Project Dissertation Report on

STUDY OF EQUITY VALUATION APPROACHES

Submitted by

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CERTIFICATE

This is to certify that the work titled **'Study of Equity Valuation Approaches'** as part of the final year Major Research Project submitted by Vipin Shrivastava in the 4th Semester of MBA, Delhi School of Management, Delhi Technological University during January-May 2020 was conducted under my guidance and supervision.

This work is his original work to the best of my knowledge and has not been submitted anywhere else for the award of any credits/ degree whatsoever.

The project is submitted to Delhi School of Management, Delhi Technological University in partial fulfillment of the requirement for the award of the degree of Master of Business Administration.

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DECLARATION

I hereby declare that the work titled **'Study of Equity Valuation Approaches'** as part of the final year Major Research Project submitted by me in the 4th Semester in MBA, Delhi School of Management, Delhi Technological University, during January-May 2020 under the guidance of Prof. P.K. Suri is my original work and has not been submitted anywhere else.

The report has been written by me in my own words and not copied from elsewhere. Anything that appears in this report which is not my original work has been duly and appropriately referred/ cited/ acknowledged.

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I have put all my efforts to ensure that the project is completed in the best possible manner and also ensured that the project is error-free.

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ABSTRACT

The purpose of this project is to compare the Dividend Discount model, Discounted Cash Flow and Price to Earnings approach of equity Valuation by applying them on 5 different Indian stocks and calculating the intrinsic value using the same. Along with the description of valuation methods, pros and cons of these models are also described in this. There are a couple of objectives that are to be fulfilled. Firstly, the practical applications of these models are tested on real stocks. Secondly, the importance of Terminal value and its effect on the valuation is studied and finally deciding on which valuation method would work best on Indian stocks.

Approach which will give the least deviation from the market value of the stock is considered to be best among all three. It is assumed that discounted cash flow model is the best model and give the least deviation but by the end of the study it has been found that relative method of valuation works better in case of these companies which is P/E valuation.

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CHAPTER 1

INTRODUCTION

1.1Background

In the world of investments Valuations is a very important concept. Any business decision firstly requires the valuation of the company. Valuations are not only used during mergers and acquisitions but are also important while applying for bank loans, raising of capital, buying another business as well as important for calculation of promoters wealth and form an integral part of bankruptcy calculation.

Definition:-

In finance, valuation is a process of determining the fair market value of an asset. Equity valuation therefore refers to the process of determining the fair market value of equity securities.

Importance of Equity Valuation: Systemic

The whole system of stock markets is based upon the idea of equity valuation. The stock markets have a wide variety of stocks on offer, whose perceived market value changed every minute because of the change in information that the market receives on a real time basis.

Equity valuation therefore is the backbone of the modern financial system. It enables companies with sound business models to command a premium in the market. On the other hand, it ensures that companies whose fundamentals are weak witness a drop in their valuation. The art and science of equity valuation therefore enables the modern economic system to efficiently allocate scare capital resources amongst various market participants.

Importance of Equity Valuation: Individual

Well, markets receive information every moment and make an attempt to factor the financial effect of this information in the stock price. Individual estimates of the effect vary and as such different people may come up with different stock prices. Therefore, there can be a difference between the market value of a company and what investors call its true or “intrinsic value”.

Investors, stand to gain a lot of money if they are able to correctly identify this difference. The second richest person in the world, Warren Buffett has made his fortune correcting and applying the art of equity valuation. In fact, the theory of equity valuation has been heavily influenced by the work of Warren Buffett and his mentor.

The 3 methods of equity valuation used are:-

1. Dividend Discount model
2. Discounted cash flow model
3. P/E approach

1.2 About the Companies

TCS

TCS is an IT services, consulting and business solutions provider that has been partnering with the world's largest businesses in their transformation journeys for the last fifty years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique, Location Independent Agile delivery model, a benchmark of excellence in software development. A part of the Tata group, India's largest multinational business group, TCS has over 420,000 of the world's best-trained consultants in 50 countries. The company generated consolidated revenues of US $20 billion for the year ended March 31, 2019 and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India.

ABB India

ABB India is among the group's fastest growing operations. The growth rate has averaged around 40 per cent over the past few years, clearly outpacing the market. ABB presently employs about 5,500 people in India across 10 manufacturing units, 26 marketing offices, 8 service centres and 3 training centres spanning the country. In addition, the company has a channel partner network of nearly 750 partners. As part of ABB's new regional approach, India has been designated as the hub for the Asia Pacific region.

