Accounting Information and Stock Price Reaction of Listed Companies — Empirical Evidence from 60 Listed Companies in Shanghai Stock Exchange

Junjie Wang¹, Gang Fu*, Chao Luo¹

¹School of Economics and Management, Sichuan Agricultural University, Chengdu, China

*Correspondence: Gang Fu, School of Economics and Management, Sichuan Agricultural University, Chengdu, NO. 611130, China. TEL: 1-820-012-1585, E-mail: fugang96@163.com

Abstract: With the development of China’s capital market, the function and impact of Chinese listed companies has been more and more significant, especially the accounting information of the listed companies has an important effect on the quoted companies’ stock price and investors’ behavior in the market. The research of this paper empirically analyzes the relationship between accounting information and stock price with a few accounting information indexes. The results, based on 60 listed companies in Shanghai Stock Exchange for 2011, reveal: (1) positive relationship exists between accounting information and stock price, but the significant degree varies; (2) earnings per share and return on equity have the most significant correlation.

JEL Classifications: M41, G14

Keywords: accounting information; stock price; earnings per share; return on equity

1. Introduction

With the reform of China’s enterprises and development of market economy, especially enterprise shareholding system reform and the Shanghai Stock Exchange and Shenzhen Stock Exchange set up in the early 1990s, China’s stock market has a great development in the market capacity, variety of trade, means of exchange, settlement system and supervision rules. It covered the course of more than hundred years of developed countries in a relatively short period. China’s capital market has a positive effect on establishing the perfect market system, optimizing resource allocation, changing the operation mechanism of enterprise and building modern enterprise system. In the process of rapid developing of stock market, because the policy and management structure of China’s stock market are better and better, people know more and more about the risks and returns of stock, and the rules of the listed company and agencies are more and more standard and with the restructuring of the economic system, will bring price mechanism of the market for enterprise stock will continuously be in dynamic adjustment. So it’s necessary to systematically investigate the correlation between circulation share price of China’s enterprise and its accounting information in a long run.

In stock market, many factors can change the stock price, such as financial policy, monetary policy, industrial policy, foreign trade policy and other macro-economic factors, financial information, investors’ expectation, market supervision and other internal factors. In those factors, financial information is the main that most investors can use usually, because financial information is the specific information which can decide whether investors invest the company’s stock or not. The Centre for China Financial Research (CCFR) in The University of Hong Kong also pointed out that
Enterprise stock price is a comprehensive reflection of the company’s future profit. The correlation between listed company’s financial data and stock price is always the studied object of the researchers in accounting and finance. The existence and development of many modern accounting, financial theory and models are based on the repeated empirical tests.

2. Research Literature

Ball and Brown (1968) originally researched the correlation between accounting information and stock price. After they empirically studied the correlation between annual report earnings data and stock price, they found that a company had excess earnings and investors can get abnormal return. This shows the relationship between accounting earnings and stock price. Beaver asserted from another perspective that the company’s financial reporting and accounting information could influence stock price. Beaver found that investors used the declared accounting information when they trade stock. Black researched and found that stock price not only showed the information but also reflected the noise of noise traders. And Ball (1995) viewed that the stock market might overreact because of noise. So Ball hold it isn’t always effective in stock market as people assumed. Bernard and Stober, Dechow (1994) and Sloan (1996) respectively empirically studied the influence of earnings information and operating cash flow information to stock price. They found the earnings information is better correlative, but not absolute. Ohlson (1995) did many pioneering work for the establishment of appraisal model. He took book value, abnormal surplus and other non-accounting information together with stock. His appraisal model can use current financial statements and other information to assess the value of enterprise. Guay’s, Kothari and Watts’ (1996), Subramanyan’s (1996) study proved that discretionary accruals and stock return have significant correlation. It can better explain stock price by earnings information. Non-discretionary accrual is a basic part of accruals, so it undoubtedly has information value. Subramanyan’s (1996) research showed that non-discretionary accrual has more value relevant than operating cash flows, but lower than net profit. Collins et al. (1997) referred the Residual Income Valuation Model as their theory foundation, and built a model of accounting earnings, gross book value of equity and stock price. Penman’s (2001) opinion is that only eligible and real accounting information could predict future value of the enterprise. Cheng and Yang (2003) tested the correlation between accounting information and stock price, and the test used many extreme samples.

