VALUATION OF FIRM: METHODS & PRACTICES-AN EVALUATION

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ABSTRACT

The ultimate test of corporate strategy is whether a firm creates economic value for its shareholders. A decade ago there was considerably less knowledge about shareholder value and doubt about its relevance to corporate governance. But in today's economy it is essential to excel at measuring, managing and maximising shareholder and company value. The complexity of measurement of value deals not only with company's historical financial results but also with its ability to create value in the future. The article seeks to compare the various valuation methods and bring out the advantages, limitations and suitability of the same.

KEYWORDS: Valuation, Economic Value Added, Free Cash Flow, Discounted Cash Flow, Weighted Average Cost of Capital and Return on Invested Capital

INTRODUCTION

Importance of Value Creation and Measurement

Companies thrive when they create economic value for their shareholders. Value is created when capital is invested at a rate of return higher than the cost of capital. The cross currents of corporate scandals, active shareholders and board members create more pressure on the companies to build long term shareholder value. Companies dedicated to value creation are healthier, have higher living standards and have more opportunities for individuals.

Objectives of the Study

The aim of the article is to provide an overview of the common methods available in the field of valuation. The article seeks to focus on the advantages and limitations of various methods and to study the suitability of the methods which would prove useful to the researchers in the conduct of research on valuation.

Review of Literature

The forthcoming session discusses the plethora of work conducted on firm valuation and its related aspects. Thomas E Copeland (2000) has done several articles on valuation and says Real Option valuation is better as a valuation method. Stewart (1999) and Young O' Byrne (2000) set the standard in EVA and value based management. Uyemura, Kantor and Pettit (1996) from Stern Steward & Co. found the relationship between Economic Value Added (EVA) and Market value Added (MVA) with 100 bank holding companies. They calculated regressions to five performance measures including EPS, Net income, ROE, ROA and EVA. According to their study the correlation of these measures to MVA is EVA 40%, ROA 13%. ROE 10%, NI 8% and EPS 6%. Kimball reviewed the use of economic profit

to evaluate performance. Popa *et al* (2009) claims that EVA has an advantage as compared to other performance indicators. Dimistrios I Maditinos in his evaluation of EVA as a performance measure says that when EVA is included in the EPS model its explanatory power increases from 1.9 to7.2 percent.

Saveeny (2002), Lundholm and O Keefe (2001) among others provide evidence that valuation models based on present value concept yield exactly the same firm value. Their study shows that Residual Income and Free Cash Flow model provide the same estimates if two conditions are met a) forecasts are internally consistent and b) discount rates are consistent with value additivity as derived by Modigliani and Miller.

Stubelj (2010) has done a study on valuation of Slovene publically traded companies based on expected earnings and growth opportunities and showed how to solve the problems of valuation in an emerging market. Schuler (2014) focuses on the valuation of companies with information on how the venture capitalists make an appropriate valuation by using some of the popular models. Damodaran (2006) argued that all valuation leads to equivalent values provided their underlying assumptions are correct. Based on the above literature the following methods are considered to be relevant and hence chosen for discussion in the following pages

Regulatory Framework on Valuation

The Institute of Chartered Accountants of India (ICAI) has recently developed and recommended Business Valuation Practice Standards (BVPS) aiming to establish uniform principles, practices and procedures for valuers performing valuation services in India. The American Society of Appraisers (ASA) standards suggest "the valuation methods which are used should come from a professional appraisal by the valuer. The choice should be made taking into consideration whichdata is mostly available and conceptually which is the appropriate method." The Institute of Business Appraisers (IBA) standards say that the value should state the methods considered and bases of choosing them.

Valuation Methods in Practice

The methods which have been undertaken for the study are those which are most popularly used and include those such as Discounted cash flow technique, Economic Profit, Adjusted Present Value, Economic Value Added, Free Cash flow to Equity, Option valuation, Net Asset Valuation and Relative Valuation techniques.

