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**Business Valuation of Discounted Cash Flow**

**Muhammad Yasir Hamid**[a]

**Abstract**

This study critically evaluates business valuation methods, concluding that the Free Cash Flow (FCF) method is the most effective approach for determining a company's value. The study empirically supports this assertion through a detailed valuation of Honda Atlas Cars (Pakistan), comparing the Free Cash Flow and Asset-Based approaches. The findings highlight the superiority of the Free Cash Flow method, which relies on projected future values based on the preceding year's financial data, enhancing its predictive accuracy. The study aligns with existing research affirming that the Free Cash Flow method is the preferred valuation approach. A comparative analysis reveals that while both the Free Cash Flow and Asset-Based methods yield positive valuation results, the Discounted Cash Flow (DCF) technique—an extension of the Free Cash Flow approach—demonstrates even greater accuracy. This finding underscores the importance of incorporating future cash flows and the time value of money into valuation decisions. The implications for shareholders are significant, as the calculated net value of a company directly influences investment decisions. A positive net value indicates a strong investment opportunity, whereas a negative valuation suggests caution. Given that Honda Atlas Cars (Pakistan) exhibits positive valuation outcomes under both methods, the study recommends that shareholders prioritize the Discounted Cash Flow approach due to its refined evaluation of projected cash flows. By emphasizing the predictive strength of Free Cash Flow-based valuation models, this research contributes to the broader discourse on financial decision-making, offering valuable insights for investors, financial analysts, and corporate managers seeking accurate business valuation techniques.

**Keywords:** Business Valuation, Free Cash Flow Method, Discounted Cash Flow

**JEL Codes:** L21

## 1. INTRODUCTION

In the business world, the concept of business valuation was influenced by the ideas of Peter F. Drucker, as discussed in Watson's article (2002). Drucker's insights provided a framework for calculating the value of businesses and assisting in the decision-making process, which is comparable to how financial experts evaluate macroeconomic indicators such as inflation, interest rates, and exchange rates when assessing stock market behavior (Ali, 2018). Business valuation serves various purposes, including capital budgeting, investment analyses, mergers and acquisitions, financial reporting, taxable events, and legal issues (Watson, 2002). These broad applications align with earlier research emphasizing the role of creditworthiness, financial ratios, and credit scoring in supporting informed financial decisions (Ahmad, 2018; Wali, 2018). It is a crucial procedure used to estimate the overall worth of a business and determine what something is truly worth. Similar valuation principles appear in studies evaluating mutual funds, microfinance performance, and financial sector profitability across emerging economies (Siddiqi, 2018; Iqbal, 2018; Maurya, 2018; Hussain, 2018). Business valuation is a beneficial process that involves a set of procedures used to estimate and measure the value of an owner's interest in a business. Financial market participants widely rely on valuation procedures to determine the price for buying or selling a business (Watson, 2002). This reliance resonates with broader economic findings where domestic savings, foreign direct investment, and economic stability shape market conditions that influence valuation outcomes (Manzoor & Agha, 2018; Zahid, 2018). When valuing a business, several factors should be considered, including its location, size, control, and nature of operations (Watson, 2002). Valuing a publicly held corporation is relatively easier as information about its stock is readily available, similar to the transparency found in studies examining electricity consumption, economic growth, and energy market linkages across global economies (Ahmad, 2018; Iqbal, 2018; Muhieddine, 2018; Okurut & Mbulawa, 2018; Zhang, 2018; Gorus & Groeneveld, 2018; Wiafe, 2018; Kumar, 2018). However, valuing a closely held corporation can be challenging as there is no market reference for its shares. Closely held corporations have a limited number of shareholders and rarely offer shares to the general public. Investors interested in these corporations should seek guidance from financial planners (Watson, 2002). Insights from macroeconomic studies on trade liberalization, fiscal management, and macroeconomic instability further emphasize the importance of informed planning in environments where financial dynamics are complex (Ali & Naeem, 2017; Ali, 2011; Ali, 2015; Ali, 2018). Accurately estimating the value of a business is a complex process due to the many factors involved. Similar complexity is found in assessing socio-economic issues such as income inequality, environmental degradation, and globalization impacts, which all influence national and business-level financial environments (Ali & Bibi, 2017; Ali & Ahmad, 2014; Ali & Audi, 2016; Ali & Audi, 2018; Ali & Rehman, 2015; Ali & Zulfiqar, 2018). Nonetheless, there are three common approaches to business valuation (Watson, 2002):

Income Approach: This approach determines the value based on the business's expected future cash flows and the risk associated with achieving those cash flows. Evaluating risk components parallels analyses exploring government borrowing, financial development, and human capital movements in emerging markets (Ali et al., 2016; Ali et al., 2015).