Larsen & Toubro

L&T Ltd is a technology, engineering, construction and manufacturing company. It is one of the largest and most respected companies in India's private sector.

More than seven decades of a strong, customer-focused approach and the

continuous quest for world-class quality have enabled it to attain and sustain leadership in all its major lines of business.

L&T has an international presence, with a global spread of offices. A thrust on international business has seen overseas earnings grow significantly. It continues to grow its global footprint, with offices and manufacturing facilities in multiple countries.

SUN TV

Sun TV Network Limited is engaged in providing broadcasting services. The company operates through media and entertainment segment. Its geographical segments include India and others. It is engaged in producing and broadcasting satellite television and radio software programming in the regional languages of South India. It operates television channels in approximately four South Indian languages to viewers in India, and to viewers in Sri Lanka, Singapore, Malaysia, the United Kingdom, Europe, the Middle East, the United States, Australia, South Africa and Canada. It operates Sun TV channel. Its other satellite channels are Surya TV, Gemini TV and Udaya TV. It is also into the business of frequency modulation (FM) radio broadcasting at Chennai, Coimbatore and Tirunelveli. It also has the license to operate an Indian Premier League franchise Sun Risers Hyderabad. It has presence across various genres, such as general entertainment, movies, music, news, kids, action and life.

ONGC

Maharatna ONGC is the largest crude oil and natural gas company in India, contributing around 70 per cent to Indian domestic production. The company ranks 11th among global energy majors (Platts). It is the only public sector Indian company to feature in Fortune's 'Most Admired Energy Companies' list. The

company also ranks 18th in 'Oil and Gas operations' and 183rd overall in Forbes Global 2000. Acclaimed for its Corporate Governance practices, Transparency International has ranked ONGC 26th among the biggest publicly traded global giants. It is most valued and largest E&P Company in the world, and one of the highest profit-making and dividend-paying enterprise. ONGC has a unique distinction of being a company with in-house service capabilities in all areas of Exploration and Production of oil & gas and related oil-field services. Winner of the Best Employer award, this public sector enterprise has a dedicated team of over 33,500 professionals who toil round the clock in challenging locations.

1.3 Objective of the Study

The research objectives of the paper are: -

I. Practical application of Dividend Discount Model, Discounted cash flow model and P/E valuation.

II. The importance of Terminal value in each method and the importance of terminal value while considering Valuations for a finite period as against an infinite period.

III. To find out the most accurate valuation method when applied to Indian companies.

1.4 Scope of the Study

Scope of the study is limited as the impact of current prevailing situation of covid 19 is not considered while calculating the free cash flows. Free cash flows are based on the compounded annual growth rate basis only whereas it can be calculated with more detailed model which is a task in itself of making a detailed financial model of 5 companies.

Some outliers among the data are also removed to make the analysis as good as possible. Also to limit the scope secondary data is being used and more moderately optimistic growth rates have been assumed for the calculation as it is expected that the situation will get better in the near future. This is the biggest risk to this project as the models are primarily based on growth and future expectations of the companies.

1.5 Concluding remark

This chapter gives a brief about the valuation concept, the definition of equity valuation and its importance from both Systemic and Individual point of view. It gives the basic overview of the companies that have been taken for the study and also mentions objective and scope of the study.

CHAPTER 2

REVIEW OF LITERATURE

Valuing Companies by Cash Flow Discounting: 10 Methods and 9 Theories by Pablo Fernandez (2002)

This Paper shows ten valuation methods based on equity cash flow, free cash flow, capital cash flow, APV (Adjusted Present Value), business's risk-adjusted free cash flow and equity cash flow, risk-free rate adjusted free cash flow and equity cash flow, economic profit, and EVA. The Difference in results is only on the basis of Cash flows taken at the starting point. In this paper all the major Discounting methods are compared.

Discounted cash flow valuation methods: Examples of perpetuities, constant growth and general case by Pablo Fernandez (2005)

This paper talks about the cash flow valuation methods in which companies with no growth are considered along with companies with perpetual growth and companies with constant growth. The paper gives a good understanding how the valuation differs for these different types of companies as well as the components of WACC are thoroughly explained.