Discounted Cash Flow Method

The method which is traditional and popularly used by academicians is the Discounted Cash Flow method (DCF). DCF uses cash flows which are projected for the future years and discounted back to its present value. The formula for DCF is given below:

$$EV = \frac{FCF_1}{(1+WACC)} + \frac{FCF_2}{(1+WACC)^2} + ... + \frac{FCF_n}{(1+WACC)^n} + \frac{TV}{(1+WACC)^n}$$

Where

$$TV = \frac{FCF_{n+1}}{(WACC - g)}$$

The cash flows used are free cash flows after considering the reinvestment needs of the firm and non cash charges

in the firm. Short term cash flows are not good performance measures as they are susceptible to manipulation. The company can delay its capital spending to improve its short term cash flow. Hence the explicit period of forecast should be range from five to ten years. On the other hand, it is also possible to have large negative cash flows which are not bad if the company is investing to generate even larger cash flows in the future.

The DCF model can be a stable growth, two stages or three stages model. The stable growth model should be adopted for firms that grow close to the growth rate of the economy. For firms growing at a moderate rate the two stages model and for very high growth firms the three stages model is suitable. The length of high growth depends on factors like (a) current growth rate in earnings (higher the growth rate, longer is the high growth period) (b) larger the size of the firm shorter is the high growth period (c) and greater the barrier to entry the higher is the length of the growth period.

The appropriate discount rate for the free cash flow is weighted average cost of capital. The CAPM approach is considered to be technically superior for the measurement of cost of capital. The cost of debt is measured using the bond rating of companies and using the interest rate of long term government bonds as risk free rates. The bond rating of companies is easily available by the rating agencies like Crisil. The cost of equity can be determined using the market values (instead of book values) of debt and equity in a target capital structure. The cost of capital has direct implication on value of the firm as lower cost of capital leads to higher firm value. All non cash equity claims like Debt, Operating leases, Employees options and Minority interest are subtracted from the enterprise value to arrive at equity value.

Economic Profit Model

A company can also be valued using the Economic Profit model (also called Residual Income) where the value of the company equals the amount of capital invested in addition to a premium which is equal to the present value of value created each year.

$$RI = (R_E - C_E) \times BV_t$$

Where RI is the residual income, $R_{E\ is}$ the return on equity, C_E, is the cost of equity and BV is the book value of equity.

The model can be expressed as follows:

Enterprise value $= BV + (RI/(1+ C_E)^1) + (RI/(1+ C_E)^2 + ... + (RI/(1+ C_E)^t + TV/(1+ C_E)^t$

Where TV is calculated as $TV = BV_t \times RI_t/(C_E-g)$

The concept of economic profit is far from new as it dates back to 1890 when it was first introduced by Alfred Marshall. In America **Coca-Cola, AT&T, Kelloggs** and **Scott Paper** have adopted Economic value as a principal measure of profitability. An advantage of the model over the DCF is that economic profit is a useful measure for understanding the company's performance in a single year whereas free cash flow is not. Economic profit translates size, return on capital and cost of capital into a single measure. The DCF and Economic Profit model would give the same result if the future economic profit is discounted at the same cost of capital. The benefit of economic profit becomes apparent when the drivers of economic profit-Return on invested capital (ROIC) and Weighted Average Cost of Capital (WACC) are examined on a year by year basis. If the markets are highly competitive, ROIC would drop and economic profit would reduce. Another insight generated by the Economic Profit model occurs when comparing a company's value of operations

with its invested capital Also the model is based on accounting standards with numbers easily available and does not always reflect the true economic value of assets and cash flows.

Adjusted Present Value

When using the DCF or economic profit model a constant WACC is used for a target debt to equity ratio. But in reality debt grows with company value. If the company planned a significant change in its capital structure, a valuation based on a constant WACC would overstate the value of the tax shields. Though WACC can be changed to a different capital structure yearly, the procedure is complex. Therefore an alternative valuation model is the Adjusted Present Value (APV). Under this model the company is valued as if it is equity financed by discounting the free cash flows using the unlevered cost of equity. To this the present value of tax shields is added along with the distress costs of the company in the case of winding up. The DCF, APV and Cash Flow to Equity valuation is equivalent when leverage (as measured by market based debt to equity ratio) is constant. The tax shields under APV should be discounted at unlevered cost of capital. Generally financial analysts discount expected interest tax shields at the cost of debt which will lead to different valuations. The formula for the method can be given as

Enterprise Value=V_u+ PV of interest tax shield-bankruptcy costs where V_u is the value of the unlevered firm

In the above formula the cash flows are discounted at the unlevered cost of equity along with the Terminal Value of the cash flow. Similarly in the calculation of interest tax shield, Terminal Value has to be calculated. The bankruptcy cost of the firm can be attained with the probable risk of default. An assumption is made that if the probable risk of default is 10 percent and that the bankruptcy cost is taken as 40 percent of the value of the unlevered firm

Economic Value Added

A slightly altered approach of the residual income model is the Economic Value Added popularly called the EVA. EVA for the given year is the excess return the company enjoys once its operating as well as capital costs are covered.