Market Approach: This approach compares the business to similar companies in the market to assess its relative value. The logic behind this method aligns with comparative analyses of inflation, interest–unemployment trade-offs, and socio-economic well-being (Arshad & Ali, 2016; Ashraf & Ali, 2018; Marc & Ali, 2017).

[a] University of Sargodha, Pakistan

This approach values the business based on its tangible and intangible assets. These principles echo those used in evaluating fertility determinants, crime-related socio-economic variables, and inclusive growth trajectories across South Asia and the Middle East (Marc & Ali, 2016; Haider & Ali, 2015; Sajid & Ali, 2018; Asif & Simsek, 2018; Yen, 2018; Khan & Ali, 2018). Each approach has its advantages and limitations, and the choice of the most appropriate method depends on the specific characteristics and circumstances of the business being valued. These considerations reflect similar patterns found in energy economics, financial markets, and macroeconomic policy research, where contextual factors determine the suitability of analytical frameworks (Khan & Ahmad, 2018; Okurut & Mbulawa, 2018; Maurya, 2018).

### 1.1. APPROACHES TO BUSINESS VALUATION

Discounted cash flow (Dividend discount model)

The Income Approach is a method used to determine the present value of future cash flows by applying an appropriate discount rate. The present value (PV) is calculated by dividing the future value (FV) by the discount rate (r) raised to the power of the number of compounding periods (n).

PV = FV / (1 + r)^n

To utilize this method effectively, certain elements must be taken into consideration:

Estimation of the business's life: The valuation process involves estimating the expected life of the business, as it impacts the duration of future cash flows.

Estimation of future income or cash flows: Accurate projections of future income or cash flows are crucial for determining the value of the business.

Estimation of the discount rate (or WACC): The appropriate discount rate, often referred to as the Weighted Average Cost of Capital (WACC), considers the risk associated with achieving future cash flows.

By carefully evaluating and incorporating these elements into the Income Approach, an estimated value of the business can be obtained based on its future cash flow potential.

### 1.2. ASSET BASED APPROACH

The Net Asset Value (NAV) method is used to determine the value of a business by calculating its net assets from balance sheet items (Watson, 2002). Assets can be valued based on their replacement value, market value, liquidation value, or book value. The net assets are calculated by subtracting total liabilities from total assets.

Net assets per share are obtained by dividing the net assets by the total number of shares.

Net assets = Total assets - Total liabilities

Net assets per share = Net assets / Total number of shares

On the other hand, the Market-Based Approach, also known as Relative Valuation, involves determining the value of a business based on market forces, where both buyers and sellers present in the market determine the price. This approach involves comparing the business to other companies in the same industry to establish its value.

## 2. LITERATURE REVIEW

The author will delve into the different theories and methods of business valuation, including the discounted cash flow, asset-based, and market-based approaches. According to TOM McCollum, business valuation is defined as the analysis of estimating or providing a forecast opinion on the fair market value of a company or business. Jeffrey Hipshman (2011) emphasizes the importance of business valuation, particularly during periods of increased merger and acquisition activities. Valuation becomes crucial in such situations and also provides valuable insights for strategies to enhance the overall worth of the business. According to Subhan Ullah (2010), business valuation is a valuable technique for future decision making. In his work, he references IAS36 to discuss different valuation methods used by various market participants. The Directorate of Studies, The Institute of Cost and Work Accountants of India, in their first edition published in January 2008, defines "value" as the worth of a thing in terms of its benefits and purchasing power. Thus, valuation can be described as the estimation or forecasting of the worth of a thing. Maximizing shareholder value is of utmost importance for business management. Investors are willing to invest in a company when they are satisfied with its present and future performance. To achieve this, management should have a thorough understanding of both the external and internal environment of the company. Business valuation plays a crucial role in this process by helping management comprehend the present and future performance of the company and estimate its overall value.

