Research Paper Commerce

Accounting Information and Stock Price Reaction of Listed Companies — Empirical Evidence From All Listed Companies From NSE in Power Genration and Distribution Sector

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ABSTRACT

This paper deals with the relation between capital markets and financial statements. With the development of Indian capital market, the function and impact of Indian 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 analyses the relationship between accounting information and stock price with a few accounting information indexes. The results based on 20 listed Power generations and distribution sector in National Stock Exchange for 2013-2014, reveals: (1) positive relationship exists between accounting information and stock price, but the degree of significance varies;(2) Inventory turnover ratio has the most significant correlation.Evidence from research on these topics is likely to be helpful in capital market investment decisions, accounting standard setting, and corporate financial disclosure decisions.

KEYWORDS Accounting, Power generations, Capital-Market, Financial-Statements, Investment decisions.

1. Introduction

With the reform of India's enterprises and development of market economy, especially enterprise shareholding system reform and the National Stock Exchange set up in the year 1992, India'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. India'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 development of stock market, because the policy and management structure of India's stock market are developing better, people are now well informed about the risks and returns of stockalso with the rules of the listed company.The agencies are been standardized to a greater extent than before and with the restructuring of the economic system this will bring price mechanism of the market for enterprise stock, which will also continuously be in dynamic adjustment. So it is necessary to systematically investigate the correlation between circulation share price of Indian enterprise and its accounting information in a long run.

Many factors can affect 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. Of all those factors, financial information is the most important because financial information is the specific information which can decide whether investors invest in the company's stock or not. Various researchers have concluded that stock price is a very good indicator 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 revealsthat there exists a relationship between accounting earnings and stock prices. Beaver asserted from another perspective that the company's financial reporting and accounting information could influence stock price. Beaver'sresult shows that investors used the declared accounting information when they are trading in a particular stock. Black researched and found that stock price not only reflect financial information but also the noise of noise traders are reflected in the scrip prices. And Ball (1995) observed that the stock market might overreact dueto the noise.So according to Ball, available market is not always effective 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. Theirfindingshows that the earnings information is better correlative to stock prices but it fails to give accurate model. Ohlson (1995) had donemuch of pioneering work for the establishment of appraisal model. The indicators were such as book value, abnormal surplus and other non-accounting information together with stock. The appraisal model used by him can be used with current financial statements and other information to assess the value of enterprise.

In India, this research was taken up much late than in other countries.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 has an effect on stock prices to some extent. But they only studied the correlation between accounting information and stock price but not a research in real stock market. But in this paper, which combines the basic theory of accounting information and stock price reaction, empirically researches some Indian stock market's stocks by correlation and regression analysis method.

3.1 Index Selection

This paper analyses the accounting information of listed company and stock price reaction, so the Index Selection is divided into two sets, the first one is stock price, using the stock closing price on 31st March 2014, which is indicated by "P"; the second one is the index of accounting information. According to Wu's research (2006) on the institutional investor and individual investor, there are eight accounting indexes used by more than half of investors.

(1) Earnings Per Share;
(2) Receivables Turnover Ratio
(3) Return On Net Worth;
(4) Operating Profit Margin;
(5) Liquidity Ratio;
(6) Current Ratio;
(7) Inventory Turnover Ratio;
(8) Price Earning Ratio. (P/E ratio)

The eight indexes represent profitability, debt paying capacity, future development ability and operation capability of company. Following are formulas of accounting indexes (see table 1).

Table 1.Accounting information indicator and formula

Accounting indicators (Ratios)	Formula
Earnings Per Share	=Net Profit /General Capital
Price to Earning Ratio	=Market value per share of common/Earnings per share
Operating Profit Margin(%)	=(Income from main operation/ Operating income)*100
Return On Net Worth(%)	=(Net Profit /Average net assets)*100
Current Ratio	=Current assets/current liabilities
Liquid Ratio	=(Current assets—stocks) / current liabilities
Receivables Turnover Ratio	=Cost of sales /Average Occupied Amount of Receivables
Inventory Turnover Ratio	= Cost of sales / Occupied Amount of Inventory Valuation

3.2 Research Hypothesis

This research is based on the scrip price model. Here the researchersreview the accounting information of annual report and scrip price reaction on the basis of others' researches. Yu and Huang (2005) empirically analysed 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 doctoral thesis, she established a relation that accounting information of profitability is best correlated to price of scrip. But a theory in 1996, Subralnanyalu had analysed and showed that non-discretionary accrual have more value relevance than operating cash flows, but lower than net profit; The research scholars study is based on following assumptions,

- The accounting facts of profitability, Earnings per share, Return On Net Worth and Operating Profit Margin ratio have positive correlation with stock price.
- The evidence of debt paying ability, Quick Ratio and Liquidity Ratio has positive correlation with stock price.
- The data of Debtors 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 scrip price response. It indirectly discloses the relation between accounting information of Indian listed company given in the annual report disclosure and stock price, and offers more useful references to investors.

