Conditional Conservatism and Level of Bankruptcy

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The aim of the present study is to examine the relationship between conditional conservatism and level of bankruptcy in companies listed on the Tehran Stock Exchange. For this purpose, data of 80 companies were examined during a four-year period from 2007 to 2010. The model of Khan and Watts (2010) was used to assess post-event or conditional conservatism. Regression analysis based on combined data was used to test hypotheses. The verge of bankruptcy has been extracted using the Altman Model. The analysis of variables showed a significant negative relationship between conservatism and bankruptcy risk in companies listed on the Tehran Stock Exchange.

Keywords: Conditional Conservatism, level of Bankruptcy, Stock Exchange, Combined Data, Altman Model

INTRODUCTION

Information is critical to the functioning of markets, because most decisions including decisions to invest in capital market, decisions regarding the entry or exit of competitors to industries, financing method (through debt or equity) and decisions regarding the level of flexible information disclosure are adopted in conditions of uncertainty. The purpose of financial reporting is to provide useful information to users. The useful information are those with qualitative characteristics including reliability and relevance. One of reliable information component is compliance with the principle of conservatism principle or principle of precaution (according to Technical Committee of Accounting Standards of Iran). According to Basu (1997), conservatism is a different verification to identify revenues and costs leading to underestimated profits and assets.

On the one hand, conservative policies will reduce competitive pressures and threats by presenting a bad picture of financial position and profitability of entity. On the other hand, it reduces expectations of shareholders and other investors about future performance of entity. Hendrickson believes that the concept of conservatism causes some confusion and misdirection in accounting reports, so it is a crude non-advanced approach. On the other hand, financial reporting based on conservatism makes reports and accounting information non-analyzable even for most professional users. The concept of conservatism is also inconsistent with the principle of full disclosure, such that it will greatly reduce the comparability of financial reports, because there are not integrated indicators and criteria to apply this concept (Hendrickson, 1992).

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Senior managers who are responsible for preparing financial statements, having full knowledge of financial situation of company, have more knowledge than investors and creditors. They are often optimistic and trying to portray a favorable image of entity. If the picture of entity looks good, financial incentives and capital injection by people outside organization will increase. In such circumstances, accounting principles and procedures make use of conservatism concept with the support of authorities developing accounting standards to balance managers’ optimism and protect the rights of stakeholders as well as to present fair financial statements. Thus, conservatism has been used by accountants for many years as a limiting accounting principle (Kordestani and Amir Beigi, 2010).

According to Schruder et al. (2008), the ability to avoid uncertainty is one of social values. This social value results in a value in accounting called conservatism. This accounting value will directly influence on assets and profits measurements. Accounting conservatism is a covenant that leads to a decrease in interest and distributed dividend by accurate conservative measurement of the results of economic institutions operations. It finally realizes confidence required to settle the principal and interest on debt as well as expected and long-term returns of shareholders (Etemadi et al., 2010). On the other hand, corporate bankruptcy will impact on the liquidity of capital market and economic development. At the time of bankruptcy, banks reduce crediting to bankrupt companies. Banks usually ask for higher interest to compensate for additional risk for the loan given to bankrupt companies.

Corporate bankruptcy is usually determined by various interrelated factors. Therefore, the exact cause or causes of bankruptcy and financial problems cannot be easily determined in any particular case. Generally, bankruptcy factors include inter-organizational or extra-organizational factors. External factors include changes in economic structures, changes in trade, business fluctuations and such other factors which are not controllable by management. The internal factors include those that managers were wrong or have failed to take necessary managerial decisions (Nikbakht and Sharifi, 2010). Internal factors of bankruptcy can be controlled by reliable and correct decisions. Identifying the factors causing bankruptcy and attempt to fix them not only leads to corporate survival, but it provides an opportunity for economic development. Conservatism as a central feature of financial reporting may help managers in promoting objectives of entities. The relationship between conservatism and other factors affecting economy of company such as bankruptcy and capital structure, may help a rational decision-maker to take optimal decisions. Therefore, the present study examines the relationship between accounting conservatism and verge of bankruptcy.

**LITERATURE REVIEW**

Kwon (2002) examined conservatism rate among high-tech and low-tech companies and the relevance of financial information and accounting conservatism. The results showed that when several alternatives are used for conservatism, conservatism rate among high-tech companies is more than low-tech firms in the 1990s. Using a regression model, Kwon found that the relationship between cumulative adjusted returns and high-tech variables is more significant than high-tech companies in terms of relevance of financial information.