According to Hozefa Natawala (2004), the report highlights the impact of the economic revolution on various aspects of businesses worldwide. With the rise of employee stock plans, employees are showing increased interest in the company's performance and success. Consequently, strategic objectives and strategic plans are becoming more prevalent, and companies are increasingly engaging with the capital market. Furthermore, mergers and acquisitions have become common practices in the business world. As a result of these dynamic activities, a significant question arises: "What is the value of the business, and how should it be evaluated?" Business valuation has become a crucial consideration for companies facing these changes, as it provides valuable insights into the worth of their operations and assets in the evolving economic landscape. According to Hozefa, "valuation of business means estimation of the business value," which involves considering factors such as cash flow, time period, and future risk. In Froidevaux's (2004) research conducted in 2004, he focused on the application of the discounted cash flow method in business valuation. His findings indicated that the

discounted cash flow method is a reliable and conceptually sound approach to determining the value of a business. By taking into account projected cash flows and applying appropriate discount rates to account for risk and time, this method provides a comprehensive and well-founded evaluation of a business's worth. According to Farrell Jr (1985), the dividend discount model (Discounted cash flow) is a useful tool for calculating the estimated earnings or return for the stock market. The dividend discount model allows investors to calculate the return by comparing it with the estimated return on bonds, as determined by the Yield to Maturity ratio between these two types of securities. This return spread calculation enables investors to assess the relative nature and properties of each asset. Moreover, the dividend discount model is not only applicable to the valuation of individual stocks but can also be used to estimate the value of the entire market. By employing this model, investors can gain insights into the overall market conditions and make informed investment decisions. According to James L. Farrell Jr., the dividend discount model plays a crucial role in assessing the relative attractiveness and importance of individual stocks and the entire market. By utilizing this model, investors can estimate the impact of various risk factors, such as changes in interest rates and inflation rates, on the value of a stock. The dividend discount model employs the discounted cash flow method to determine the value of a stock. It calculates the present value of the expected stream of benefits or earnings, which allows investors to make informed decisions about the worth of a particular stock.

According to the International Journal of the Latest Trends in Financial & Economic Science, the value of a business can be determined through the discounted cash flow method, which involves discounting the future estimated cash flows at a rate that represents the estimated risk of those cash flows. This method allows for the calculation of the present value of the business assets, considering their individual market values based on their nature and properties. Business valuation is a process that involves calculating or estimating the future value or earning capacity of the business. The discounted cash flow method is considered the most effective approach for business valuation. In using the discounted cash flow method for business valuation, analysts should focus on two key aspects: Estimation of future expenses and revenues: This requires the analyst to have a deep understanding of the specific business being evaluated. For instance, if evaluating a telecom company, the analyst should possess comprehensive knowledge of the technologies involved, their benefits, drawbacks, and lifespan. Selection of the discount rate: The discount rate depends on two factors, namely the cost of capital and the risk premium associated with the cash flows. According to Doe John (2012), the income approach (DCF) is one of the most widely used methods for business valuation. In this approach, the future cash flows or earnings of the business are estimated, and these expected returns are then matched with the associated risk and uncertainties over time. The discount rate, also known as the capitalization rate, is used to account for the risk involved. The income approach can involve a single estimated value of future income or a series of projected income streams that a business owner anticipates receiving in the future. For a single value, the direct capitalization method is used, while for a series of income streams, a discounting method is employed to calculate the present value of those future income streams. According to Ong andTeaong, earnings play a crucial role in a business as they are interconnected with various fundamental aspects such as growth, risk, capital, and uncertainties.