In China, this research is later than those in other countries. Yu (1994) thinks China’s stock market is not a weak-form efficient market, and it is a no-effective market after he analyzed China’s stock market and efficient market, the cycle abnormal phenomena of stock returns, stock price fluctuation and so on. After Wu and Huang (1997) studied earnings information reports of listed company and stock price fluctuation, Wu and Huang (1997) believe shanghai stock market has not reached the real weak-form efficiency. Zhao (1998) empirically studied the market reaction of listed companies’ accounting earnings information in Shanghai and Shenzhen stock market. He found the Shanghai stock market often has overreaction toward expected good news, but under-reaction toward expected bad news. Tang and Lu (1998) analyzed and compared the two major schools of accounting researches in China’s stock market. They introduced and analyzed the basic theory of contemporary securities market importantly. Their research has some guiding functions for the development of China’s stock market’s accounting theory research. Chen (1998) discussed about the theory of stock investment value, and analyzed the correlation between listed company’s accounting information disclosure and stock price in efficient market hypothesis. He empirically researched the effectiveness of China’s stock market, and came up with all algorithms of market efficiency. Wu (2000) agreed that accounting information is the specialized one which investors need, but many investors cannot understand. Yan (2000) discussed the objective of accounting information disclosure, and analyzed mechanism and model of stock price’s reaction for
information. Bao (2000) pointed out stock price’s trend is based on information, and the economic function of stock market depends on price’s reaction for the information. Wang and Liang (2000) believe stock investment cannot be done without accounting information. Real, reliable and timely accounting information can help investor make the best decision, but fake information cannot. Ni and Liu (2000) found investors most concerned the profitability of companies through correlation analysis and regression analysis. Feng (2001) analyzed the correlation between accounting information disclosure and stock investment, and found the effect of accounting information has to stock investment. He suggested strict management upon the accounting information disclosure of listed companies. Wang (2002) analyzed information transmission mechanism of China’s stock market from perspectives of efficient market hypothesis and price-volume correlation. She proved price is not the reason that changes volume; it is volume that changes the price. Zhu (2003) studied the stock market and volume of current capital stock, and he found a significant positive relationship between stock price and EPS, and the stock price has a significant negative relationship to the volume of circulating common stocks. And there is a significant positive relationship between stock price and good Industry Price-earnings Ratio when in the Bull Market, but it is not obvious in Bear Market. Sun and Zhou (2003) verified that China’s accounting information is useful in stock market. Zhou (2004) investigated that how would the interim financial statement affect China’s stock market in empirical test. Li (2004) investigated the function of China’s accounting information in dividend pricing from 1993 to 2002 in his paper ‘the correlation of accounting statement information and stock price-----compare China and America’. It told how investors use the accounting information to fix their anticipation. Zhou (2004) used Time series and tested the dynamic relationship between stock price and accounting profits. He wanted to build a multivariate vector auto-regression model system and a vector error correction model. Yu and Huang (2005) used correlation analysis and regression analysis, and analyzed how all the accounting information affect stock price. It showed the financial index which is significant correlation with stock price offered more convenient and accurate decision-making tools for investors.

From these, many countries’ scholars have had an extensive research on it. Firstly, they have studied the correlation between accounting earnings and stock price; then, they have explored the relation between accounting information and stock price, and how the accounting information affect on stock price. These studies complemented each others from many-sides, and analyzed the relation between all accounting information and stock price. But they just studied the correlation between accounting information and stock price but not a research in real stock market. But in this paper, which combine the basic theory of accounting information and stock price reaction, empirically researches some shanghai stock market’s stocks by correlation and regression analysis method.

