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DISCOUNTED CASH FLOW MODEL WITH REFERENCE TO IT COMPANIES: A STUDY

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ABSTRACT

This paper examines the relationship between share price calculated with the help of discounted cash flow (DCF) model and market price of share. It evaluates the theoretical and practical aspects of share valuation model. It tries to assess the effectiveness of discounted cash flow model by using the data of Information Technology (IT) sector companies. The scope of investment is increasing day by day, due to changes in business environment and continuous innovation in financial instruments. But the core theme of investment lies with higher return and the equity shares is treated as the high revenue generating financial instruments. But the market price of shares shows the volatility which creates doubt and problem in the mind of investors about the reflecting market price of share. So this study basically related with evaluation of Discounted Cash Flow valuation model which provides the basic idea about the share valuation and helps in finding out the estimated worth of the any share. Investors can compare the calculated price with the current prevailing price in the market before purchasing or selling any share or securities. Understanding of share valuation always provides the competitive edge in investment and helps the investors for choosing their target company for investment.

KEYWORDS: *Share Valuation, Discounted Cash Flow (DCF), Financial Instruments, Investment.*

Introduction

Financial market provides market for raising funds or investing money. It provides the platform where investors as well as seekers of money can fulfil their own requirement. In capital market investors can buy and sell long-term debt or equity-backed securities. These markets channel the wealth of savers to those who can put it to long-term productive use, such as companies or governments making long-term investments. There are large numbers of companies listed in stock exchange and their share prices are continuously changing. It creates confusion in the mind of investors about the selection of Target Company for investment. Share valuation provides the basic guideline and analytical understanding for the evaluation of market price of company shares. The goal of this paper is to calculate the expected price of share with the help of DCF model and then compare it with the prevailing market price. The DCF model is based on discounted free cash flow of the organisation to calculate expected market price. It is a standard procedure in modern finance and therefore very important to thoroughly understand how the method works and what its limitations and their implications are. Although this paper is on a basic level, it requires some knowledge of accounting and corporate finance, as well as a good understanding of general economic coherencies.

Statement of the Problem

Financial Market is developing rapidly in this 21st century. Organization as well as investors is participating positively in financial market to fulfil their need and requirement related with finance. Money

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Market provides money for the short term purposes and Capital market for the long term purposes. The basic objective of any investment is to get high return from the invested amount. Equity investment treated as high return generated financial instrument. But the real problem arises at the time of share purchases due to volatility behaviour of market. Some investors are able to generate good return while the others are even not able to get any profit from their invested money. As the share valuation model provides the basic analytical price of traded securities, it is tried to study the relationship between the DCF model based calculated price with the market price of shares.

Objectives of the Study

The following objectives are set for this Study:

- To study the concept of Share valuation.
- To study the discounted cash flow model for valuing the worth of Securities.
- To study the relationship between DCF and actual price reflected in market.
- To make investors aware about the functioning and importance of DCF model.

Research Methodology

This is a "Descriptive research" in which information's are collected from the secondary sources to find out the characteristics of discounted cash flow model. It is carried out to describe the fact about the discounted cash flow method. The study is conducted with a sample size of 5 companies of IT sector traded in National Stock Exchange (NSE). It is based on secondary data collected from books, internet, magazines and published papers time to time. The selected period for this study is from 2011 to 2016.

Definition of Important Terms

- **Share Valuation:** Share Valuation is the method of calculating theoretical values of companies and their stocks. The main use of these methods is to predict future market prices, or more generally, potential market prices.
- **Security Analysis**: Security analysis is the analysis of tradable financial instruments called securities. Security analysis helps a financial expert or a security analyst to determine the value of assets in a portfolio.
- **Security:** A security is a tradable financial asset of any kind. Assets with some financial value are called securities. Securities may be represented by a certificate or, more typically, "non-certificated", that is in electronic or "book entry" only form.
- **Discounted Cash Flow:** A discounted cash flow (DCF) is a valuation method used to estimate the attractiveness of an investment opportunity. DCF analysis uses future free cash flow projections and discounts them to arrive at a present value estimate, which is used to evaluate the potential for investment.

Advantages of Share Valuation

Share valuation provides the following advantages:

- It helps in deciding the purchase or selling price of Shares.
- It provides the guide in selection of particular company share for investment.
- It boosts confidence of investors in terms of purchase of company shares.
- It provides mental peace and assurance about the invested money in stock market.

Data Analysis

A discounted cash flow (DCF) is a valuation method used to estimate the attractiveness of an investment opportunity. DCF analysis uses future free cash flow projections and discounts them to arrive at a present value estimate, which is used to evaluate the potential for investment. If the value arrived at through DCF analysis is higher than the current cost of the investment, the opportunity may be a good one. It is calculated as follows:

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n}$$

$CF = \text{Cash Flow}$

$r = \text{discount rate (WACC)}$

There are several variations when it comes to assigning values to cash flows and the discount rate in a DCF analysis. But while the calculations involved are complex, the purpose of DCF analysis is simply to estimate the money an investor would receive from an investment, adjusted for the time value of money.

