \text{SALES}_{it}$ is the change in revenues from the preceding year, and $PPE_{it}$ is the gross value of property, plant and equipment.

The coefficient estimates from Eq. (2) are used to estimate the firm-specific normal accruals ($NA_{it}$) for our sample firms,

$$NA_{it} = k_1 + k_2 \frac{\Delta \text{SALES}_{it}}{A_{it,-1}} + k_3 \frac{PPE_{it}}{A_{it,-1}}$$

Where our measure of discretionary accruals is the difference between total accruals and the fitted normal accruals, defined as $DA_{it} = \left( \frac{TA_{it}}{A_{it,-1}} \right) - NA_{it}$.

3. Methodology

3.1. Panel Regression Models

Panel data approach is an increasingly popular form of longitudinal data analysis. If the same units of observation in a cross-sectional sample are surveyed two or more times, the resulting observations are described as forming a panel data set.

One type of panel model has constant coefficient, referring to both intercepts and slopes. This model that is called pooled regression can be used when the groups to be pooled are relatively similar or homogenous. This model can be directly run using Ordinary Least Squares on the concatenated groups.

Another type of panel model would have constant slopes but intercepts that differ according to the cross-sectional (group) unit. These models are called fixed effect models.

According to some tests of detecting panel data and pooled model, this study uses the random effect regression model.

To examine the influence of earnings management on bid-ask spreads, this study investigates the following regression model, controlling for the significant determinants of the spreads:

$$\text{BA}_i = \alpha_0 + \alpha_1 \text{DA}_i + \alpha_2 \text{SDRET}_i + \alpha_3 \text{LNTV}_i + \alpha_4 \text{LCLP}_i + \alpha_5 \text{LNTR}_i + \alpha_6 \text{LNMV}_i + \epsilon_i$$

Where BA denotes the average of percentage spread for equity i during the given period; DA represents the measure of earnings management; SDRET is the standard deviation of daily stock returns for the sample period; LNTV denotes the natural log of the average daily trading dollar volume for the sample period; LNCPLP represents the natural log of the average...
closing stock price for the sample period; LNTR denotes the natural log of the average daily total number of trades for the sample period; LNMV is the natural log of the market value of the firm at the end of the sample period.

4. Empirical results

The random effect regression results of Eq. (4) are listed in Table 1. The final sample in 6 years period comprised of a total of 81 firms. A positive relationship between earnings management and BA exists for our regression. The empirical results indicate that when firms increase discretionary accruals by 1% of total assets, market makers will widen the percentage spread by 1.1 basis points, as demonstrated by Van Ness et al. (2002) and Huimin Chung et al. (2009). Generally, this study finds that the spreads amongst companies with higher earnings management are wider after controlling for cross-sectional differences, The empirical results support the argument that aggressive EM signals managerial intention to obtain private benefits, and the rational response of liquidity providers is to widen the bid-ask spreads to afford themselves some measure of price-protection, possibly reducing stock liquidity.

5. Conclusion

This study posits that aggressive earnings management signals greater managerial agency costs and asymmetric information costs. As a result, liquidity providers incur relatively higher costs and thus offer higher bid-ask spreads and lower liquidity. The empirical results presented in this study support this hypothesis, showing the firms that manage earnings have wider bid-ask spreads. So the empirical results indicate that companies with higher earnings management suffer lower stock liquidity.
References


Annexure

Table (1): Results of estimation of equation (1)

<table>
<thead>
<tr>
<th>p-value</th>
<th>t-statistic</th>
<th>$\beta_i$</th>
<th>variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>-14.26</td>
<td>-0.15</td>
<td>C</td>
</tr>
<tr>
<td>0.04</td>
<td>2.048</td>
<td>0.11</td>
<td>DA</td>
</tr>
<tr>
<td>0.32</td>
<td>0.97</td>
<td>0.00</td>
<td>SDRET</td>
</tr>
<tr>
<td>0.00</td>
<td>-3.73</td>
<td>-0.01</td>
<td>LNTV</td>
</tr>
<tr>
<td>0.00</td>
<td>-7.44</td>
<td>-0.08</td>
<td>LNCLP</td>
</tr>
<tr>
<td>0.00</td>
<td>-2.71</td>
<td>-0.01</td>
<td>LNTR</td>
</tr>
<tr>
<td>0.00</td>
<td>-2.63</td>
<td>-0.02</td>
<td>LNMV</td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td></td>
<td>$R^2$</td>
</tr>
</tbody>
</table>