3. Methodology and Research Hypothesis

3.1 Index Selection

This paper analyzes the accounting information of listed company and stock price reaction, so the Index Selection is divided into two categories, the first one is stock price, using the stock closing price in the annual reports, which is stood by “P”; the second one is the index of accounting information. According to Wu’s research on the institutional investor and individual investor, there are eight accounting indexes used by more than half of investors. (1) Earnings Per Share; (2) Accounts Receivable Turnover Ratio; (3) Rate of Return on Common Stockholders’ Equity; (4)Income from main operation ratio; (5) Liquidity Ratio; (6) Quick Ratio; (7) Inventory Turnover Ratio; (8) Price Earning Ratio. The eight indexes represent profitability, development ability, operation ability and debt paying ability of company. These are formulas of accounting indexes (see table 1).
Table 1. Accounting information indicator, code, formula

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Code</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Per Share</td>
<td>EPS</td>
<td>$\text{Net Profit} \div \text{General Capital}$</td>
</tr>
<tr>
<td>Price to Earning Ratio</td>
<td>PE</td>
<td>$\text{Market value per share of common} \div \text{Earnings per share}$</td>
</tr>
<tr>
<td>Income from main operation ratio</td>
<td>NPPOR</td>
<td>$\text{Income from main operation} \div \text{Operating income}$</td>
</tr>
<tr>
<td>Rate of Return on Common Stockholders’ Equity</td>
<td>ROE</td>
<td>$\text{Net Profit} \div \text{Average net assets}$</td>
</tr>
<tr>
<td>Receivables Turnover Ratio</td>
<td>ARR</td>
<td>$\text{Cost of sales} \div \text{Average Occupied Amount of Receivables}$</td>
</tr>
<tr>
<td>Inventory Turnover Ratio</td>
<td>IR</td>
<td>$\text{Cost of sales} \div \text{Occupied Amount of Inventory Valuation}$</td>
</tr>
<tr>
<td>Liquidity Ratio</td>
<td>LR</td>
<td>$\text{Current assets/current liabilities}$</td>
</tr>
<tr>
<td>Quick Ratio</td>
<td>QR</td>
<td>$\left(\text{Current assets} - \text{stocks}\right) \div \text{current liabilities}$</td>
</tr>
</tbody>
</table>

3.2 Research Hypothesis

It is based on the share price model. This paper studies accounting information of annual report and share price reaction on the basis of others’ researches. Earnings per share, price earning ratio, rate of return on common stockholders’ equity, and income from main operation ratio are accounting information of profitability. Quick ratio and liquidity ratio are the information of debt paying ability. Accounts receivable turnover ratio and inventory turnover ratio are the information of operation ability. Yu and Huang (2005) empirically analyzed that how did the accounting information influenced the stock price of shanghai stock market. They found the eight indexes and stock price have positive correlation. Xie (2009) also proved it in her doctoral thesis, the study on the stock price reaction to accounting information. In her thesis, she agreed the accounting information of profitability is best correlated to price. But in 1996, Subralnanyalu had studied and showed that non-discretionary accrual have more value relevance than operating cash flows, but lower than net profit; These are hypotheses of researching,

- **H1**: The accounting information of profitability, Earnings per share, Rate of Return on Common Stockholders’ Equity, and Income from main operation ratio have positive correlation with stock price.
- **H2**: The information of debt paying ability, Quick Ratio and Liquidity Ratio have positive correlation with stock price.
- **H3**: The information of operation ability, Accounts Receivable Turnover Ratio and Inventory turnover ratio has positive correlation with stock price.

3.3 Research Model

This paper researches accounting information of listed company to stock price reaction. The accounting information of annual report disclosure depends on all types of accounting information index disclosure, so the paper will study on all types of accounting information indexes of annual report disclosure and price reaction. It indirectly discloses the relation between accounting information of China’s listed company annual report disclosure and stock price, and offers more useful references to investors.

