

Impact of Financial Ratios on Stock Returns: An Empirical Study of Selected IT Companies in India

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ABSTRACT

The stock returns of Indian IT businesses are analysed in this research, along with the link between certain financial parameters. The principal objective is to find out whether accounting-based measures such as Net Profit Margin, Return on Equity (ROE), Debt-Equity Ratio have a significant effect on stock performance. The research is based on the ten sets of secondary data in the form of information technology businesses at six fiscal years (2015-16 to 2020-21). The slow influence of accounting data on the performance of the stock market is addressed by aligning between financial data and the stock returns of the future stock exchange.

The analysis includes mainly the use of descriptive statistics, correlation, and multiple regression. The extreme numbers problem is solved with the application of winsorization to ROE and with the use of logarithmic stock returns to better data distribution. The results indicate that there is a weak correlation between financial ratios and stock returns. None of the variables were statistically significant to include in the model, and therefore, the results of the regression indicate the absence of explanatory power.

Findings suggest that other variables, beyond accounting information, such as investor expectations, market mood and macroeconomic conditions, influence stock returns. The research shows that financial measures aren't enough to forecast stock returns on their own and that more comprehensive factors should be included when doing financial analyses.

Keywords: Stock returns, Financial ratios, Regression and Correlation Analysis.

INTRODUCTION

Since it enables one to efficiently utilize the financial resources and also create some capital, the stock market is very important to the economic development of a country. Through it, companies can attract investors that are able to invest their money in growth projects and the investors can have an opportunity to make some profit. In this context, academics, analysts and investors have been very keenly interested in the valuation of security and the pull and push factors that impact on the fluctuations in the price of stocks. To decide the total efficiency of the capital markets, and make informed investment decisions, an individual needs to have a good understanding of the factors that affect stock returns.

The most basic of the numerous methods of making investing decisions is fundamental analysis. The most common source of accounting information utilized in this approach to determining the current and potential financial status of a company is financial statements. The debt-equity ratio, net profit margin (NPM) and the return on equity (ROE) are the debts and equities ratio, net profit margin (NPM) and the profit of equity (ROE) respectively. These ratios help to take complex financial information and convert it into digestible measures, which is why they are vital to investors. They also enable comparisons across organisations and between past and present. It is assumed that companies that have higher financial performance yield higher returns to the shareholders based on simplistic analysis.

However, there is not always a direct/predictable relationship between financial indicators resting on accounting and stock performance. Financial ratios are an evaluation of the previous past, but stock prices consider the future by taking into account investor emotions, future expectations of the stock market and external economic factors. There are numerous factors that are highly sensitive to the stock market such as interest rate changes, inflation, technical

breakthrough, investor behavioural biases and global economic trends. This raises the question of the extent to which accounting information can be used to explain market behaviour, the fact that even a firm that has good financial foundations, does not guarantee an increase in stock price.

The Indian IT sector is a perfect environment where one can explore this relationship. The Indian information technology (IT) industry is characterized by its competitive nature, high rate of growth and great amount of innovation. It also has a reputation of being highly export centered and generally steady financial reporting. The companies under this industry are good examples of such companies that should be studied due to the consistent progress and earnings they are showing. Stock price fluctuations get even more complicated by the fact that the industry is highly susceptible to fluctuations in the global economy and currencies. Because the IT industry is fundamentally sound and prone to external factors, the IT industry can act as an ideal laboratory through which one can test the hypothesis that the standard accounting ratios are sufficient to explain the volatility of the returns in the stock market.

LITERATURE REVIEW

The bulk of this research is that which examines how different financial measures are related to stock returns in different markets and over different periods of time. In order to assess investment possibilities and forecast stock returns, financial ratios are often utilised by investors. These ratios can be taken as important signatures of financial welfare of a company.