A Synthesis of Equity Valuation Techniques and the Terminal Value Calculation for the Dividend Discount Model (Stephen H. Penman,1998)

This paper lays out alternative equity valuation models that involve forecasting for finite periods. It contrasts dividend discounting models, discounted cash flow modes, and "residual income" models. It shows that some models that are apparently different yield the same valuation. It gives the terminal value calculation in these models and shows how this calculation serves to correct errors in the model.

M J Gordon & E. Shapiro (1956) showed that the present value of a flow F growing at the rate g, when discounted at the rate K, is: PV0 = F1 / (K-g)

Modigliani and Miller (1958) studied the effect of leverage on the firm's value. Their proposition 1 (1958, formula 3) states that, in the absence of taxes, the firm's value is independent of its debt, i.e.,

E + D = Vu, if T = 0.

E is the equity value, D is the debt value, Vu is the value of the unlevered company and T is the tax rate.

Myers (1974) was responsible for introducing the APV (adjusted present value). According to Myers, the value of the levered company is equal to the value of the debt- free company (Vu) plus the present value of the tax shield due to the payment of interest (VTS).

Arditti & Levy (1977) suggest that the company's value be calculated by discounting the capital cash flows (equity cash flow plus debt cash flow), instead of the free cash flow.

Jennifer Francis, Per Olsson and Dennis R. Oswald (2000) their study provides an empirical evidence on the reliability of intrinsic value derived from three different methods: the discounted dividend model, discounted free cash flow model, discounted abnormal earning model.

This section of the paper gives the details of previous work that had been done in the

past related to the study of equity valuation. It highlights the work of the researchers their findings and their conclusions of their work. After reviewing these papers one thing is clear that valuation requires an in-depth study so that an accurate value can be obtained for the firm which will help in assessing the firm's value. One thing which can be concluded is that for accurate valuation in DCF methods the assumptions has to be very precise not take just some number to make the model.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

In this research paper, intrinsic value of the share is calculated from each of the valuation methods and compares them to the market value of the share to calculate the deviations from the share price.

Assuming that the DCF method is best among the three methods valuation.

Since Efficient Market Hypothesis stands we assume the share price to be the fair value of the stock. Method which has the least deviation from the market price is considered to be the best. On the basis this we make our conclusion whether the assumption that DCF is the best method holds true or not.

To diversify the portfolio of companies on which the valuation models are tested, the following companies have been selected for the research:-

1. TCS
2. ABB India
3. Larsen & Toubro
4. Sun TV
5. ONGC

3.2 Data Design

For the research use secondary and quantitative data is used. For Historical data websites were used to retrieve the data. This data were used for getting the share prices and for calculations of other required metrics. Also wherever the need arises website data is used instead of calculating everything so that scope of project can be maintained.

Table 3.1: Share prices of companies as on 24th April 2020

S.no.	Company	Share prices (In INR)
1	TCS	1810
2	ABB India	931
3	Larsen & Toubro	935
4	Sun TV	367.45
5	ONGC	76.3

Source: yahoofinance

Table 3.2: Dividend paid by the companies

S.no.	Company	Dividend-2020(In INR)
1	TCS	12
2	ABB India	4.8
3	Larsen & Toubro	10
4	Sun TV	12.5
5	ONGC	5

Source: money control

News articles and various reports were also used to help with the analysis part.

3.3 Tools and Techniques

DIVIDEND DISOUNT MODEL

The discounting models consider the future earnings of the firm at the present value. In the case of dividend discounting models the earnings are considered in the form of future dividends and discounting them to their present value.

There are two models –Multistage growth model in which the dividends increase at an uncertain rate and a Constant growth model.

In the multistage growth model the future dividends are calculated till infinity and their present values are summed up to arrive at a Value.

In the constant growth model a terminal value is calculated which is used as the intrinsic value of the share.

For the Practical application of this model, either the constant growth model is applied or the Multistage growth model is taken for a couple of years and Terminal value is calculated when the forecast changes to Constant Growth model. The valuation model was popularized by John Burr Williams who published his book "The Theory of Investment Value" in 1938.

$P_0 = D_1 / (K_e - g)$

Where,

P_0 = ex-dividend equity value today.

D_1 = expected future dividend at time 1 period later

K_e = cost of equity per period.

g = constant rate of growth in dividend from Time 1 to infinity.

