**“Estimating Share Value of Indian Information Technology Companies Using Equity Valuation Models”**

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**Abstract**

The Indian Stock Market is considered to be Semi-Strong in nature and envisaged as the most respected Stock Market of Asian Continent. The information in this market is comprehensive and widely disseminated, thereby allowing each stock’s price to adjust rapidly in a manner which is unbiased. Market sentiments play a major role in predicting share price movements in India. Majority of the events affects economy as a whole, while some events are sector specific and affects a particular sector only.

This article has made an attempt to estimate the share value of three major Information Technology Companies of India by using Equity Valuation Models. The price of any security represents consensus between two parties, that is, the seller and the buyer. It is the price at which one person agrees to by and another person agrees to sell. The price at which an investor is willing to buy or sell depends primarily on his expectations. If he expects that the price of a particular share is going to go up then he will buy it, vice-versa is true for sale. These simple statements are the root cause of a major challenge, that is, forecasting the share prices, because they refer to human expectations and anticipations, which leads to speculation.

In this work of research the value of equity is predicted based on the data collected from a highly reliable source CRISIL. The study has attempted to compare the values of top three Information Technology companies of 2022. The study has extensively used different Equity Valuation models with emphasis on Dividend Discount Model. Based on the current study various recommendations are made to the investors to buy/sell or hold the respective shares.

**Key Terms: Share Valuation, Dividend Discount Model, Fundamental Analysis, Technical Analysis**

**Introduction**

The mobility and usage of assets determine the Economic Development of a Nation. Conducive economic environment attracts investments, which in turn influences the development of the Economy. One of the essential criteria for the assessment of the economic development is the quality and quantity of assets in a nation at a specific time. For the purpose of convenience assets in any economy can be categorized as Real, Physical, Financial and Intangible assets. Again, Physical Assets can be classified as Fixed Assets and Current Assets. Fixed Assets benefit an organization in the long run by creating wealth to the owners. Current Assets are those which are in the form of cash and can be converted into cash within a short period of time.

Real Assets comprise the Physical and Intangible items available to a society. In continuation, Physical Assets are used to generate activity and result in positive or negative contribution to the owner of the asset. Intangible assets also result in a positive or negative contribution to the owner, but are different in that they do not have a physical shape or form. In fact, intangible assets help physical assets in generating activity. Intangible assets can be said to be behind the scene with respect to productive activities.

Besides Real Assets, the Economy is supported by another group of assets called Financial Assets. The major component of the Financial Assets is cash; also some other examples of financial assets are Deposits, Debt Instruments, Shares and Foreign Currency Reserves.

The important component of such financial asset is shares, which worldwide is accepted as a major financial asset to speculate and earn higher returns by the market participants. While doing such speculation one has to be more prudent by forecasting the future market developments. For this purpose one can value shares based on two techniques known as Fundamental Analysis and Technical Analysis.

 **SHARE VALUATION**

The purpose of share valuation is basically to find out the fair market value of a share. The most widely accepted definition of fair market value was laid down by the Internal Revenue Service of the United States. It defined fair market value as “the price at which the property would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell, both parties having reasonable knowledge of relevant facts.”

There are three principal theories of share valuation and investments - The Fundamental Analysis, the Technical Analysis and Efficient Market Hypothesis. Each theory is different in its own respect and provides necessary direction to the investor while constructing a portfolio. These theories become very useful to the investor while including the shares into a portfolio.

In Financial Markets Share Valuation is a method to calculate theoretical values of companies and their stocks. The major objective of these methods is to predict future market prices and to determine the potential market prices. These methods also help an investor to identify undervalued and overvalued stocks. The purpose of such valuation is that an investor can expect that undervalued stock will rise in value and the overvalued stocks will fall in the near future.

In the view of Fundamental Analysis, Stock Valuation based on fundamentals aims to give an estimate of their intrinsic value of the stock, based on predictions of the future cash flows and profitability of the business. Fundamental Analysis answers two basic questions of the stock market, that is, what underlies the supply of stock and what drives the market demand for a stock.

In view of John Maynard Keynes, Stock Valuation is not a prediction but a convention, which serves to facilitate investment and ensure that stocks are liquid, despite being underpinned by an illiquid business and its illiquid investments.

 **SHARE VALUATION METHODS**

Shares have two broad types of valuations. One is envisaged at creating value for the investors by using Fundamental Earnings and the other one is directed towards the investors which specifically say how much an investor is willing pay for a specified stock and by how much other investors are willing to dispose it off. To simplify this, one can say that this can be expressed as supply and demand forces. Both these are variables dependent upon the market and widely recognized as market forces. These values change over a period as investing community change the way it analyses a particular stock and it becomes bearish over the future of the market.

The first method as mentioned above, which considers Fundamental Earnings Analysis, is widely recognized as Fundamental Analysis and the second method which considers Demand and Supply forces is known widely as Technical Analysis.