Financial measures that have been demonstrated in early empirical studies to have a strong predictive power on stock returns are the book-to-market ratio, earnings yield, dividend yield and earnings yield. Although the book-to-market ratio and earnings yield are useful in explaining the variation in the returns, the dividend yield is a strong predictor of the returns of a stock (Lewellen, 2004 and similar studies). On the same note, when monetary variables (liquidity, profitability, valuation, and efficiency) are used in the regression models, they are likely to enhance predicting the stock returns (Zhao et al., 2020).

However, the findings of real-life market research are mixed. The most significant factor influencing short-term stock returns, according to Zhang (2015) in the context of the Growth Enterprise Market in China is the growth of revenues. Classical financial ratios such as price-to-book, and gross profitability, do not appear to be important predictors. This demonstrates that the significance of financial ratios is significantly relative to the investor behaviour and market-specific.

The importance of profitability and market ratios based on market have been emphasized in a number of studies. Musallam (2018) notes that ROE, ROA, and net profit margin do not show any significant relations with the stock returns. The dividend yield, growth in sales, and net debt to profits before interest and tax are some of the variables that research by Tehran stock exchange has shown to have a strong and positive impact on stock returns.

Nonetheless, there are studies indicating that the relationships between financial variables and the stock returns are weak or non-existent. Looking at the list of companies represented in the Hong Kong stock exchange, Lai and Cho (2016) made a conclusion, that there is no particular financial indicator that can be consistently used to predict stock returns. On the same note, Ozen et al. (2015) finds out that the stock returns of most businesses are not significantly correlated with financial performance (as measured by the TOPSIS technique), implying that external variables, rather than internal financial variables may be the key drivers of stock returns.

Other key points that have been highlighted by the literature is the significance of macroeconomic conditions. Koapaha (2019) points out that financial ratios and macroeconomic factors, such as interest rates, have strong effects on stock returns in Indonesian insurance business. Similarly, Rasyad et al. (2020) demonstrate that with changes in the economy, the association between financial ratios and stock returns can be milder or stronger, which is caused by inflation and other economic factors.

In general, there is conflicting data in the literature on the correlation between financial parameters and stock performance. Some ratios have been documented to be predictive in certain studies, whereas, in others the correlation will be weak or non-existent. Such inconsistencies add to the fact that macroeconomic variables, investor behaviour and market dynamics interact with the firm-specific financial data to influence the stock returns.

RESEARCH GAP

It has been noted according to the literature reviewed that the correlation between financial ratios and stock returns has attracted massive research on a number of countries and industries. Although a series of studies have obtained the same conclusions about the effect of the determinants of financial measures on stock returns (e.g., dividend yield, earnings yield, profitability ratios, and growth indicators), it is found that the results are not consistent and lack concrete evidence. There are many variables that influence or affect stock returns when they do not reflect financial indicators of the firm, some studies show weak or negligible effects of financial ratios on stock returns, and others would indicate excellent predictor value of financial ratios.

Little data available in the Indian picture means that previous research has in general focused on the more established or unique overseas markets such as Iran, China, Indonesia, Qatar and Indonesia. The stock returns and financial ratios could be context-specifically related where their outcome differs among two or more markets.

The lack of thorough analysis that brings on board various financial parameters with investor based understanding is another critical flaw of the current study. Not many studies present a comprehensive study involving a plethora of financial indicators to the behaviour of stock returns in something simple and practical. There are some studies, which examine certain ratios, and some studies, which focus on the macroeconomic aspects such as inflation or interest rates.

Also, the previous studies usually exhaustively use advanced statistical tools without sufficient means of communicating the findings to the stakeholders and investors in a manner that they can interpret and take action. Especially in developing economies, they lacked any studies that both studied and had practical applicability.

To attempt to fill these shortcomings therefore, the present study does the following:

- Honed in on an applicable and particular setting (the IT industry),
- PROP: Carrying out an integrated examination of the relationship between some financial metrics and stock returns, and
- Providing a structured and clear analysis that can be applied in academia and in practice in general.