The Pros of this model

- It is simple to understand, Dividends will continue to grow at a constant rate and its simplicity makes it widely understood.
- It can be applied to any company but it works better at a stable company.

The cons of the model are

- This model is highly sensitive to the values of Ke and G, hence a lot of precision is required while calculating these rates as a small deviation in these rates could lead to a high change in the intrinsic value.
- Non Linear Growth Patterns: Also, the Dividend growth model assumes a constant growth rate. This makes the growth of the company's dividends look linear. In reality, empirical evidence has proved that dividend growth is seldom linear. Because of the business cycle, During the Boom period the company gives high Dividends and During the Bust period the Dividends fall sharply.

DCF MODEL

The DCF model is a widely accepted valuation model and is considered to be one of the most accurate valuation methods. Discounted Cash flow method as the name suggests gives a heavy weightage to the cash flows that a company earns, not the profits. The first step in this valuation is to find out the Free Cash Flows

FREE CASH FLOW= EBIT (1-tax rate) + (depreciation) + (amortization) - (change in net working capital) - (capital expenditure).

After calculating the free cash flows for the previous years the Cash flows for the future years are forecasted using the compounded annual growth rate(CAGR) which is calculated from the growth rate of sales. Using the CAGR, the future cash flows are calculated. In the final year of the forecast the terminal value of future cash flows is calculated similarly to the Dividend Discount model. This terminal value along with the other Cash flows is Discounted at the cost of equity to calculate the Present value.

The summation of these present values tells us the current market value of the company. After Dividing this value by the number of shares we get the current market value of each share or the Intrinsic value of each share.

The formula for DCF is:

$DCF = CF_1/(1+r)^1 + CF_2/(1+r)^2 + \ldots.. + CF_n/(1+r)^n$

where:

- CF = the cash flow for the given year. CF_1 is for year one, CF_2 is for year two, CF_n is for additional years.

- r = the discount rate

Pros of this model

- DCF is considered the most sound valuation method if an analyst is confident in his or her assumptions.
- DCF relies on free cash flows, which are considered to be a reliable measure as they eliminate subjective accounting policies.
- DCF isn't significantly influenced by short-term market conditions or non-economic factors.
- DCF is particularly useful when there's a high degree of confidence regarding future cash flows.

Cons of this model

- DCF valuation is very sensitive to the assumptions/forecasts made by the analyst. Even small adjustments can cause DCF valuation to vary widely, which means the Intrinsic value might Differ if the cost of Equity or Growth rate is changed.
- DCF is more time-intensive compared with other valuation techniques
- DCF requires forecasting future performance, which can be difficult, especially if the company isn't operating with 100% transparency.
- DCF valuation is a moving target, if any company expectations change, the Intrinsic value will change accordingly.

P/E Valuation

P/E valuation is another widely used valuation method. Unlike other discounting methods this does not involve the calculation of future Earnings by the Company and discounting them to the present value But It compares the current earnings of the company to the Earnings it should have had, Had it been operating at the P/E multiple of the industry.

The price-earnings ratio (P/E Ratio) is the ratio for valuing a company that measures its current share price relative to its per-share earnings.

The price-earnings ratio can be calculated as:

P/E = Market Value per Share / Earnings per

The P/E valuation is the only valuation that Looks at Information in the present time and is a Relative valuation measure as it compares the Industry P/E to the Company P/E. To calculate the intrinsic value of the Company's share, The Industry P/E is multiplied to the Earnings per share of the company.

Pros of this model

- Relative form of Valuation
- Looks at the present Earnings and The current

Price-Earnings Ratio Cons of this model

Does not consider the future Potential of the company in terms of earnings

3.4 Concluding Remark

This chapter consists of three sections excluding concluding one. Here paper tells about how conclusion of the paper will be drawn, from where data has been taken and what are the tools and techniques used in this study. Later it talks about the pros and cons the methods that have been used.

.CHAPTER 4

DATA ANALYSIS

Cost of Equity

The Capital Asset Pricing model (CAPM) is used to calculate the cost of Equity for the companies. This is the rate that the company expects to earn. The calculation of the cost of equity requires the risk free rate, the market premium and the beta of each stock. For the purposes of calculation, Government Bond return has been used as the risk free rate. The return on market is calculated as the return on NIFTY of the past 8 years. Market Premium is the excess of return on market over the risk free rate.