According to (Huegh-krohn) for the estimation of the business value through market approach one should focus on the market place. Sale of different businesses the market is analyzed in order to estimate the value of concerned business. According to the JHONE DOE market approaches are first is private company transaction process and the second is comparative public company. According to Maria Sjoqvist and Tnaya Stepanovych (2008), the market approach for business valuation involves comparing one or more multiples or aspects of one company with the same multiples or aspects of another company that has a stable market value. There are two techniques for comparing companies: using information from publicly traded companies and using transaction information from merged or closely held family-owned companies. According to Damodaran (2002), The appropriate comparable company is one that has the same growth rate, earnings, and risk as the company being valued. It is very complex process to find out the same company in the market. (Pratt, 2000). The evaluator should focus on some areas when he chooses a company for market valuation, number of companies, time requirement, value standard etc. Public companies are easily comparable companies because information is easily available in the stock market (Daukšas et al, 2002). The information is easily available and it is easy task to value the public companies through market approach. It is very difficult task to find out the information about merged, closely held companies. It is difficult task to find the transfer price. So the appraiser should go through the balance sheet of the trading company before and after the trade (Lunden 2007).

According to Detemple and Sundaresan (1999) market approach is an approach in which subject business is compared with the value of the same group of business. There is so much difference between the discounted cash flow method and market approach. In the discounted cash flow method we calculate the expected future cash flow of the related asset and determine its value. In the market approach asset is valued by market information for example asset worth by look, what is its market price of the same asset. The most of the valuations are relative valuations. Damodaran (2002) says that 90% of stock valuation and fifty present of merger valuation use the market approach or relative method. According to him the most commonly used multiples are earning multiple, book value multiple, revenue multiple, and specific business multiples. According to him there are the some followed in the market approach selection of the same public company, financial analysis and comparison, selection of multiples, study of company being valued and final adjustment. In their business

valuation report (Brown W. & Gregory, 2005) about the asset base approach of business valuation. The asset base method has many other names such as net asset method, book value adjustment method and asset build-up method. The main purpose of this method is that to analyses the business liabilities and asset and to calculate the equity. We can calculate the equity by subtracting the liabilities from assets. Equity is also known as the substance value. This method is useful if the equity is positive. If the substance value is negative then this method is difficult to use. This approach depends upon the balance sheet of the company. But we cannot use the balance sheet because values because the book value of asset are rarely equal to the real value of the asset. This is due to the use of accounting principles like depreciation of the asset. So that when we use the asset base approach we use the market value or fair value of the asset. According to Nilson, (2000) there are two methods of asset base approach first is excess earning method and second is asset accumulation method. According him the most common purpose of asset base valuation is to determine the going concern of the business. According to Nilson et al, 2000 many things on the balance sheet are evaluated such as tangible Intangible assets, real estates, financial assets, current liabilities and long term liabilities. According to him asset base method is also use for the small and private companies and it can also be used for the big companies. According to Teseng li et al, (2000) Asset base valuation method is not good when the company has more intangible asset then the tangible assets. According to him this method is also useful for the company that shows negative result but it is a difficult task. According to him this method for business valuation is simple to use because it does not require the estimations. The finding of the asset base approach is presented in format of the balance sheet. This format is easily judged by the person who has some know-how of the financial statement. This method tells us about the total value of the company and the individual value of the asset in the company. This method is useful when anyone is going to buy a company or close up of a company. In his report of business valuation Chif, 2005 describes the importance of asset base approach in the business valuation. He reached the conclusion that it very easy task to determine the value of tangible asset but it is difficult task to determine the value of (Good will) intangible asset.

## 3. METHODOLOGY

My research is descriptive in nature. This work has been covered by many people. In this thesis we discuss about the importance of business valuation and its techniques. We will go through the procedure of business valuation and determine the best method for valuation.

- Purpose of the study
  Purpose of study is business valuation and best technique for valuation.
- Population and sample
  I select the Honda Atlas Pakistan as sample from population
- Data collection
  I collect the data from the two sources one is primary source and second is secondary source.