RESEARCH METHODOLOGY

1. Nature of the Study

The current research is both quantitative and empirical in nature as it will be based on numerical data and statistical methods to determine the relationship between financial ratios and stock returns. The research decides to use an analytical perspective to assess the degree to which variables based on accounting affect performance in the market.

2. Study Objectives.

1. The research is being conducted with the following goals in mind:
2. To determine the financial ratios and stock returns in relation to each other among the chosen IT companies in India.
3. The effect of individual financial ratios (ROE, Debt-Equity Ratio, and Net Profit Margin) on stock returns will be examined.
4. To determine the individual contribution of the financial ratios in explaining stock returns.

3. Hypotheses of the Study

Overall Hypothesis:

- **H0:** Financial ratios do not have a significant impact on stock returns.
- **H1:** Financial ratios have a significant impact on stock returns.

Individual Hypotheses:

- **H01:** ROE has no significant impact on stock returns.
- **H02:** Debt-Equity Ratio has no significant impact on stock returns.
- **H03:** Net Profit Margin has no significant impact on stock returns.

4. Data Source

The paper will be founded on secondary data gathered with the help of trustworthy sources. The annual reports of companies provided financial data associated with Return on Equity, Debt-Equity Ratio, and Net Profit Margin. The data on stock prices are obtained on Yahoo Finance.

5. Sample Selection

The paper targets Indian Information Technology (IT) industry. A study of 10 companies was chosen based on constant access to financial and stock price data over the period of study. The companies sampled have diverse large and mid-cap companies, which will guarantee the representation of the industry.

6. Study Period

The study includes six financial years between 2015-16 and 2020-21. Financial ratios of a particular year are compared to stock returns (year later) to capture the impact of accounting information on the market performance.

7. Variables of the Study

Dependent Variable:

- Stock Return (Log Return):

The logarithmic transformation used in calculating stock return to slightly reduce the impact of extreme values and to provide the stock return with better statistical properties.

$$\text{Log Return} = \ln \left(\frac{P_{\text{end}}}{P_{\text{start}}} \right)$$

Independent Variables:

1. **Return on Equity (ROE):** Measures profitability relative to shareholders' equity.
2. **Debt-Equity Ratio (DE):** Represents financial leverage and risk.
3. **Net Profit Margin (NPM):** Indicates operational efficiency and profitability.

8. Data Processing

To resolve this problem of extreme values in ROE, winsorization was implemented at the high percentile achievement. This allows it to restrict the effect of outliers without drop out in the process and therefore enhance the accuracy of the statistics.

9. Statistical Tools and Techniques

The following statistical instruments are used in the study:

Descriptive Statistics: This is the statistical characteristic which is used to study the data in terms of its central tendency and dispersion patterns.

Correlation Analysis: This is used in the analysis of the degree and direction of relationship between variables.

Multiple Regression Analysis: It is applied in order to determine what effect financial ratios have on stock returns.

The regression equation is given as:

$$\text{Return}_{t+1} = \beta_0 + \beta_1(\text{ROE}) + \beta_2(\text{DE}) + \beta_3(\text{NPM}) + \varepsilon$$

10. Assumptions of Regression

The study considers the following assumptions of the Ordinary Least Squares (OLS) regression model:

- Linearity between dependent and independent variables
- Absence of multicollinearity among independent variables

- Homoscedasticity of residuals
- Normal distribution of residuals
- No significant autocorrelation

These assumptions were tested using graphical and statistical methods such as scatter plots, correlation matrix, and residual analysis.

11. Limitations of the Study

- The study is limited to selected IT companies and not generalized to other sectors.
- Only accounting-based financial ratios are considered, while other macroeconomic and behavioural factors are excluded.
- The study depends on secondary data, which may have inherent limitations.