EVA = NOPAT – (WACC × K)

Alternatively EVA = (ROIC-WACC) X K where ROIC=NOPAT/K, K being the capital stock of the company.

The goal of the Management besides increasing the EVA of one single year is also to maximize the enterprise value which equals the present value of all future EVA's plus the capital stock invested in the company. In order for the enterprise value to be larger than the invested capital, ROIC has to exceed the cost of capital over time. A company can create value by increasing ROIC, decreasing WACC, increasing the invested capital and withdrawing from projects that yield a ROIC lower than WACC. The growth rate used in this approach is the growth rate of future EVA's from year n to infinity. The beta for the calculation of the EVA should be the highest beta of the last few years. The main purpose of EVA is that it is a period by period measurement of performance unlike the DCF. It is also particularly useful in compensation programs such as value based management programs since EVA may be computed separately for different business units, department, product lines or geographic business segments within the organization. Its great strength lies in its link between performance measurement and corporate valuation as it ensures consistency in the rewards to Management and employees in the same way in which financial markets value companies. In India **NIIT, Tata Consultancy Services** and **Godrej Group** have formerly adopted the EVA framework. Despite EVA's advantages as a performance measure it has a shortcoming of non comparability among companies or business units of different sizes. This deficiency can be rectified by
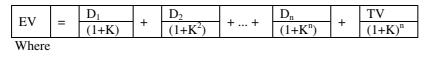
standardising EVA to a common level of capital employed.

Free Cash Flow to Equity

A variation of the FCFF/DCF model is the Free Cash Flow to Equity model (FCFE) which is useful for firms not paying dividends or in cases where dividends are significantly higher or lower than FCFF's. It is useful to assess the value of the firm when it is proposed to buy the whole company. This model requires the calculation of FCFE where new debt issued and debt repayments are adjusted to arrive at the FCFE. The method uses the same formula as the DCF.

Dividend Discount Model

Another model which can be used easily is the Dividend Discount model (DDM). The formula for the model can be given by:

$$EV = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K^2)} + ... + \frac{D_n}{(1+K^n)} + \frac{TV}{(1+K)^n}$$

Where

$$TV = \frac{D_{n+1}}{(C_E - g)}$$

The model may be undertaken when the dividends paid are less than the FCFF's. Firm characteristics suitable for the model include beta around 0.80 with stable leverage and dividends. For the Banking and Financial Services sector for which the FCFF's are difficult to determine, it is easy to apply the DDM model. The model requires forecasting all future dividends and discounting them back to arrive at the company's equity. The long term dividend growth and appropriate long term cost of capital is calculated to determine the Terminal Value.

Option Valuation

In the last few years Option valuation has been recognised as an alternative in the valuation of investment opportunities in real markets. Real option valuation is a powerful tool in investment-intensive industries where companies make investments in sequences involving a high degree of uncertainty. Some of these industries include Energy, Oil and Gas and R&D intensive industries like Biotechnology, Pharmaceutical and other High Tech industries with high marketing investments. Real Option valuation takes into consideration the flexibility that is inherent in many projects in a way that DCF does not. Hence Management possibilities to expand an investment or to abandon a project are given at a correct value.

Enterprise value = value of existing operations (= value of all discounted future cash flows from present projects)

+ Value of the company portfolio of real options (= value of future potential projects)

Net Asset Valuation

The Net Asset Valuation is one of the simplest forms of company valuation. It is computed to be the difference between the assets and liabilities based on the respective Balance Sheet values. But net asset values are generally lower than market values as many value creating items are not accommodated in the Balance Sheet for accounting reasons like investments in marketing, education of employees etc. The asset valuation methodology is useful in case of liquidation/closure of the business This valuation is suitable for valuation of Banks, Real estate and Investment companies.