**Current Study**

Indian stock market is considered to be in Semi-Strong form and is well respected across the globe. Sovereign Wealth Funds (SWFs) of US and European countries are exploring Indian market and that itself talks about the quality of stocks available in this market. The information is quickly and widely disseminated, such dissemination helps each security’s price to adjust rapidly in an unbiased manner to new information so that, it reflects the nearest investment value. In a developing country like India market is highly influenced by market sentiments and these sentiments will drive the market. Some of the events affect economy as a whole, while some other events are sector specific.

This study tries to find possible value of equity of three leading cement companies with the help of dividend discount models. The target price and dividend rates are taken from the CRISIL research report and companies annual reports. The current study is useful to the companies to compare its value with the competitors and it also helps the investors to construct their portfolios in more effective manner.

**Review of Literature**

The most intuitive means for determining the value of the equity of a firm is the Dividend Discount Model. This model states that the present value of an asset can be measured as the discounted value of all of the future expected dividend payments.

Gordon and Shapiro (1956) and Gordon (1962) present a special case of the general model, whereby the value of the firm’s equity can be represented as a growing perpetuity based on next period’s expected dividend. Even though present study focuses on these models, it also recognizes that there are many alternative models such as multi-stage growth models.

Porterba and Summers (1988), study the risk premium but find that the magnitudes and variability in the implied risk premiums necessary for prices to be related to dividends are too large to be consistent with any rational. Fama and French (1988) find that the variation in dividend yields explains a large proportion of multi-year return predictability. Although many subsequent studies continue to find evidence in support of the predictive ability of dividends for equity returns, studies using longer time series of data bring the generality of these results into question, the predictive ability of the dividend ratio appears to be specific to a few time periods.

Arnoff and Bernstein (2002) provide an interesting historical perspective on how investors in the early 1900s viewed dividends as compared to how they are viewed today. To handle some of these differences, dividend growth rates have been modelled using a variety of different econometric models. Bollerslev and Hodrick (1995) and Donaldson and Kamstra (1996) use time series models to predict dividend behaviour and find that a number of models do a reasonable job of explaining both changes in dividends and changes in prices.

Gleason (2006) examined target prices of equity shares over the period 1997 to 2003. A total of 223,147 price targets were available from 191 broker houses. He imposed some constraints regarding number of analysts giving target prices and got 34,417 targets for investigation. Target prices provide by 3551 analysts on 2352 companies were analyzed by him in his study.

**Table—1 Exhibiting Research Design**

|  |  |
| --- | --- |
| Research Type |  Analytical |
| Research Context | Top three Information Technology Firms |
| Research Approach | Quantitative  |
| Data type |  Continuous variables |
| Data collection tools | Various Financial Statements of the firms chosen and CRISIL data base. |
| Data Analysis Software | SPSS Version 18.0, MS Excel, MS Word |
| Sampling Technique | Systematic Sampling |
| Sample Size  | Top three Information Technology companies, in terms of Size and Market Capitalization. |

**Methodology**

**Scope of the Study**

For the purpose of this study, top three Information Technology Companies were chosen based upon its Size and Market Capitalization, the data chosen for the study is for three years 2019 to 2021.

 **Statement of the Problem**

Equity shares are considered as the ordinary shares having no privileges; it can be described more easily than fixed income securities. But, these investments are more difficult to analyze. Fixed income securities typically have a limited life and a well defined cash flow stream. Equity shares don’t have defined cash flow streams. The basic principle of valuing a fixed income security is same as valuing an equity share. The factors of growth and risk create complexities in the process of valuation of an equity share. An investor has to choose different valuation methods, to facilitate such selection in this research work the researchers emphasized on the usage of balance sheet valuation models and dividend discount models.

**Objectives of the Study**

1. To understand different equity valuation methods
2. To evaluate the performance of chosen Information Technology Companies using equity valuation methods.

**Limitations of the Study**

1. The major limitation of this study is it is restricted to Indian environment only and therefore; no comparison was made in between two environments.
2. The present study is restricted to a time period of 03 years starting from 2019 to 2021. Therefore, the data may be become redundant after this period.
3. The data is based on the performance 03 companies chosen from Information Technology industry, so data reflects the performance of only these companies.

**Analysis and Interpretation**

This part of the study emphasis on analyzing the collected data and interpreting the data using Balance sheet valuation and Dividend Discount Models.

**Dividend Discount Model**

According to this model the value of an equity share is equal to the present value of dividends expected from the company plus the present value of the sale price expected when the equity share is sold.

**Single Period Valuation Model**

This model considers future dividends; it uses the future dividends to arrive at the current price of the equity share. It is calculated as follows:

P0= D1/(1+r) + P1(1+r), where, P0 = Current Price of the equity share, D1= Dividend expected a year hence, P1=Price of the share expected a year hence, r= rate of return on the equity share.