Firstly, the paper analyzes the representative indexes of accounting information of annual report disclosure in SPSS17.0 program; then finds out the more relevant indexes according to the different years’ data; lastly, builds and analyzes the regression model of accounting information and stock price reaction. This paper will use Ohlson’s deduction that there is linear relationship between stock price and accounting information. The regression model of all kinds of accounting information and stock price reaction is following:
\[ P = \alpha + \beta_1 \text{EPS} + \beta_3 \text{ARR} + \beta_3 \text{JZC} + \beta_4 \text{YLR} + \beta_5 \text{LR} + \beta_6 \text{QR} + \beta_7 \text{IR} + \epsilon \]  \hspace{1cm} (1)

Where “\( \epsilon \)” is the influence of accident, “\( \alpha \)” is the influence of non-accounting information to stock price, “\( \beta_i \)” is sensitivity (all stocks price to accounting information index), EPS, ARR, ROE, NPPOR, LR, QR, IR, PE. In the eight indexes, PE=stock price/earnings per share. And PE has direct relationship with price and earnings per share. So it will adopt EPS, ARR, ROE, NPPOR, LR, QR, IR as the explanatory variable of stock price.

4. Data Sources and Descriptive Statistics

4.1 Data Sources

According to general theory of statistics, over 30 samples can be representative to the population. Due to limited space, it only randomly selects 60 listed companies of non-loss in Shanghai stock market as samples to do analysis (loss listed company’s information cannot effectively influence the price).

The reason why choose listed company of Shanghai stock market is that Shanghai stock market was built early, large-scale, more mature, more representative than Shenzhen stock market.

It needs two parts of data information in the research, market information of companies disclosed and share price of listed companies. The data comes from (http://www.jrj.com.cn/?from=80003), (http://www.csrc.gov.cn/pub/newsite/) and (http://www.stockstar.com/).

Because of the timeliness of company’s information and the accounting information of company might affect the share price ahead of time. We choose the disclosed information of 2010 annual report as data. Companies’ annual reports usually come out in the April next year, so the related share price is price after April. It must consider the influence of inside information, so which will choose the sample companies’ closing price from April 10th to May 20th in 2011. Using the EXCEL has a statistic, then adding all the closing prices of the sample company and accounts average price. Last the average price as the stock price.

4.2 Descriptive Statistics

Descriptive statistical analysis can describe statistical data’ structure and overall performance, but it cannot describe the internal law of statistical data. Descriptive statistical analysis is the first step to statistical analysis. The descriptive statistics helps to analyze all kinds of accounting information indexes in SPSS17.0.

<table>
<thead>
<tr>
<th>Index</th>
<th>Quantity</th>
<th>MIN</th>
<th>MAX</th>
<th>AVG</th>
<th>STDEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Per Share</td>
<td>60</td>
<td>0.01</td>
<td>2.22</td>
<td>0.3792</td>
<td>0.40940</td>
</tr>
<tr>
<td>Accounts Receivable Turnover Ratio</td>
<td>60</td>
<td>1.43</td>
<td>1071.10</td>
<td>59.7067</td>
<td>153.93311</td>
</tr>
<tr>
<td>Rate of Return on Common Stockholders’ Equity</td>
<td>60</td>
<td>0.4700%</td>
<td>26.0700%</td>
<td>8.925667%</td>
<td>6.4316915%</td>
</tr>
<tr>
<td>Income from main operation ratio</td>
<td>60</td>
<td>-4.3300%</td>
<td>31.7200%</td>
<td>9.289667%</td>
<td>8.6168221%</td>
</tr>
<tr>
<td>Liquidity Ratio</td>
<td>60</td>
<td>0.34</td>
<td>4.56</td>
<td>1.4487</td>
<td>0.78368</td>
</tr>
<tr>
<td>Quick Ratio</td>
<td>60</td>
<td>0.13</td>
<td>2.89</td>
<td>0.9623</td>
<td>0.54839</td>
</tr>
<tr>
<td>Inventory Turnover Ratio</td>
<td>60</td>
<td>0.08</td>
<td>76.35</td>
<td>7.5222</td>
<td>11.44290</td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistical analysis of accounting information indexes
The standard deviations of EPS, LR and QR are less than one. The samples’ data are concentrating distribution. But due to the different industries, the standard deviations of ARR, IR, ROE and NPPOR are big. So the data is more scattered distribution (see table 2).