Table 4.1: Cost of Equity

S.no	Company	Beta	Risk Free Rate (%)	Return on market (%)	Market Premium	Cost of equity
1	TCS	0.53	7.18	12.88	5.7	10.201
2	ABB India	0.99	7.18	12.88	5.7	12.823
3	Larsen & Toubro	0.66	7.18	12.88	5.7	10.942
4	Sun TV	0.62	7.18	12.88	5.7	10.714
5	ONGC	0.91	7.18	12.88	5.7	12.367

*Source: Own Analysis

*Refer to annexure for calculation of risk free rate and market return.

Market Premium = Market Return – Risk free rate

CAPM Formula

Cost of Equity = $Rf+\beta i*(Rm-Rf)$

Where

Rf=risk-free rate

Bi = beta of the investment

Rm = Market return

$(Rm - Rf)$= market risk premium

4.1 Dividend Discount Model

Under this model, we look at the dividends that a company is distributing. The first thing required for this model is the current year Dividend which we took from the online sources and presented in the table in section 3.2.

Next, we require the growth rate at which the dividends are assumed to be growing for the forecast as well as the terminal value.

There are 2 methods for calculating the growth rate:-

- One is the growth rate of dividends
- The other is the growth rate of the company.

Theoretically we consider the dividend growth rate but in the case where the growth rate is negative or the company pays out higher interim dividends and there is a fall in final dividends, or the growth rate exceeds the cost of equity, The Dividend growth rate model fails to work. Hence for the purposes of valuation the constant growth rates are assumed to be close to the growth rate of the Economy. If situation was normal, GDP would be growing at around 7% hence to show the sensitivity of the model. Valuations are taken assuming growth rate ranging from 5%-9%.

The formula for the Dividend Growth Model- $P_0 = D_1 / (K_e - g)$

Where,

P_0 = ex-dividend equity value .

K_e = cost of equity per period.

D_1 = expected future dividend at Time 1 period later.

g = constant rate of growth in dividend from Time 1 to infinity.

Table 4.2: Present value of stocks at different growth rates

S.no.	Company	5%	6%	7%	8%	9%
1	TCS	969.231	1211.429	1605.000	2356.364	4360.000
2	ABB India	72	82.5882353	96.82759	117	147.7895
3	Larsen & Toubro	498.305	605.714	768.205	1042.759	1606.316
4	Sun TV	459.720	562.633	721.024	996.310	1593.567
5	ONGC	82.705	96.746	116.085	144.419	189.924

Source: Own Analysis

4.2 P/E Analysis

Requirements in this analysis

I. Price-to-earnings ratio of the company is required.
II. The P/E of the industry is required
III. Earnings per share of the company is required.

Out of the 3 valuation techniques, this is the only technique that uses relative valuation and compares how the Industry benchmark is different from the company and is the company performing better than the Industry average. It is a relative valuation method unlike the other 2 standalone methods.

Intrinsic Value = P/E*EPS

Table 4.3: Intrinsic value of the companies

S.no.	Company	P/E	EPS	Intrinsic valuation
1	TCS	20.63	87.56	1549.812
2	ABB India	46.62	19.84	780.704
3	Larsen & Toubro	13.42	69.54	1333.082
4	Sun TV	10.13	36.3	429.429
5	ONGC	4.49	16.98	76.2402

Source: Own analysis

P/E valuation talks about what the Market value of the share should have been.

4.3 DCF Analysis

It is one of the most common valuation method and the most trusted one.

The first step for any forecasted data for the cash flows we need to calculate the Compounded Annual Growth Rate (CAGR),which is used as the growth rate for the company.

Data of the past 3 years have been taken to calculate CAGR.

Table 4.4: Compounded Annual Growth rate

S.no.	Company	CAGR
1	TCS	11%
2	ABB India	9%
3	Larsen & Toubro	14%
4	Sun TV	20%
5	ONGC	22%

Source: Own analysis

To move ahead with the valuation, the first step is to find the Free Cash Flows.