This paper is broadly divided into the various parts.

- Firstly, the paper examines the representative indexes of accounting information of annual report disclosure in SPSS22.0 program;
- Then finds out the more relevant indexes according to the different years' data;
- Lastly, builds and investigates the regression model of accounting information and scrip price response.

This paper will use Ohlson's deduction that there is linear relationship between stock price and accounting figures. The regression model with all kinds of accounting figures and scrip price response is following:

$$P=\alpha+\beta 1EPS+\beta 2DTR+\beta 3RONW+\beta 4OPMR+\beta 5LR+\beta 6QR+\beta 7ITR+\varepsilon$$

Where "ε" is the impact of accident, "α" is the effect of non-accounting information to stock price, "βi" is sensitivity, EPS, Debtor Turnover Ratio (DTR), Return On Net Worth(RONW), Operating Profit Margin Ratio(OPMR), Liquidity Ratio (LR), Quick Ratio (QR), Inventory Turn Over Ratio (ITR). As PE has direct relationship with price and earnings per share. So it will adopt EPS, DTR, RONW, OPMR, LR, QR, ITR as the explanatory variable of stock price.

3.4 Data Sources

For keeping the clear and specific sector focus, the researchers select all the 20Power generations and distribution sector listed companies of non-loss from National Stock Exchange (NSE) list of 2013-2014. As loss listed company's information cannot effectively influence the price so they are out of the examination, so companies like Advance meter Ltd., Bill energy Ltd., Enterga Ltd., Mitcon Constructions Ltd., Orient Green Ltd., Rattan Infra Ltd., Rattan Power Ltd., S E Power Ltd., Schneider Infra Ltd. and Suzlon Energy Ltd. are not considered for research purpose.

The reason why researchers chooses listed company of Nifty is that NSE trades on large-scale, more mature and more representative than BSE.

It required two parts of data information in the research, market facts and figures of companies disclosed and share price. The data comes from online portal moneycontrol.com.

Because of the timeliness of company's information and the accounting information of company might affect the share price ahead of time. Here researchers choose the disclosed information of March 2014 annual report as data. Closing price on 31st March 2014 is considered for the scrip which has year ending on 31st March.

Table 2 : Raw data related to all the indicators

	Price As on 31st March 2014	Earnings Per Share	P/E ratio	Operating Profit Margin(%)	Return on Net Worth (%)	Current Ratio	Quick Ratio	Inventory Turnover Ratio	Debtors Turnover Ratio
Adani Power	48.6	2.07	23.48	30.74	7.64	0.63	0.06	11.39	22.66
BF Utilities	665.65	0.34	1957.79	49.44	1.76	0.79	0.93	339.94	10.55
CESC	500.45	52.18	9.59	25.99	9.26	0.59	0.64	15.95	4.6
DPSC	139	0.3	46.33	13.13	3.09	2.36	3.35	46.62	8.58
Energy Dev	16	0.8	20.00	20.94	1.64	2.39	3.29	16.26	2.04
Gujrat Power	65.75	12.29	5.35	34.34	10.58	1	1.01	11.46	6.99
GVK Power	11.04	-0.15	-73.60	75	-0.94	3.68	20.94	0	8
Indowind Energy	3.49	0.01	349.00	67.13	0.05	1.41	1.62	5.96	3.53
JaiprakashPow	14.15	0.07	202.14	66.89	0.31	0.34	0.33	16.91	7.5
JSW Energy	90.25	2.67	16.14	34.68	8.6	1.27	1.24	16.5	5.02
KSK Energy Vent	68.55	0.05	1371.00	76.12	0.06	0.44	0.64	0	2.2
Neyveli Lignite	61.15	6.95	6.83	32.30	10.8	2.3	2.12	8.75	1.99
NHPC	19.1	0.88	21.70	51.69	3.75	1.37	1.36	76.59	2.83
NTPC	116.95	10.31	9.01	24.66	12.78	1.69	1.51	12.4	13.61
Power Grid Corp	105.05	8.6	12.22	85.06	13.05	1.41	1.44	21.38	10.11
Reliance Infra	435.05	60.38	7.21	16.82	7.78	0.96	1.79	31.49	2.85
Reliance Power	70.5	0.2	352.50	-89.84	0.33	1.02	2.68	0	27.58
SJVN	21	2.69	7.81	85.62	12.31	1.73	1.61	55.37	5.11
Tata Power	84.8	4.82	21.05	26.55	7.26	0.97	1.13	12.14	6.69
Torrent Power	93.65	2.91	46.56	14.18	1.53	0.93	0.85	39.26	11.32