DATA ANALYSIS

1. Descriptive Statistics

The descriptive statistics of the variables used in the study are presented below:

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Skewness	Kurtosis	Min	Max
ROE (Winsorized)	23.53	7.49	0.69	-0.11	10.14	40.19
Debt-Equity Ratio	0.027	0.056	2.83	10.13	0.00	0.31
Net Profit Margin	19.69	5.86	0.90	0.45	9.94	35.57
Log Return	0.28	0.44	0.68	-0.01	-0.41	1.51

Interpretation:

The average of the Return on Equity (ROE) of the chosen IT firms is 23.53% which implies that there is strong profitability within the sector. This process of winsorization has minimized skewness and kurtosis which have allowed the winsorization process to have a more normally spaced skewness. The mean value of the Debt-Equity ratio is very low (0.027), indicating that IT firms are of low leverage. Nonetheless, it has got high skew and kurtosis which means that the variation is very limited and concentration is concentrated around zero.

Net Profit Margin has a mean of 19.69% and moderate variability indicating that the operational performance of various firms is consistently the same. The dependent variable is log return with the mean of 0.28 which is close to the normal distribution which proves that it is suitable in the regression analysis. Overall, the descriptive statistics indicate that the data is appropriate for further statistical analysis.

2. Correlation Analysis

Objective 1: To analyze the relationship between financial ratios and stock returns

Table 2: Correlation Matrix

Variables	ROE_W	DE Ratio	NPM	Log Return
ROE_W	1			
DE Ratio	0.028	1		
NPM	0.312	-0.208	1	
Log Return	-0.128	-0.144	-0.053	1

Interpretation:

there is no strong relationship among the independent variables, indicating the absence of multicollinearity. The Correlation between ROE and stock returns is weak and negative (-0.128), suggesting a very limited inverse association. Similarly, Debt-Equity Ratio (-0.144) and Net Profit Margin (-0.053) also exhibit weak negative correlations with stock returns.

These results indicate that financial ratios have a minimal linear relationship with stock returns. This suggests that stock price movements may be influenced by factors beyond accounting variables, such as market sentiment, macroeconomic conditions, and external shocks.

3. Regression Analysis

Objective 2: To examine the impact of financial ratios on stock returns

Table 3: Model Summary

<i>Regression Statistics</i>	
Multiple R	0.19616
R Square	0.038479
Adjusted R Square	-0.01303
F-Statistic	0.747013
Significance F	0.528653
Standard Error	0.44398
Observations	60

Interpretation:

The selected financial ratios also imply that 3.8% of the variation in stock returns is explained by using the selected financial ratios. The adjusted R^2 is negative, suggesting that the model does not improve explanatory power when adjusted for the number of variables.

Then F 0.747 has a significant level of 0.529 which is more than 0.05. This shows that the overall regression model is not statistically significant. Thus, it is possible to make a conclusion that there is no substantial overarching effect on stock returns of financial ratios.

4. Coefficient Analysis

Objective 3: To assess the individual contribution of variables

Table 4: Regression Coefficients

Variable	Coefficient	t-Statistic	p-value
Intercept	0.541	2.196	0.032
ROE_W	-0.0063	-0.777	0.440
DE Ratio	-1.191	-1.129	0.264
NPM	-0.0039	-0.361	0.719

Interpretation:

According to the regression results, all the independent factors can be said to be negatively correlated to stock returns; however none of the independent factors can be stated to have a statistically significant relationship with stock returns. Three of the null hypotheses are accepted since the p-values are larger than 0.05: return on equity (0.440), debt-equity ratio (0.264), and net profit margin (0.719).

This means that there is no statistically meaningful relationship between the stock returns and any of the chosen financial measures. Although statistically significant, the intercept has no economic implications about the specific context in this particular setting.

5. Assumptions of Regression

The assumptions of the regression model were examined prior to analysis. Linearity was confirmed through scatter plots, which indicated no non-linear patterns. Multicollinearity was not observed as correlations among independent variables were low. The use of log returns helped in achieving normality of the dependent variable. Residual analysis suggested no major issues related to heteroscedasticity or autocorrelation.