It is worthy to mention that an asset based valuation should never be used as the only method for valuation. The intangible assets which assumes a significant part of the company's earnings capacity in the future are not considered under this method.

Relative Valuation

Relative valuation models use a ratio or multiple to express the value of a company in relation to a certain variable. The P/E ratio which is calculated by dividing market price by Earnings per Share (EPS) is frequently used by retail investors. A lower P/E ratio usually means that the stock is undervalued and there is a scope for appreciation in future. P/E ratios alone cannot be used for decision making and an investor should also check the quality of profits as well as its sustainability before taking a final call. Further, they should also carefully analyse the outstanding liabilities of the Company because P/E fails to cover the same. EV/EBITDA is a valuation multiple that is often used in parallel with, or as an alternative to the P/E ratio. Typically, this ratio is applied while valuing cash-based businesses. An advantage of this multiple is that it is capital structure-neutral. Therefore, this multiple can be used for direct cross-companies application. EV/Sales is another multiple used and calculated by dividing Enterprise Value by annualised sales of the Company. Generally, EV/Sales method is used for valuation of companies with lower profits / losses, but large turnover. The other common multiples include, cash flow and EBITDA multiples, revenue multiples, asset multiples and operating multiples. When accounting information is not easily available relative valuation is a handy tool for the financial analysts to make a quick assessment of the company's value but this methodology does not take into account the time value of money.

According to the American Institute of Certified Pubic Accountants(AICPA) standards, to assess the reliability of results, the results should correlate when using the different methods. The quality and availability of the information is also to be considered. It is necessary to decide whether the final value will be the result of one method or a combination of several methods. In case of diversified companies in India, such as Larsen & Toubro, ICICI Bank, Mahindra & Mahindra, instead of using only one valuation method, each of their businesses are valued separately using appropriate valuation methods and finally total of all businesses is considered for valuation of stock.

Valuation should also remain unaffected with bias like following the stock think about these companies, choice of companies, collection of information about companies (subject to Management manipulation) and market's own estimate about company and institutional factors.

Managerial Implications

In the short run there may be a significant difference in the share prices and fundamental values. This is primarily caused by capital market efficiencies in which the investors create opportunities to profit there from. However in the long term stock prices and intrinsic values do coincide with each other. Hence the mangers should lay more emphasis to intrinsic values. They should not be deterred by short term market deviations but continuously make decisions based on DCF and Economic Profit. Managers who are keen to increase their long term cash flows will be rewarded with higher share price. Valuation of the firm also seeks to see through any illusions of value. Hence making profits with events such as stock splits and listing in other markets do not create value in the long run. Shareholders are more interested the substance than the form of shareholding.

The Management should analyse the valuation of the company by considering the following points:

- The growth in sales automatically leads to increase in the value of the shares

- As WACC increases the value of a share decreases

- Terminal Value will be high if the company has invested during the explicit period

- Note for the large swings in working capital on year to year basis during the forecasted period

- The DCF and Economic Profit model would give the same result if the future economic profit is discounted at the same cost of capital.

- ROIC has to exceed the cost of capital over time for the enterprise value to be larger than the invested capital

- Under the Net Asset Valuation method, the intangible assets are not included the assets,, hence the assets may be much lower than their market values.

- The DCF, APV and Cash Flow to Equity valuation is equivalent when leverage (as measured by market based debt to equity ratio) is constant.

Valuation can be highly sensitive to small changes in the assumptions about the future. Increasing the cost of capital by 0.5 percent points would decrease the value by approximately 10%. Changing the growth rate for the next 15 years by 1% point will change the value by about 6%. For high growth companies the sensitivity is even greater. In the light of this sensitivity it is no surprise that the market value of a company fluctuates over time.

CONCLUSIONS

DCF is considered to be most reliable method despite its complexities to arrive at the fair value after taking into account future performance of the organization. Its consideration of the firm's future investment needs and discounting to the present value makes it a superior method. All other methods deal with lesser information but need to be practically applied in the following cases:

- FCFE is used for firm's not paying dividends but to in case it is required to value

- purchase of the whole company

- DDM can be used for companies with stable dividends and leverage

- EVA can be used when year to year comparisons are to be made and dually as a performance measure

- Relative valuation is more suitable for the retail investors who may fail to have access to financial statements.

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