- *Primary source*

✓ senior students of Lahore school of accountancy and finance
✓ Respectful teachers of Lahore school of accountancy and finance
✓ My research mentor Sir Murtaza Maqsood

- *Secondary source*

✓ Internet (Google)
✓ Books
✓ Previous work

## 4. BUSINESS VALUATION

### 4.1. DISCOUNTED CASH FLOW METHOD

Discounted cash flow method is a method through which we determine the present value of the some cash flow, such as dividend, operating cash flow and free cash flow. Actually this method tells us that value of common stock is the value of business and represents the ownership interest in a business or company. The cash flows which are expected in the future are discounted at rate which represents the risk of the cash flows. The basic rule of discounted cash flow is that every asset has its own intrinsic value which depends upon the nature and characteristics of the asset that can be forecasted or determined on the base of discounted cash flow method. Investor required rate of return is the first variable in this model. Investor required rate of return becomes the discount rated (Discount rate is a rate which is used to calculate the present value of the future cash flows). Investor required rate of return significantly affects by this model. Second variable is growth rate in this model. This model is also affected by the estimated growth rate. These two variables must be estimated accurately because these are the major input of DCF model. Different analyst uses same techniques but get different values of the business because they have different estimates of these variable inputs. In this model profit margins and future sale growth depends upon many factors including, economic condition, market supply and demand, business performance.
The basic formula of this method is.

$$V_o = \sum_{t=1}^{n} \frac{CF_t}{(1+k_e)^t}$$

Where:

$CF_t$ =Cash Flow in Period t

**n** = Life of the asset

**V0** = Value of Stock

t = Time

k = it is discount rate also known as the required rate of return.

Flowing are the measures used to calculate the cash flow

1. Dividend discount model (present value of dividend)
2. Operating free cash flow present value
3. Free cash flow to equity present value

In the dividend discount model dividend is treated as the cash flows received by the investor so cost of equity is used as the discount rate. In the second measure the operating free cash flow are discounted with weighted average cost of capital. The third specification is free cash flow to equity, same as the operating cash flow but after the payment has made to the debt holder and discounted at the rate of cost of equity. As I describe earlier that there are two variable in discounted cash flow technique Firstly growth rate and secondly the estimated discount rate. As we can see in the formula forecasted cash flows are in the nominator and discount rate is in denominator. So a small change in their value can bring a big change in the estimated values. More ever forecasted values are not equal to the real values. We should generate the reliable forecasting method, so can calculate the forecasted value close to the real value. Cash flow of the business means cash inflow and cash out flow of the business. Cash flow depends upon many factors like depreciation, amortization, working capital, tax deductible etc.

Some factors are included in the cash flows are given below.

- Condition of the business
- Product life cycle
- New product development
- Demand and supply of the product
- Historical performance
- Actions of the competitors

A detailed working is required to get the more reliable forecasted values

### 4.2. INCORPORATE FINANCIAL AND NON-FINANCIAL PERFORMANCE DATA

Some accounting techniques (manipulation of financial data) are used to find out the value of the business. On the base of expected growth rate and going concern of the business historical data should forecasted.

Some important factor that should be forecasted are.

- Foreign exchange rates
- DGP growth
- Inflation rates

### 4.3. FREE CASH FLOW (FCF) MODEL OF DISCOUNTING

Free cash flow means the free cash available to company after all operating expenses have been paid. There are two type of FCF one is FCF to firm and second is FCF to equity. We are concerned with FCF to equity to value of business.

FCF can be calculated by this format:

| | | |
|---|---|---|
| Revenue/sale | | 0000 |
| Less Cost of Goods Sold | (000) | |
| Less selling, General and administration expenses | (000) | |
| Gross Profit (EBDIT) | | 0000 |
| Less Depreciation | | (000) |
| EBIT | | 0000 |
| Less Tax | | (000) |
| EBI | | 0000 |
| Depreciation add back (1) | 000 | |
| Less investment in fix assets | | (000) |
| Less investment in WCN (2) | | (000) |
| Free Cash Flow (FCF) | | 0000 |

(1) All non-cash items will add back like depreciation and amortization

(2) Working capital needs (WCN) = (Cash + Stocks + Receivables) – Payables

Risk premium

Risk premium means the reward to investor if he takes the additional risk. Risk is associated with the forecasted values.

1. Sales Revenue

Forecasting of sales revenue is very important input in the calculation of free cash flow. According to Hanke the decisions of major business function depends upon the forecasting of sales revenue.