Table 4.5: Free cash flows of the firms

S.no.	Company	FCF 2020	FCF 2021	FCF 2022	FCF 2023
1	TCS	29,374.05	30,842.76	32,384.89	34,004.14
2	ABB India	455.79	498.0028	544.1229	594.5143
3	Larsen & Toubro	4,770.42	5,199.762	5,511.748	5,787.335
4	Sun TV	642.40	706.64	756.1048	801.47
5	ONGC	5,415.12	5577.574	5744.901	5917.248

Source: Own analysis

After the calculation of free cash flows, the terminal values of the cash flows need to be considered wherein it is assumed that the company will grow at this rate for perpetuity

Table 4.6: Terminal value of the companies

S.no.	Company	Terminal Value
1	TCS	1,592,011.98
2	ABB India	27,834.08
3	Larsen & Toubro	270,952.52
4	Sun TV	37,523.42
5	ONGC	277,034.78

Source: Own analysis

After the calculation of the Terminal value the next step is to calculate the NPV which is then divided by the number of shares to arrive at the intrinsic value of the share.

Table 4.7: Intrinsic value of the companies

S.no.	Company	Number of Shares	NPV	Intrinsic Value
1	TCS	3752384706	1299039.945	3461.905021
2	ABB India	211,908,375	21119.97493	996.6559824
3	Larsen & Toubro	1403581376	216602.8037	1543.215146
4	Sun TV	394084620	30138.06269	764.7612001
5	ONGC	12580279206	214361.5057	170.3948714

Source: Own analysis

4.4 Concluding Remarks

In this section of the paper, all analysis part is done. Tables are given for each method which shows what analysis has been carried out. Calculation of Intrinsic value on the basis of Dividend discount model, P/E valuation and Discounted cash flow method is shown here. In Dividend discount model to make the model robust different growth rates were taken to perform the calculation. Some of calculations related have also been shown in the annexure part of this paper.

CHAPTER 5

RESULT & DISCUSSION

After the intrinsic value is obtained using all 3 valuation techniques, we compare which of the Intrinsic value is closest to the share Price, Since, we have assumed that Efficient Market Hypothesis stands, the share price is the actual measure of value.

Table 5.1: Market Share prices along with calculated prices

S.no.	Company	Share Price	DDM	DCF	P/E
1	TCS	1810	4360.000	3461.91	1549.81
2	ABB India	931	147.7895	996.66	780.704
3	Larsen & Toubro	935	1606.316	1543.22	1333.08
4	Sun TV	367.45	1593.567	764.76	429.429
5	ONGC	76.3	189.924	170.39	76.2402

Source: Own analysis

Table 5.2: Deviation of different share prices from market price

S.no.	Company	Share Price	DDM	DCF	P/E
1	TCS	1810	1.41	0.91	0.14
2	ABB India	931	0.84	0.07	0.16
3	Larsen & Toubro	935	0.72	0.65	0.43
4	Sun TV	367.45	3.34	1.08	0.17
5	ONGC	76.3	1.49	1.23	0.00078

Source: Own analysis

The results of the 3 objectives that were stated in the beginning of the research:

- Practical Application of Valuation models-After the Valuation of Companies I find out that the Dividend Discount model is the least effective method in Practical application. The results of the P/E valuation depend on how the Company is performing as against the Industry. The Practical Application of DCF model tells us that it is one of the most time consuming valuation methods in Practice and requires more precise data than in Theory. It is also the most sensible valuation method even though it does not give the Best Result.
- The importance of Terminal value in each method and the importance of terminal value while considering Valuations for a finite period as against an infinite period-The terminal value in the case of Dividend Discount model is the intrinsic value and in the case of DCF analysis too, it forms an integral part of the valuation as that is what bulks up the value of the Net Present Value. P/E valuation does not have any relation to the Terminal value. Hence, we can say that the DCF and DDM model rely heavily on the terminal value to provide an accurate Intrinsic value as against the P/E which is affected by the industry average
- To find out the most accurate valuation method when applied to Indian companies.-As we can clearly see the P/E value is closest to the market value of the share in most cases that makes it the best valuation method out of the 3 valuation methods tested. The second best valuation method would be the Discounted Cash Flow Method and the least Favourite Method of valuation out of these 3 is the Dividend Discount Model.

CHAPTER 6

RECOMMENDATIONS & CONCLUSIONS

Best Method of Valuation

1. TCS-P/E-14% Overvalued
2. ABB India-DCF-7% Undervalued
3. Larsen & Toubro-P/E-43% Undervalued
4. Sun TV -P/E-17% Undervalued
5. ONGC-P/E-0.078% Overvalued

As we can see the minimum deviation is from the P/E model.