5. Correlation Analysis

Correlation analysis quantifies the degree of two or more variables that are linearly related, i.e. how well the estimating equation fits. This part, it will randomly select 60 listed companies of non-loss in Shanghai stock market, and analyzes the 60 samples’ data in SPSS17.0 program with descriptive statistical analysis. Then analyze the correlation of accounting information indexes and stocks price and choose the most relevant information. Put the best one to the model and analyze again. The results are showed by table 3 and table 4.

<table>
<thead>
<tr>
<th>Index</th>
<th>AVG</th>
<th>STDEV</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Price</td>
<td>15.817004</td>
<td>9.8195914</td>
<td>60</td>
</tr>
<tr>
<td>EPS</td>
<td>0.3792</td>
<td>0.40940</td>
<td>60</td>
</tr>
<tr>
<td>ARR</td>
<td>59.7067</td>
<td>153.93311</td>
<td>60</td>
</tr>
<tr>
<td>ROE</td>
<td>8.925667%</td>
<td>6.4316915%</td>
<td>60</td>
</tr>
<tr>
<td>NPPOR</td>
<td>9.289667%</td>
<td>8.6168221%</td>
<td>60</td>
</tr>
<tr>
<td>LR</td>
<td>1.4487</td>
<td>0.78368</td>
<td>60</td>
</tr>
<tr>
<td>QR</td>
<td>0.9623</td>
<td>0.54839</td>
<td>60</td>
</tr>
<tr>
<td>IR</td>
<td>7.5222</td>
<td>11.44290</td>
<td>60</td>
</tr>
</tbody>
</table>

**Table 3. AVG and STDEV**

<table>
<thead>
<tr>
<th>Stock Price</th>
<th>EPS</th>
<th>ARR</th>
<th>ROE</th>
<th>NPPOR</th>
<th>LR</th>
<th>QR</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Price</td>
<td>1</td>
<td>0.658**</td>
<td>0.003</td>
<td>0.659**</td>
<td>0.102</td>
<td>0.003</td>
<td>0.106</td>
</tr>
<tr>
<td>Significance Two-tailed Test Value</td>
<td>0.000</td>
<td>0.981</td>
<td>0.000</td>
<td>0.437</td>
<td>0.982</td>
<td>0.419</td>
<td>0.804</td>
</tr>
<tr>
<td>NNT</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

**Table 4. Correlation analysis of accounting information indexes and share price**

Note: ** means confidence probability of two-tailed test is 99%

In table 4, it shows analysis result of the correlation of accounting information index and share price. The conclusions can be described as follows: (1) Correlation coefficient of accounting information indexes and share price all are positive number, which means earnings per share, rate of return on common stockholders’ equity, Income from main operation ratio, quick ratio, liquidity ratio, accounts receivable turnover ratio and inventory turnover ratio have positive correlation with stock price. They are the same with hypotheses. (2) In these accounting information indexes, earnings per share and rate of return on common stockholders’ equity are more correlated to share price, and rate of return on common stockholders’ equity is the best one. The followed indexes are
income from main operation ratio, quick ratio, accounts receivable turnover ratio, inventory turnover ratio, and liquidity ratio.

The correlation coefficient of rate of return on common stockholders’ equity is 0.659, and statistical significance. The followed one is earnings per share. Its correlation coefficient is 0.658. It also passed the test and had statistical significance. The other five indexes have weak correlation with share price. The correlation coefficient, quick ratio is 0.106, income from main operation ratio is 0.102, inventory turnover ratio is 0.033, accounts receivable turnover ratio is 0.003, and liquidity ratio is 0.003. Price Earning Ratio = Price per share/Earning per share, so the price earning ratio has direct correlation with share price and earning per share. The earning per share has intense correlation with share price, so the price earning ratio has intense correlation with share price too.