The analysis shows that financial ratios like ROE, Debt-Equity Ratio and Net Profit Margin have less explanatory power in predicting the stock returns of IT companies. The low correlation and insignificant p-value indicate that stock returns are dependent on a collection of factors (non-accounting measures) that are not related to accounting.

FINDINGS OF THE STUDY

On analyzing the financial ratios and returns of stock of the sampled IT companies, the following significant findings can be drawn:

1. Weak Relationship between Financial Ratios and Stock Returns

The correlation analysis reveals that the relationship between the Return on Equity, Debt-Equity Ratio, Net Profit Margin, and the stock returns is weak and negative. This suggests that changes in these financial ratios are not strongly associated with variations in stock returns. Lack of good correlation shows that movements in stock prices are not only influenced by the accounting-based performance measurement parameters.

2. Low Explanatory Power of the Model

The regression output show that the proportion of variation in stock returns that the selected financial ratios can explain is very low ($R^2 = 3.8\%$). The negative adjusted R^2 further indicates that the model lacks significant explanatory power, when it is used to explain the number of variables to be included.

3. Insignificant Impact of Financial Ratios

The results of the F-test indicate that the overall regression model is statistically insignificant (p-value greater than 0.05) and so the financial ratios do not have a significant collective effect on stock returns. This shows that the model does not bring out any significant relationship between the accounting variables and the performance of the market.

4. Lack of Individual Significance of Variables

The t-test results indicate that none of independent variables - ROE, Debt-Equity Ratio and Net Profit Margin - are statistically significant predictors of stock returns. This suggests that individual financial ratios do not independently influence stock price behaviour in a measurable way.

5. Nature of IT Sector Financial Structure

The Debt-Equity Ratio shows very low variation across companies, as most IT firms operate with minimal debt. This limits its ability to explain stock returns. Similarly, profitability ratios like ROE and NPM, although relatively stable, do not exhibit sufficient variability to influence market performance significantly.

CONCLUSION

The present study examined the relationship between selected financial ratios - Return on Equity, Debt-Equity Ratio, and Net Profit Margin - and stock returns of selected IT companies in India. findings indicate that these accounting-based variables do not have a statistically significant impact on stock returns. The correlation analysis revealed weak relationships, while regression results demonstrated low explanatory power and insignificant coefficients for all variables. This suggests that financial ratios, although useful for assessing internal performance, are not sufficient to explain variations in stock market returns.

The statistically insignificant results can be attributed to several factors. Stock returns are inherently forward-looking and are influenced by a wide range of external elements such as investor expectations, market sentiment, macroeconomic conditions, and global economic developments. In contrast, financial ratios are based on historical accounting data and may not capture future growth prospects or market dynamics effectively. Additionally, the Indian IT sector is characterized by relatively stable profitability and low financial leverage, leading to limited variation in key financial ratios. This reduces their ability to explain differences in stock returns across firms. Furthermore, periods of heightened volatility, such as the COVID-19 pandemic, may have introduced abnormal price movements that are not aligned with fundamental financial performance.

Another important explanation lies in the semi-strong form of market efficiency, where publicly available financial information is quickly incorporated into stock prices. As a result, by the time financial statements are released, the relevant information may already be reflected in market valuations, thereby limiting the predictive power of accounting ratios.

In light of these findings, it can be suggested future research should adopt a more comprehensive approach by incorporating market-based variables such as market returns, interest rates, inflation, and firm-specific risk measures to better explain stock price behaviour. The use of advanced analytical techniques, including panel data models and asset pricing models like CAPM or Fama-French, may also enhance the robustness of results. From an investor's perspective, reliance solely on financial ratios may not lead to effective decision-making; instead, a combination of fundamental, technical, and macroeconomic analysis should be considered to better understand stock market movements.

Overall, the study highlights the limitations of relying exclusively on accounting information for predicting stock returns and emphasizes the complex and multifaceted nature of stock market behaviour.

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