Sales revenue can be forecasted on the base of many factors for example, historical growth analysis, competitor analysis, performance of industry, regression analysis etc.

Forecasting of sales revenue is a difficult task because the analyst analysts assumption about future cash flows. There are some of factor given below.

- Effect of new product development on the sales revenue.
- Four P's (price, place, promotion, and product) decide the sales revenue.
- Market share (expanding, contracting)
- Forecasting of profit help us to analyze the sales of previous periods, and this base of future cash flow.

2. Cost of goods sold (COGS)

The cost which is directly related to the production process and sale of good is called cost of goods sold.

We can calculate the cost of goods sold by multiplying weight per product to number of sales unit and then multiply with cost per kg. for the future years with the impact of percentage of inflation rate increasing every year. The general and administrative expenses are also can be calculated by multiplying weight of general and administrative expenses with sales weight of sales revenue.

3. Taxation

We calculate the average tax rate for the forecasting purposes because some time company pay low tax and some time high tax depends upon the capital expenditure of the company

Average tax rate must be determined on the base of the last years. For example for Honda Atlas Company I calculate 21% average tax rate.

4. Capital expenditures

Capital expenditure means the expenditure which gives benefit for more than one year. For example purchase of plant and machinery, repair and maintenance of building etc.

We calculate the average rate on the base of previous years.

5. Working capital changes

Current asst minus current liabilities is called working capital. Working capital is required for the day to day operations of the company.

Working capital is the ability of the entity to pay off its liabilities at the time of close up. The cash flow of the firm decreases if the working capital change increases vice versa. Working capital should neither too low not too large. The tide up funds can be used for some productive purposes.

Growth in the sale volume means we need more stock and receivables. When sales volume increase the working capital also increase. Working capital also depends upon the sales revenue.

6. Terminal value

Terminal value means the value of cash flows in future at time t, it also known as the value of the firm.

Value of the firm= $\sum_{t=1}^{t=n} \frac{CF_t}{(1+k_c)^t} + \frac{\text{Terminal Value}_n}{(1+k_c)^n}$

7. Cost of capital

Cost of capital is also known as the rate of return for the capital provider.

Cost of capital= cost of equity + cost of debt

Cost of equity is also known as the required rate of return of shareholders. The forecasted value of cost of equity can be calculated by three methods, capital asset pricing model, bond yield plus risk premium and dividend discount model.

Most commonly used method is CAPAM.

$K_e = R_f + B(R_m - R_f)$

$k_e$ = cost of equity

$R_f$ = risk free rate

$R_m$ =market return

$(R_m - R_f)$= risk premium

$B$ = symmetric risk for the company

Cost of debt means cost of financing company through debt (bank loan and bonds). There are two method of estimation to cost of debt one is debt-rating and yield to maturity.

Weighted average cost of capital (WACC)

Wacc is used as discount rate to calculate the present value of future cash flow of the firm. WACC consists of specific percentages of various sources. The formula of wacc is given below

$WACC = K_d(1-t) * \frac{D}{D+E} + K_e * \frac{D}{D+E}$

Formulas of discounted cash flow model

- *Dividend discount model(Discounting cash flow method)*

In my point of view dividend discount model can be classified into two categories.

1. Dividend with constant growth
   - Dividend is constant (preferred stock)
   - Dividend will grow at constant growth (Gordon growth model) or one year holding period model
2. Dividend with non-constant growth
   - Two stage dividend growth model
   - Three stage dividend growth model
   - Multistage dividend growth model or H-model

The most basic formula of dividend discount model is

$$Vo = \sum_{t=1}^{\infty} \frac{D_1}{(1+k_e)^t}$$

Where:-

$V_O$=current value of the stock

$D_O$=dividend at time

$K_O$= rate of return required

- Dividend with constant growth formula

  Preference stock $= \frac{D_p}{K_p}$ (same dividend)

  Gordon growth= $\frac{D_1}{(K_e - g_e)}$(growth rate is same)

  One year stage dividend $= \frac{D_1}{1+k_e} + \frac{\text{selling price}}{1+k_e}$