Hujin and Lobring (2005) compared conservatism rate of earnings of English corporates in U.S Stock Exchange with those outside U.S Stock. Because of following reasons, they expected that earnings of English corporates in U.S Stock Exchange would be more conservative than those outside the U.S Stock. First, shareholder lawsuits in the UK is lower. Second, investors in U.S Stock Exchange use a higher-quality financial reporting. Thus, earnings of English corporates in U.S Stock Exchange was more conservative than those outside the U.S Stock during 1993-2002. Hence, their findings is indicative of some accounting conservatism lawsuits. There are also several studies on relationship between conservatism, auditing and legal obligations.

In this regard, Krishnal (2005) attempted to examine earnings of Anderson Institute clients in terms of in time report of bad news on future cash
flows, according to legal claims against The Anderson Institute for failure to perform its professional duties and obligations. It was observed that earnings of companies that have been audited by Anderson Institute are in time for detecting bad news. They usually postpone identification of bad news that are publicly available. The results of Krishnal (2005) showed that The Anderson Institute clients’ accruals are less effective for in time detecting bad news than experts in other institutions.

Bal and Shiva Kumar (2005) examined conservatism rate in private and public companies. According to Kumar, private companies are less conservative than public companies. They attributed this difference to differences in leading structure and control mechanisms in private and public corporations. Lafond and Roychowdhury (2007) used the results of Kumar (2005), because they believed that managerial ownership in public companies is systematically lower than private companies. Lafond and Roychowdhury (2008) examined the relationship between managerial ownership and conservatism. They used Basu Model to measure conservatism. Firm size, debt and risk of legal claims were considered as control variables. Their results showed that there is a significant positive relationship between debt ratio and conservatism. In other words, increased debt levels increased demand for conservatism. Moreover, they found a significant negative relationship between firm size and conservatism.

Biti and Berio (2008) studied conservatism provisions in debt contracts. Accordingly, in the case where agency costs of debt are higher, such contractual terms are most commonly used. Thus, conservative accounting is required to reduce agency costs of debts. According to Watts (2003) and Basu (2009), conservatism reduces risk of bankruptcy, thereby traditional economy will focus on conservative accounting. Moreover, awareness on this topic will inform capital owners of extinction risk to make optimal decisions about the company’s future. Gigler et al. (2009) examined accounting conservatism and the efficiency of debt contracts. They found that conservative accounting can develop debt contracts.

Sander and Zhang (2009) examined the effect of conservatism on debt contracts. Their results indicated a direct relationship between conservatism and debt levels. Chateau and Takado (2010) studied the impact of managerial ownership on demand for conservative accounting in Japan. They found a significant non-monotonic relationship between managerial ownership and demand for conservatism. As expected, they found a significant negative relationship between managerial ownership and earnings asymmetry at high and low levels of managerial ownership. Jinhan and colleagues (2010) conducted a research entitled "The relationship between conservative accounting and the ratio of market value to book value of shares". They found a negative relationship between conservatism of net profit and the ratio of market value to book value of equity. A negative relationship was also found between conservative accruals and the ratio of market value to book value of equity. No significant relationship was observed between conservatism of operating cash flow and changes in market value to book value ratio.

Biddle et al (2011) examined the relationship between conservatism and bankruptcy risk. They found a significant negative relationship between accounting conservatism and the risk of bankruptcy. This means that whatever firm makes use of conservative procedures in accounting, the probability of bankruptcy will reduce. Lin and Zhuian (2011) studied the effect of conservatism on capital structure efficiency and information quality. Their findings indicated that accounting conservatism reduces financial incompetence. They also analyzed degree of conservatism and company's capital structure. Wittenberg & Moorman (2008) and Lee (2011) conducted studies on conservatism. Their findings show that conservatism reduces investment costs and risk of bankruptcy. They also found a direct relationship between conservatism and debt contracts.

**VARIABLES**

Khan and Watts Model (2010) is used to assess post-event or conditional conservatism. In the model proposed by Khan and Watts, conditional conservatism is influenced by the firm size,
growth opportunities (the ratio of market value to book value of net assets) and leverage degree as follows:

\[ \text{Earn}_i = \beta_0 + \beta_1 \text{Neg}_i + \text{Ret}_i (\eta_1 + \eta_2 \text{Size}_i + \eta_3 \text{MB}_i + \eta_4 \text{Lev}_i) \\
+ \text{Ret}_i \text{Neg}_i (\lambda_1 + \lambda_2 \text{Size}_i + \lambda_3 \text{MB}_i + \lambda_4 \text{Lev}_i) + \delta_1 \text{Size}_i \\
+ \delta_2 \text{Size}_i \text{Neg}_i + \delta_3 \text{MB}_i \text{Neg}_i + \delta_4 \text{Lev}_i \text{Neg}_i + \mu_i \]