6. Regression Analysis

For deeply analyzing how much does the accounting information of annual report disclosure influence on share price. This paper uses the model O-F, and put the earnings per share and rate of return on common stockholders’ equity into the model. Then builds and analyzes the regression model of accounting information and stock price reaction. It estimates and tests the parameters of model by stepwise regression analysis with the SPSS17.0 program. The result of regression analysis is as follows.

Table 5. Introduced and eliminated variable of regression analysis of accounting information and stock price reaction

<table>
<thead>
<tr>
<th>Model</th>
<th>Introduced variable</th>
<th>Introduced method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rate of Return on Common Stockholders’ Equity</td>
<td>Stepwise introducing-Scalping method (Standard: introduce standard probability value of F &lt;= 0.050, Eliminate standard probability value of F &gt;= 0.100).</td>
</tr>
<tr>
<td>2</td>
<td>Earnings Per Share</td>
<td>Stepwise introducing-Scalping method (Standard: introduce standard probability value of F &lt;= 0.050, Eliminate standard probability value of F &gt;= 0.100).</td>
</tr>
</tbody>
</table>

Table 5 shows the stepwise introducing-scalping method, which will eliminate the accounting information indexes of non-standard. In this model, the value F of ROE and EPS are not far below 0.05. So the model in the Table 4 has the two variables.

Table 6. Result of regression analysis of accounting information and stock price reaction

<table>
<thead>
<tr>
<th>Model</th>
<th>Multiple Correlation Coefficient R</th>
<th>Coefficient of Determination R²</th>
<th>Adjusted R²</th>
<th>Standard Error of Estimated Value</th>
<th>Change of Statistic</th>
<th>Change of R²</th>
<th>Change in F</th>
<th>Degree of Freedom 1</th>
<th>Degree of Freedom 2</th>
<th>Significance Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.659a</td>
<td>0.434</td>
<td>0.425</td>
<td>7.4483272</td>
<td>0.434</td>
<td>44.547</td>
<td>1</td>
<td>58</td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.697b</td>
<td>0.486</td>
<td>0.468</td>
<td>7.1607134</td>
<td>0.052</td>
<td>5.753</td>
<td>1</td>
<td>57</td>
<td></td>
<td>0.020</td>
</tr>
</tbody>
</table>

© Science and Education Centre of North America
**Table 7.** Analysis of variance of all kinds of accounting information indexes

<table>
<thead>
<tr>
<th>Model</th>
<th>Quadratic Sun</th>
<th>Degree of Freedom</th>
<th>Mean square</th>
<th>F Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Coefficient of regression</td>
<td>2471.339</td>
<td>1</td>
<td>2471.339</td>
<td>44.547</td>
<td>0.000</td>
</tr>
<tr>
<td>Salvage Value</td>
<td>3217.699</td>
<td>58</td>
<td>55.478</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5689.038</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Coefficient of regression</td>
<td>2766.317</td>
<td>2</td>
<td>1383.158</td>
<td>26.975</td>
<td>0.000</td>
</tr>
<tr>
<td>Salvage Value</td>
<td>2922.722</td>
<td>57</td>
<td>51.276</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5689.038</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

- a. Predicted Value: (Constant Term), ROE;
- b. Predicted Value: (Constant Term), ROE, EPS;

**Table 8.** Coefficient of regression of accounting information and stock price reaction

<table>
<thead>
<tr>
<th>Model</th>
<th>Not Standardized regression coefficient</th>
<th>Standardized regression coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Standard Error</td>
</tr>
<tr>
<td>1 (Constant Term)</td>
<td>6.835</td>
<td>1.654</td>
</tr>
<tr>
<td>Rate of Return on Common Stockholders’ Equity</td>
<td>1.006</td>
<td>0.151</td>
</tr>
<tr>
<td>2 (Constant Term)</td>
<td>7.415</td>
<td>1.608</td>
</tr>
<tr>
<td>Rate of Return on Common Stockholders’ Equity</td>
<td>0.568</td>
<td>0.233</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>8.789</td>
<td>3.664</td>
</tr>
</tbody>
</table>