For Example

We want to apply DCF analysis in a Company named "ABC Ltd.". The first step is to estimate the firm's future cash flow and their growth rate. Suppose the free cash flow (FCF) comes as Rs. 100 per share. Then to estimate a rate of growth, we will compare this figure with the previous year cash flow and try to find out rate of change in FCF. Suppose we have estimated that the cash flow will grow by 10% in the first two years, then 5% in the following three years and at the rate of 3% thereafter for the long term. Further, we have calculated the discount rate as weighted average cost of capital (WACC), say it comes out to 8%. Finally the terminal value or long-term valuation of the company's growth is calculated with following formula:

Terminal value = projected cash flow for final year (1 + long-term growth rate) / (discount rate - long-term growth rate)

Now it can be summarized as follows:

- Estimated Free Cash Flow (FCF) = Rs. 100 Per share
- Discount Rate = 10% for first 2 years,

= 5% thereafter for 3 years

= and 3% finally for long term thereafter

- Cost of Capital(Discount Rate)= 8%

S. No	Year	Calculation of Expected FCF	FCF
1	1st	100*1.10	110
2	2nd	110*1.10	121
3	3rd	121*1.05	127.05
4	4th	127.05*1.05	133.40
5	5th	133.40*1.05	140.07
6	Terminal Value	140(1+.03)/(.08-.03)	2885.50

Finally, to calculate the company's expected price of share we will adjust each of projected cash flow for the present value using the WACC. Therefore, Expected price of ABC Ltd. = $(110 / 1.08^1) + (121 / 1.08^2) + (127.05 / 1.08^3) + (133.40 / 1.08^4) + (140.07 / 1.08^5) + (2885.50 / 1.08^5)$ = Rs. 2463.65. So, Rs. 2463.65 per share is our estimate for Company ABC Ltd. which we can compare with the market price of the stock. If our estimate is higher than the current stock price, we may consider for purchase of ABC Ltd. Share as it is a good investment opportunity. The same process is required to apply for calculation of expected share price of company's share traded in stock exchange. In this study it is applied for the selected five companies from the Information Technology (IT) Sector and the obtained result are as follows:

Company's Name	F.Y.	Model Based Calculated Price	Market Price Per Share	Difference between Calculated Price & MP	Diff In %
TCS	2015-16	12,377.08	2,539.15	(9,837.93)	(387.45)
	2014-15	2,561.62	2,349.48	(212.15)	(9.03)
	2013-14	2,092.95	1,849.08	(243.87)	(13.19)
	2012-13	154.75	1,372.88	1,218.13	88.73
	2011-12	2,526.99	1,176.90	(1,350.09)	(114.72)
Wipro	2015-16	496.01	593.83	97.81	16.47
	2014-15	185.74	587.93	402.18	68.41
	2013-14	144.76	490.25	345.49	70.47
	2012-13	234.53	437.38	202.84	46.38
	2011-12	1,060.87	458.55	(602.32)	(131.35)
Infosys	2015-16	803.70	1,158.88	355.17	30.65
	2014-15	493.80	964.98	471.18	48.83
	2013-14	1,225.34	774.20	(451.15)	(58.27)
	2012-13	1,486.94	719.17	(767.77)	(106.76)
	2011-12	2,985.40	762.68	(2,222.72)	(291.44)
Tech Mahindra	2015-16	19,337.53	552.73	(18,784.80)	(3,398.58)
	2014-15	551.98	540.60	(11.38)	(2.10)
	2013-14	1,903.74	356.45	(1,547.29)	(434.08)
	2012-13	459.17	222.19	(236.98)	(106.66)
	2011-12	1,731.22	174.10	(1,557.12)	(894.41)
HCL	2015-16	2,562.13	880.55	(1,681.58)	(190.97)
	2014-15	406.95	842.70	435.75	51.71
	2013-14	640.39	546.44	(93.95)	(17.19)
	2012-13	1,036.48	319.73	(716.75)	(224.18)
	2011-12	5,899.17	239.93	(5,659.24)	(2,358.71)

Source: Compiled

The above table clearly reflects the significant deviation between market price of share and price calculated with the help of discounted cash flow model. It means discounted cash flow is not able to predict the appropriate expected price of share. So the investors should not only rely on the calculated share price with the help of DCF model for their decision making.

Findings

- Share valuation provides basic information about the worth of company's share.
- The discounted cash flow model is not righty predicting the appropriate expected price of share as the deviation between the calculated price and market price of share is significant.
- The discounted cash flow model is very vulnerable to changes in discount rate as only marginal changes in perpetual growth rate will lead to huge variances in the terminal value which accounts for a large portion of the company's value.
- There are no tools to estimate the exactness of input factors for calculation of expected price.
- The calculated price may differ person to person based on their projected or calculated discount and growth rate of share. Only 67% investors have the knowledge of security analysis methods.

Conclusion

Share valuation is an effective tool of estimating the expected price of share. It helps in finding out the worth or value of the securities. The discounted cash flow model is not properly projecting the expected price of share. The investors should not only rely on this model for selecting their target company for investment in shares. Though the calculated price is not properly predicted in sample data, the DCF analysis is a great tool to analyze the expected market price of companies share if the necessary assumptions and conditions have been fulfilled properly. As with all other financial models, the validity of the DCF method almost completely depends on the quality and validity of the data that is used as input.

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