3.5 Descriptive Statistics

Descriptive statistical analysis can describe statistical data structure and overall performance, but it cannot describe the internal law of statistical data. And the first step to analysis is Descriptive statistical analysis. It helps to analyse all kinds of accounting information indexes in SPSS22.0.

Descriptive Statistics

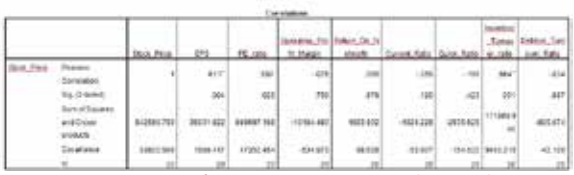
	N	Minimum	Maximum	Mean	Std. Deviation
Stock_Price	20	3.49	665.65	123.8540	183.90369
EPS	20	-.15	60.38	8.6335	16.86930
PE_ratio	20	-73.60	1957.79	220.6090	514.96071
Operating_ Profit_Margin	20	-89.84	85.63	36.6750	38.20951
Return_On_ Networth	20	-.94	13.05	5.5820	4.89207
Current_Ratio	20	.34	3.68	1.3630	.81630
Quick_Ratio	20	.33	20.94	2.4670	4.42521
Inventory_ Turnover_ratio	20	.00	339.94	36.4935	74.03772
Debtors_ Turnover_ Ratio	20	1.99	27.58	8.1830	6.72372
Valid N (listwise)	20				

Here Current ratio, Return on net worth and Quick ratio are symmetric with comparison to other accounting information. The large deviation could be due to the selection of the power generations and distribution companies dealing in same sectors but having different operating and operational capacity.

3.6 Correlation Analysis

Correlation analysis calculates the degree of two or more variables that are linearly related.

Table 4 Showing correlation between prices with other accounting information



**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

From the above table there is a significant correlation between Price and Inventory turnover ratio (0.664) while the negative correlation is with Debtor turnover ratio (-0.034), Operating profit margin (-0.076), Quick ratio (-0.190) and with Current ratio (-0.359). Here also correlation with EPS is at 0.611 and P/E ratio is at 0.500 which has less significance while the low significance is with Return on net worth (0.099).

3.7 Regression Analysis

For deeply investigating how much does the accounting information of annual report disclosure influence on scrip price, regression analysis between the variable is done in SPSS 22.0. In multiple regressions the statistical method used is the stepwise method between Dependent (Price) and Independent (Other Accounting information).

Table -5 VariablesEntered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Inventory_ Turnover_ ratio	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	EPS	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	PE_ratio	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	Debtors_ Turnover_ Ratio	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Stock_Price

Table -6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.664[a]	.441	.410	141.22447	.441	14.219	1	18	.001
2	.953[b]	.908	.897	59.00252	.467	86.122	1	17	.000
3	.970[c]	.940	.929	48.99891	.032	8.650	1	16	.010
4	.977[d]	.954	.942	44.26444	.014	4.606	1	15	.049

a. Predictors: (Constant), Inventory_Turnover_ratio

b. Predictors: (Constant), Inventory_Turnover_ratio, EPS

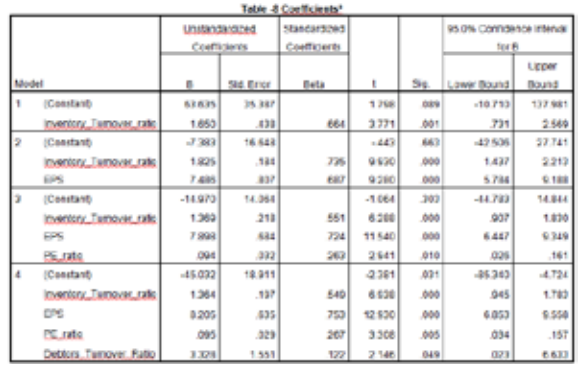
c. Predictors: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio

d. Predictors: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio, Debtors_Turnover_Ratio