**Table 9.** The variable out of regression model of accounting information and share price reaction

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta In</th>
<th>t</th>
<th>Significance</th>
<th>Coefficient of Partial Correlation</th>
<th>Co linearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.366^a</td>
<td>2.398</td>
<td>0.020</td>
<td>0.303</td>
<td>0.386</td>
</tr>
</tbody>
</table>
Table 10. Statistics of regression model’ residual error of accounting information and share price

<table>
<thead>
<tr>
<th></th>
<th>MIN</th>
<th>MAX</th>
<th>AVG</th>
<th>STDEV</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Value</td>
<td>7.769856</td>
<td>40.517590</td>
<td>15.817004</td>
<td>6.8473880</td>
<td>60</td>
</tr>
<tr>
<td>Salvage Value</td>
<td>-12.359803</td>
<td>24.4035339</td>
<td>0.0000000</td>
<td>7.0382990</td>
<td>60</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>-1.175</td>
<td>2.607</td>
<td>0.000</td>
<td>1.000</td>
<td>60</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>-1.726</td>
<td>2.408</td>
<td>0.000</td>
<td>0.983</td>
<td>60</td>
</tr>
</tbody>
</table>

From table 6 to table 10, those are the results of regression models of accounting information and share price reaction.

Table 6 shows fitting situation of multivariate linear model. The correlation coefficient R of model 2 is 0.697. Coefficient of determination R^2 is 0.486. Adjusted R^2 is 0.468. Standard error of estimated value is 7.1607. In order to eliminate the quantity of independent variables effect on the goodness-of-fit in functions. We adopt the adjusted R^2. It determined that goodness of fit is preferable.

Table 7 shows result of all the models’ analysis of variance. Model 2 was analyzed by variance, and got the F=26.975, P=0.000. Confidence level is far below the common confidence level 0.05. So the function is significant. Standardized function would have no constant term. The constant term is 7.415 which the function was not standardized. The coefficient of ROE (Rate of Return on Common Stockholders’ Equity) is 0.568. The coefficient of EPS is 8.789. The confidence level of constant term is 0.000. It is far below the common confidence level 0.05. So the constant term is significant. The confidence level of ROE and EPS is 0.018 and 0.020. They are all below the common Confidence Level 0.05. So they are significant, too. According to α=0.05. The P (Share Price), ROE (Rate of Return on Common Stockholders’ Equity) and EPS (Earnings Per Share) should have a line relationship.

According to the result of analyzed the data in table 8. The function of multiple linear regressions was built as Model 2:

\[ P = 7.415 + 0.568 \text{ROE} + 8.789 \text{EPS} \]  \hspace{1cm} (2)

Table 9 shows the relevant statistics of all models’ variable out of functions. After test it again. There is not variable of outside functions in the Model 2. In the Model 2, the variable of ROE and EPS all can introduce to the function.

Table 10 shows maximum absolute value of standardized residuals of accounting information and share price reaction is 2.408. It is not outnumber 3. So the samples are not abnormal.

7. Conclusions and Discussion

Correlation analysis and regression analysis of accounting information and share price reaction show that the accounting information has some effect on stock price. But the significance diversified. The accounting information of profitability, earnings per share and rate of return on common stockholders’ equity are most significant. The two indexes have direct impact on share price. The significance of income from main operation ratio and quick ratio are better. But the
connection is not that compact. Accounts receivable turnover ratio, inventory turnover ratio and liquidity ratio have significance, but not very obvious.

Now, China’s stock market is not mature and normative. So the government should strengthen the supervision of listed companies. Make the disclosure of information be more true and normative. Investors should not only pay attention to the accounting information of profitability, Earnings per share, rate of return on common stockholders’ equity and price-earnings ratio but also to the income from main operation ratio, quick ratio accounts receivable turnover ratio, inventory turnover ratio and liquidity ratio. This can assure investors of more secure income.

Due to the limitations of the quality and capacity of sample data and evaluation methodology, the empirical result unavoidably has some deviations. But the result of analysis is reasonable. It is significant.

References