The analysis started with DCF being the best model for valuation but after the research on certain Indian companies it can be said that since the P/E valuation is a relative valuation and considers value in the present day it provides a little clearer picture than the Discounted Cash Flow analysis. However, when we consider standalone company valuations then DCF outperforms Dividend Growth model.

Dividend Discount method turns out to be a method suitable only for theoretical application and not practical application as the deviations in the value are substantially high.

P/E valuation is more accurate than DCF valuation in context of the Indian Market as it yields Better Results and Less Deviation.

CHAPTER 7

LIMITATIONS & FUTURE WORK

- The comparison assumes that efficient market hypothesis stands true and the current share price or the market value is the fair value of the stock.
- The Dividend growth model is highly sensitive to the values of Ke and the growth rate
- The Dividend growth model does not function unless the dividend growth rate is less than the cost of capital, or on negative growth. It requires a constant growth which is below the cost of capital.
- P/E earnings approach does not consider the future earnings but considers the relative valuation as per the industry average.
- Under DCF valuation and DDM valuation, The Terminal value is a key part of the valuation.
- P/E valuation does not work well when a company is extremely underperforming/outperforming from the Industry average.
- More work can be done in order to get more precise result as assumptions related to growth rates can be improved.
- Since this analysis is based on certain assumption there is risk regarding rates.
- As per the situation volatility in the market is very high which does give the true value of share prices

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ANNEXURE

1. Calculation Of market return

Date	Adj Close	Return		
5/1/2012	4924.250			
6/1/2012	5278.900	0.072021		
7/1/2012	5229.000	-0.009453		
8/1/2012	5258.500	0.005642	**Rm**	12.8846
9/1/2012	5703.300	0.084587		
10/1/2012	5619.700	-0.014658		
11/1/2012	5879.850	0.046292		
12/1/2012	5905.100	0.004294		
1/1/2013	6034.750	0.021956		
2/1/2013	5693.050	-0.056622		
3/1/2013	5682.550	-0.001844		
4/1/2013	5930.200	0.043581		
5/1/2013	5985.950	0.009401		
6/1/2013	5842.200	-0.024015		
7/1/2013	5742.000	-0.017151		
8/1/2013	5471.800	-0.047057		
9/1/2013	5735.300	0.048156		
10/1/2013	6299.150	0.098312		
11/1/2013	6176.100	-0.019534		
12/1/2013	6304.000	0.020709		
1/1/2014	6089.500	-0.034026		
2/1/2014	6276.950	0.030783		
3/1/2014	6704.200	0.068066		
4/1/2014	6696.400	-0.001163		
5/1/2014	7229.950	0.079677		
6/1/2014	7611.350	0.052753		
7/1/2014	7721.300	0.014445		
8/1/2014	7954.350	0.030183		
9/1/2014	7964.800	0.001314		
10/1/2014	8322.200	0.044872		
11/1/2014	8588.250	0.031969		
12/1/2014	8282.700	-0.035578		
1/1/2015	8808.900	0.063530		
2/1/2015	8844.600	0.004053		
3/1/2015	8491.000	-0.039979		
4/1/2015	8181.500	-0.036450		
5/1/2015	8433.650	0.030820		
6/1/2015	8368.500	-0.007725		
7/1/2015	8532.850	0.019639		
8/1/2015	7948.950	-0.068430		