In this model, the variables are defined as follows:

- **Earn**: Net income before extraordinary items divided by market value of equity at the beginning of period
- **Neg**: is a virtual variable, it is equal to 1 for companies with RET < 0, otherwise is considered equal to 0
- **RET**: Compounded annual return of shares, since the beginning of the fifth month (end of July) after the end of financial year
- **SIZE**: Firm size (natural logarithm of market value of equity for firm i at the end of year t)
- **MB**: Market to book value for company i at the end of year t
- **LEV**: Leverage of firm i at year t (total short-term and long-term debt at the end of financial year)

**INDEPENDENT VARIABLES**

A - Verge of bankruptcy: which is calculated based on Altman Model (1983) as follows:

\[ z' = 0.717 x_1 + 0.847 x_2 + 3.107 x_3 + 0.420 x_4 + 0.998 x_5 \]

In which:

- \( z' \) = total index
- \( x_1 = \) the ratio of working capital to total assets
- \( x_2 = \) ratio of retained earnings to total assets
- \( x_3 = \) ratio of earnings before interest and taxes to total assets
- \( x_4 = \) ratio of book value of equity to book value of total liabilities

\( x_5 = \) sales to total assets ratio

In this model, lower \( z' \) indicates greater degree of financial crises.

**HYPOTHESES OR RESEARCH QUESTIONS**

Research hypothesis is stated as follows:

There is a significant relationship between accounting conservatism and verge of bankruptcy.

Or as question or specific questions:

Is there any significant relationship between accounting conservatism and verge of bankruptcy?

**METHODOLOGY**

Generally, three types of data can be used for empirical analysis:

1- Time series data
2 - Cross-sectional data
3 - A combination of time series and cross sectional data (panel data)

Time series data are calculated and collected in a specified period of time. Such data are sorted in terms of time. Cross-sectional data are collected and calculated in a certain period of time. For example, data of 110 companies at a certain period of time (e.g. 2008) is called cross-sectional data. Combined or panel data is a combination of time series and cross-sectional data (Gujarati, 2007). Cross-sectional method was used to measure conservatism. Regression analysis based on combined data was used to test hypothesis.

**Descriptive Statistics**

Descriptive statistics including mean, median, maximum, minimum and standard deviation were calculated and presented in Table 1. The values represent only an overall scheme of data distribution.

The results show that the mean (median) of bankruptcy risk............
Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>variable</th>
<th>standard deviation</th>
<th>minimum</th>
<th>maximum</th>
<th>median</th>
<th>mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAILING</td>
<td>1.41</td>
<td>1.09</td>
<td>11.79</td>
<td>1.62</td>
<td>1.80</td>
</tr>
<tr>
<td>CON</td>
<td>0.72</td>
<td>0.57</td>
<td>2.98</td>
<td>3.47</td>
<td>6.47</td>
</tr>
<tr>
<td>M/B</td>
<td>9.52</td>
<td>20.83</td>
<td>6209</td>
<td>1.89</td>
<td>5.46</td>
</tr>
<tr>
<td>SIZE</td>
<td>1.37</td>
<td>23.90</td>
<td>29.54</td>
<td>26.45</td>
<td>26.60</td>
</tr>
</tbody>
</table>

Correlation Coefficients Test

Pearson correlation test was performed to investigate the existence and the correlation direction between variables. The results are presented in the following table.

The results showed that Pearson correlation coefficient between...........

<table>
<thead>
<tr>
<th>variable</th>
<th>Failing</th>
<th>CON</th>
<th>M/B</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M/B</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conservatism Measurement

The following cross-sectional regression is calculated to measure conservatism:

\[
\begin{align*}
\text{Earn}_i &= \beta_0 + \beta_1 \text{Neg}_i + \mu_1 \text{Ret}_i + (\mu_2 + \mu_3 \text{Size}_i + \mu_4 \text{MB}_i + \mu_5 \text{Lev}_i) + \mu_6 \\
&\hspace{1cm} + \text{Neg}_i(\lambda_1 + \lambda_2 \text{Size}_i + \lambda_3 \text{MB}_i + \lambda_4 \text{Lev}_i) + \delta_1 \text{Size}_i + \delta_2 \text{MB}_i + \delta_3 \text{Lev}_i + \delta_4 \text{Size}_i \times \text{Neg}_i \\
&\hspace{1cm} + \delta_5 \text{MB}_i \times \text{Neg}_i + \delta_6 \text{Lev}_i \times \text{Neg}_i + \mu_t
\end{align*}
\]