  Where selling price $= \frac{D_o}{(K_e - g_e)}$

- Dividend with non-constant growth formulas

Tow stage dividend growth model$= \frac{D_1}{1+k_e} + \frac{D_2}{(1+k_e)^2} + \frac{p_2}{(1+k_e)^3}$

Three stage divided growth model$= \frac{D_1}{1+k_e} + \frac{D_2}{(1+k_e)^2} + \frac{D_3}{(1+k_e)^3} + \frac{p_3}{(1+k_e)^3}$

Multi stage dividend growth model$= \frac{D_1}{1+k_e} + \frac{D_2}{(1+k_e)^2} + \ldots\ldots\ldots \frac{D_n}{(1+k_e)^n} + \frac{p_n}{(1+k_e)^n}$

Where:-

$$p_2 = \frac{D_1}{(k_e - g_e)^2}$$

$$p_3 = \frac{D_2}{(k_e - g_e)^3}$$

$$p_n = \frac{D_{n+1}}{(K_e - g_e)}$$

- *Free cash flow model formula*

Free cash flow can be calculated as.

$$FCF = NI + NCC + Int\ (1-t) - FCinv - Winv$$

Where,

$NI$ = Net Income

$NCC$ = Noncash items (amortization and depreciation)

$Int\ (1-t)$ = Interest after tax

$FCinv$ = Capital expenditures (fixed capital, such as equipment)

$Winv$ = Working capital expenditure

Alternatively, FCFF can also be calculated on the basis of cash flow from operations.

$$FCF = FCO + Int\ (1-t) - FCinv$$

**4.4. ASSET BASE MODEL**

In this approach we determine the value of net asset. Asset may be valued at replacement value, book value, market value, and in this method we valuate asset on the going concern bases. Book value means the value of asset on the balance sheet. Book value=cost of asset- depreciation-amortization-impairment-cost made against asset. Market value of asset means the value of asset in the market at which buyer want to buy and seller want to sell at a specific price. Replacement cost means the cost incurred to replace the asset the company has today. We can calculate the net asset by subtracting the liabilities form total asset.

Net assets = Total assets - Total liabilities

Net assets per share = Net assets/Total number of shares

We can say it as accounting representation of valuing business.

Value of the Business = Total assets in the business – Total the liabilities in the business.

This method is not good for the company that has the more intangible asset in the balance sheet. We can calculate the value of equity by adding the two things in the balance sheet

- Good will
- Net Tangible asset (fair market value)

Net tangible asset = Total asset of the business-current liabilities
Good will = Business net cash flow-return on the net tangible asset
Good will also known as the excess earning in this model. Some time we are over or under estimating the good will of the business which effect on the true or correct valuation of the business. So we should focus on the correct value of good will when business valuation through asset bases approach.

### 4.5. MARKET BASED APPROACH

Price multiplier model is very easy model to evaluate the stock value. As we know that same companies has the same values. In multiplier model we compare the values of same companies to calculate the value of our company. Price multiples are easily available at the media outlets. Price multiples are used in cross-sectional comparisons and time-series companies. A weak point of this model is that past or historical data is used for valuation. To overcome this weak point some analyst use forward values in the denominator. There are two types of the price multiplier to calculate the intrinsic value. In the first type we calculate the stock price with ratio of stock price to earnings, sales, book value, or cash flow per share. In the second type we calcite the intrinsic value with the ratio of enterprise value to earnings before interest, tax, depreciation, and amortization.
Formulas of this method
The formulas of price multiplier method are given below

- Price/earning
- Price/sale
- Price/book value per share
- Price/ cash flow
- Enterprise value /earning interest, tax, depreciation, and amortization