9/1/2015	7948.900	-0.000006
10/1/2015	8065.800	0.014706
11/1/2015	7935.250	-0.016186
12/1/2015	7946.350	0.001399
1/1/2016	7563.550	-0.048173
2/1/2016	6987.050	-0.076221
3/1/2016	7738.400	0.107535
4/1/2016	7849.800	0.014396
5/1/2016	8160.100	0.039530
6/1/2016	8287.750	0.015643
7/1/2016	8638.500	0.042321
8/1/2016	8786.200	0.017098
9/1/2016	8611.150	-0.019923
10/1/2016	8638.000	0.003118
11/1/2016	8224.500	-0.047870
12/1/2016	8185.800	-0.004705
1/1/2017	8561.300	0.045872
2/1/2017	8879.600	0.037179
3/1/2017	9173.750	0.033127
4/1/2017	9304.050	0.014204
5/1/2017	9621.250	0.034093
6/1/2017	9520.900	-0.010430
7/1/2017	10077.100	0.058419
8/1/2017	9917.900	-0.015798
9/1/2017	9788.600	-0.013037
10/1/2017	10335.300	0.055851
11/1/2017	10226.550	-0.010522
12/1/2017	10530.700	0.029741
1/1/2018	11027.700	0.047195
2/1/2018	10492.850	-0.048501
3/1/2018	10113.700	-0.036134
4/1/2018	10739.350	0.061862
5/1/2018	10736.150	-0.000298
6/1/2018	10714.300	-0.002035
7/1/2018	11356.500	0.059939
8/1/2018	11680.500	0.028530
9/1/2018	10930.450	-0.064214
10/1/2018	10386.600	-0.049756
11/1/2018	10876.750	0.047191
12/1/2018	10862.550	-0.001306
1/1/2019	10830.950	-0.002909
2/1/2019	10792.500	-0.003550
3/1/2019	11623.900	0.077035
4/1/2019	11748.150	0.010689
5/1/2019	11922.800	0.014866
6/1/2019	11788.850	-0.011235

7/1/2019	11118.000	-0.056905
8/1/2019	11023.250	-0.008522
9/1/2019	11474.450	0.040932
10/1/2019	11877.450	0.035122
11/1/2019	12056.050	0.015037
12/1/2019	12168.450	0.009323

2. calculation of risk Free Rate

Date	Govt bond return		
20-Apr	6.347		
20-Mar	6.138	**Rf**	7.189419
20-Feb	6.371		
20-Jan	6.599		
19-Dec	6.554		
19-Nov	6.46		
19-Oct	6.643		
19-Sep	6.695		
19-Aug	6.556		
19-Jul	6.369		
19-Jun	6.879		
19-May	7.032		
19-Apr	7.414		
19-Mar	7.346		
19-Feb	7.591		
19-Jan	7.483		
18-Dec	7.37		
18-Nov	7.607		
18-Oct	7.853		
18-Sep	8.024		
18-Aug	7.951		
18-Jul	7.772		
18-Jun	7.903		
18-May	7.826		
18-Apr	7.767		

18-Mar	7.398
18-Feb	7.726
18-Jan	7.43
17-Dec	7.326
17-Nov	7.058
17-Oct	6.862
17-Sep	6.663
17-Aug	6.525
17-Jul	6.465
17-Jun	6.511
17-May	6.661
17-Apr	6.961
17-Mar	6.658
17-Feb	6.87
17-Jan	6.407
16-Dec	6.512
16-Nov	6.243
16-Oct	6.885
16-Sep	6.958
16-Aug	7.11
16-Jul	7.163
16-Jun	7.448
16-May	7.471
16-Apr	7.435
16-Mar	7.459
16-Feb	7.623
16-Jan	7.779
15-Dec	7.758
15-Nov	7.786
15-Oct	7.64
15-Sep	7.539
15-Aug	7.784
15-Jul	7.806
15-Jun	7.861
15-May	7.815

15-Apr	7.86
15-Mar	7.738

3. Calculation of CAGR

CAGR	Revenue	17-Mar	18-Mar	19-Mar
11%	TCS	117,966	123,104	146,463
9%	ABB India	6,094	6,690	7,275
14%	Larsen & Toubro	109,312	119,683	141,007
20%	Sun TV	2,646	2,963	3,783
22%	ONGC	282,506	322,706	421,385

4. Present Value calculations

S.no.	Company	FCF 2020	FCF 2021	FCF 2022	FCF 2023	Terminal Value
1	TCS	29,374.05	30,842.76	32,384.89	34,004.14	1,592,011.98
	PV	29,374.05	27,987.98	26,667.32	25,408.97	1,189,601.63
2	ABB India	455.79	498.0028	544.1229	594.51	27,834.08
	PV	455.79	441.40	427.47	413.97	19,381.34
3	Larsen & Toubro	4,770.42	5199.762	5511.748	5787.34	270,952.52
	PV	4,770.42	4,686.92	4,478.14	4,238.29	198,429.03
4	Sun TV	642.40	706.64	756.1048	801.47	37,523.42
	PV	642.40	638.26	616.85	590.58	27,649.98
5	ONGC	5,415.12	5577.574	5744.901	5917.248	277,034.78
	PV	5415.12	4,963.71	4,549.93	4,170.65	195,262.10