This method of valuation is used to find out the discounted price of the equity shares (p0) with the help of an expected dividend rate (D1), target price (P1) and the rate of return (r).

Table showing values of INFOSYS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | P1 | r | P0 |
| 2019 | 34 | 1391.55 | 0.09 | 1553.84 |
| 2020 | 17 | 1582.40 | 13.71 | 1652.28 |
| 2021 | 18 | 1382.75 | 12.61 | 1485.32 |

Table showing values of TCS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | P1 | r | P0 |
| 2019 | 2.20 | 188.32 | 0.07 | 201.15 |
| 2020 | 3.20 | 232.08 | 10.32 | 215.25 |
| 2021 | 1.20 | 201.22 | 0.08 | 182.40 |

Table showing values of TECH MAHINDRA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | P1 | r | P0 |
| 2019 | 2.00 | 58.25 | 10.17 | 63.30 |
| 2020 | 1.50 | 84.15 | 14.17 | 89.30 |
| 2021 | 1.00 | 79.35 | 0.08 | 88.45 |

The calculated price (P0) is higher for both INFOSYS and TECH MAHINDRA; comparatively INFOSYS is providing better returns than the two stocks. TCS is achieving greater return in 2019 compared to the rest two years. From the analysis it can be concluded that an investor can buy or hold, if its price is lower than the calculated value. At the same time, the shares can be sold if its price is higher than the target price.

**Expected Rate of Return**

Under this method the intrinsic value of an equity share is calculated from the forecasted values of two variables namely, dividend and share price. It is calculated as follows:

r= D1/P0 + g

where, r= rate of return on the equity share, D1 = Dividend expected a year hence, P0=current price of the equity share, g = Expected growth of EPS

Table showing values of INFOSYS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | g | r | P0 |
| 2019 | 34 | 18.32 | 0.09 | 1553.84 |
| 2020 | 17 | 20.12 | 13.71 | 1652.28 |
| 2021 | 18 | 22.21 | 12.61 | 1485.32 |

Table showing values of TCS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | g | r | P0 |
| 2019 | 2.20 | 0.08 | 0.07 | 201.15 |
| 2020 | 3.20 | 10.14 | 10.32 | 215.25 |
| 2021 | 1.20 | 0.07 | 0.08 | 182.40 |

Table showing values of TECH MAHINDRA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | g | r | P0 |
| 2019 | 2.00 | 11.24 | 10.17 | 63.30 |
| 2020 | 1.50 | 12.32 | 14.17 | 89.30 |
| 2021 | 1.00 | 10.38 | 0.08 | 88.45 |

From the above tables it can be interpreted that the growth rate of INFOSYS and TECH MAHINDRA are consistent as compared to the TCS. Again it is analyzed that the growth rate of INFOSYS is much higher than the two companies and therefore, it is advised for the investors to put their money into this stock.

**Gordon Model**

This model is considered to be the most popular dividend discount model which was proposed by Myron J Gordon. It is of the opinion that the dividend policy of a firm affects its value and it is based on the following assumptions:

1. The firm is an all equity firm
2. There is no outside financing and all investments are financed exclusively by retained earnings.
3. Internal rate of return of the firm remains constant
4. Cost of capital of the firm also remains same regardless of the changes in the risk complexion of the firm.

Table showing values of INFOSYS Cements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | g | r | P0 |
| 2019 | 34 | 15.44 | 0.09 | 1442.86 |
| 2020 | 17 | 12.34 | 13.71 | 1622.28 |
| 2021 | 18 | 18.21 | 12.61 | 1582.21 |

Table showing values of TCS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | g | r | P0 |
| 2019 | 2.20 | 0.06 | 0.07 | 188.25 |
| 2020 | 3.20 | 0.14 | 10.32 | 205.26 |
| 2021 | 1.20 | 0.05 | 0.08 | 171.24 |

Table showing values of TECH MAHINDRA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | D1 | G | r | P0 |
| 2019 | 2.00 | 9.27 | 10.17 | 58.26 |
| 2020 | 1.50 | 10.22 | 14.17 | 87.35 |
| 2021 | 1.00 | 8.28 | 0.08 | 82.69 |

It is interpreted from the above tables that again INFOSYS is clearly heading at all times because it has a constant growth rate. It is considered to be a better investment option and the investors who are risk averter can opt for this share to get a moderate rate of return on their investments.

**Conclusion**

It is concluded that the investors can buy these shares, if the price is lower than the calculated price. At the same time the shares can be sold if its price is higher than the target price. Investors having the idea of consistent returns with good dividends can opt for INFOSYS stock. From the companies point of view it is concluded that key result ratios such as EPS (Earnings per share) Price Earnings ratio, Return on Investment ratios should be consistently monitored and certain policy decisions should be arrived at for improving the equity valuations.

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