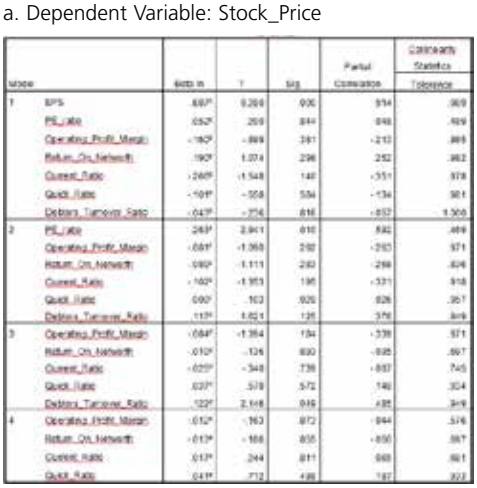
Table -7 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	283592.499	1	283592.499	14.219	.001[b]
	Residual	358998.294	18	19944.350		
	Total	642590.793	19			
2	Regression	583408.737	2	291704.369	83.792	.000[c]
	Residual	59182.056	17	3481.297		
	Total	642590.793	19			
3	Regression	604176.510	3	201392.170	83.882	.000[d]
	Residual	38414.283	16	2400.893		
	Total	642590.793	19			
4	Regression	613200.684	4	153300.171	78.241	.000[e]
	Residual	29390.109	15	1959.341		
	Total	642590.793	19			

a. Dependent Variable: Stock_Price
b. Predictors: (Constant), Inventory_Turnover_ratio
c. Predictors: (Constant), Inventory_Turnover_ratio, EPS
d. Predictors: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio
e. Predictors: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio, Debtors_ Turnover_Ratio



a. Dependent Variable: Stock_Price



a. Dependent Variable: Stock_Price

b. Predictors in the Model: (Constant), Inventory_Turnover_ratio

c. Predictors in the Model: (Constant), Inventory_Turnover_ratio, EPS

d. Predictors in the Model: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio

e. Predictors in the Model: (Constant), Inventory_Turnover_ratio, EPS, PE_ratio, Debtors_Turnover_Ratio

From table 5 to table 9, those are the results of regression models of accounting information and share price reaction.

According to α=0.05. The P (Share Price) and ITR (Inventory turnover ratio) should have a line relationship.

According to the result of analysed the data in table 7 and table 8. The function of multiple linear regressions was built as Model:

P = 63.635 + 1.650 (ITR)

In the Model, the variable of ITR only can introduce to the function.

But we can also have another model

P =-7.383 + 1.825 (ITR) +7.486 (EPS)

P = -14.970 + 1.369 (ITR) + 7.898 (EPS) + 0.094 (PE)

P = -45.032 + 1.364 (ITR) + 8.205 (EPS) + 0.095 (PE) + 3.328 (DTR)

Table 9 shows maximum absolute value of standardized residuals of accounting information and share price reaction. So the samples are not abnormal.

4. Conclusions and Discussion

Correlation analysis and regression analysis of accounting figures and scrip price response show that the accounting figures have some effect on scrip price. But the significancediversified over the spread. The accounting data of profitability likeInventory turnover ratiois only the most significant variable. The indicator like Inventory turnover ratio and EPShas straight impact on scrip price. The significance of PE and Debtor turnover ratio are better. But their connection is not that compact. While remaining indicators from financial statement have very low significance.

Now, India's stock market is not mature and normative. So the government should strengthen the supervision on listed companies. Make the disclosure of information be more true and normative. Stockholders should not only pay responsiveness to the accounting figures of profitability like Earnings per share, return on net worth and price-earnings ratio but also to the Inventory turnover ratio, Debtor turnover ratio and liquidity ratio like current ratio. This can assure shareholders of more secure income.

Due to the focus on Power generations and distribution sector and other limitations of the quality and capacity of sample data and evaluation methodology, the empirical result unavoidably has some deviances. But the result of analysis is reasonable and significant.

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