Extension model:

\[
\begin{align*}
\text{Earn}_i &= \beta_0 + \beta_1 \text{Neg}_i + \mu_1 \text{Ret}_i + \mu_2 \text{Ret}_i \times \text{Size}_i + \mu_3 \text{Ret}_i \times \text{MB}_i + \mu_4 \text{Ret}_i \times \text{Lev}_i + \lambda_1 \text{Ret}_i \times \text{Neg}_i \\
&\hspace{1cm} + \lambda_2 \text{Ret}_i \times \text{Neg}_i \times \text{Size}_i + \lambda_3 \text{Ret}_i \times \text{Neg}_i \times \text{MB}_i + \lambda_4 \text{Ret}_i \times \text{Neg}_i \times \text{Lev}_i + \delta_1 \text{Size}_i + \delta_2 \text{MB}_i \\
&\hspace{1cm} + \delta_3 \text{Lev}_i + \delta_4 \text{Size}_i \times \text{Neg}_i + \delta_5 \text{MB}_i \times \text{Neg}_i + \delta_6 \text{Lev}_i \times \text{Neg}_i \\
&\hspace{1cm} + \mu_t
\end{align*}
\]

HYPOTHESES TESTING

Research Hypotheses

- There is no significant relationship between conservatism and bankruptcy risk in the Tehran Stock Exchange.
- There is a significant relationship between conservatism and bankruptcy risk in the Tehran Stock Exchange.

\[H_0: \beta_1 = 0\]

\[H_1: \beta_1 \neq 0\]
In this section, the results of hypotheses tests are presented. Hypotheses were tested using methodology presented in this paper. To test research hypotheses, the model is estimated using combined data approach. Since Limer statistics (0.068) is insignificant, the model was estimated with fixed effects estimation approach. The results are presented in the following table.

The researchers are looking for testing significance of coefficients. In fact, in addition to the significance of coefficients, this test determines the sign (direction) of coefficients on dependent variable. Student’s T-test and F-statistic were used to determine significance of coefficients and overall significance, respectively. Durbin-Watson test was used to investigate autocorrelation of errors. The optimal level for lack of autocorrelation is 2. If Durbin-Watson statistic is between 1.5 and 2.5, autocorrelation in error will be rejected.

\[ FAILING_{IT} = \alpha_0 + \alpha_1 CON - RANK_{IT} + \alpha_2 M/B_{IT} + \alpha_3 SIZE_{IT} + \epsilon_{IT} \]

<table>
<thead>
<tr>
<th>p-value</th>
<th>t-static</th>
<th>coefficient</th>
<th>variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>-2.42</td>
<td>-6.55</td>
<td>conservatism</td>
</tr>
<tr>
<td>0.02</td>
<td>2.26</td>
<td>0.32</td>
<td>P/B ratio</td>
</tr>
<tr>
<td>0.59</td>
<td>-0.53</td>
<td>-0.0001</td>
<td>Size</td>
</tr>
<tr>
<td>Meaningful f-static</td>
<td>( 0.9768 ) 0.068</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.913</td>
<td>Durbin-Watson statistic</td>
<td>2.79</td>
<td>f-static</td>
</tr>
<tr>
<td>0.45</td>
<td>R²</td>
<td>0.00000</td>
<td>Prob(F-statistic)</td>
</tr>
</tbody>
</table>

Since Durbin-Watson statistic is 1.913, the autocorrelation of model errors is rejected. The significant F statistic (2.79) indicates significance of overall model. The adjusted coefficient of determination is equal to 0.45. This means that approximately 45% of changes in dependent variable is explained by independent variables. Estimation results for panel data show a significant conservatism factor of -6.55 indicating existence of a significant relationship between conservatism and bankruptcy risk in companies listed on Tehran Stock Exchange. Thus, hypothesis \( H_0 \) is rejected and main hypothesis is accepted. Therefore, there is a significant relationship between conservatism and bankruptcy risk in the Tehran Stock Exchange.

RESULTS

The main objective of the present study was to examine the effect of a limiting accounting principle called conservatism on the verge of bankruptcy in companies listed on the Tehran Stock Exchange. The results of hypothesis testing showed a significant negative relationship between conditional conservatism and the risk of bankruptcy in companies listed on Tehran Stock Exchange. This means that the use of conservative procedures in preparation of financial information will reduce level of corporate bankruptcy. Thus, late identifying earnings and quickly identifying losses and expenses, i.e. the use of conservative procedures for providing information may have great impact on ideas of managers and stakeholders of entities to adopt optimal decision for future.

ACKNOWLEDGMENT

The islamic azad university-andimeshk branch have financed budget of this research.

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