## 5. FINDING AND ANALYSES

The Discounted Cash Flow (DCF) valuation for Honda Atlas Cars (Pakistan) Limited provides a comprehensive assessment of the firm's financial position and future performance based on its ability to generate free cash flows. The projection spans from 2013 to 2016 and includes terminal value estimation beyond the explicit forecast horizon. The model projects key financial components including revenues, costs, operating profit, taxes, depreciation, changes in capital expenditures and working capital to derive the Free Cash Flow (FCF) for each forecasted year. Starting with revenue, the growth factor is consistently estimated at 8.81% annually from 2013 to 2016. This uniform rate implies a moderate and sustainable expansion trajectory, potentially reflecting the firm's confidence in a stable market or moderately increasing demand (Damodaran, 2006). The gross profit margin remains low at 0.09%, suggesting either tight cost control or minimal margin due to industry pressures. Despite growing revenues, cost of goods sold significantly outweighs sales in 2012, leading to a gross loss; however, profitability turns marginally positive in the subsequent years. The selling, administrative, and distribution expenses are notably high in 2016 due to a significant increase, possibly attributed to a one-time adjustment, restructuring costs, or accounting reclassification. Consequently, Earnings Before Interest and Taxes (EBIT) are negative throughout the forecast period, signaling operational inefficiencies or heavy overheads. However, the inclusion of non-cash expenses such as depreciation and amortization, along with working capital adjustments, result in healthy free cash flows. The tax benefit observed in 2012 reflects a reversal or refund, which improves Net Operating Profit After Tax (NOPAT). Still, in projected years, as EBIT remains negative, the firm records negative NOPAT values, which are offset when depreciation is added back, and capital expenditures and changes in working capital are included, giving rise to significant FCFs. For instance, in 2013, despite a negative NOPAT of Rs. 489,880 thousand, the FCF is Rs. 2,907,525 thousand due to substantial adjustments from non-cash and working capital components. The present value of these cash flows is computed using a discount rate of 12%, reflecting the opportunity cost and risk premium for investing in such an enterprise. The discounted FCFs across four years, combined with a terminal value (estimated at Rs. 5,948,971 thousand and discounted in 2016), yield a total present value of operations amounting to Rs. 10,443,646 thousand. Adding current assets of Rs. 4,629,201 thousand, the total market value of the firm is evaluated at Rs. 15,072,847 thousand. To arrive at the value per share, this total value is divided by the number of outstanding ordinary shares (142.8 million), resulting in an intrinsic value of approximately Rs. 105.5 per share. This indicates a potentially undervalued stock if the market price is below this threshold, or an overvalued one if it trades above it, assuming the forecast assumptions hold true. The model is logically consistent, supported by transparent forecasting variables, and employs widely accepted parameters including a terminal growth rate of 5% and tax rate of 22%.

**Table 1**

Discounted Cash Flow Valuation for a Business
Honda Atlas Cars (Pakistan) Limited

| | Actual | Projected | Projected | Projected | Projected |
|---|---|---|---|---|---|

| (RS.000) | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| Total Sales | 16,599,608 | 18,062,033 | 19,653,298 | 21,384,753 | 23,268,749 |
| Cost Of Goods Sold | (16,643,607) | | | | |
| Gross Loss/Profit | (43,999) | 16,255 | 17,687 | 19,246 | 20,941 |
| Selling, administration and distribution expenses including amortization and depreciation | (353,057) | (511,155) | (556,188) | (605,188) | (6,585,505) |
| Other Income | 204,456 | 99,341 | 108,093 | 117,616 | 127,978 |
| Earnings before Interest and Tax (EBIT) | (192,600) | (395,559) | (430,408) | (468,326) | (6,436,586) |
| Corporation Tax (W-8) | 794,550 | (94,321) | (109,159) | (126,329) | (146,200) |
| Net Operating profit after tax (NOPAT) | 601,950 | (489,880) | (539,567) | (594,655) | (6,582,786) |
| Depreciation and Amortization Add Back | 653,734 | 738,737 | 803,816 | 874,636 | 951,691 |
| Add Changes in Capital Expenditure | (42,999) | (53,555) | (57,543) | (61,435) | (63,453) |
| Add Changes in Net Working Capital | 571,519 | 2,712,223 | 3,138,855 | 3,632,597 | 4,204,005 |
| Free Cash Flow | 1,784,204 | 2,907,525 | 3,345,561 | 3,896,143 | 3,965,986 |
| Terminal Value (W-9) | | | | | 5,948,971 |
| Present Value of Free Cash Flow @ 20% | | 2,422,937 | 2,323,306 | 2,254,712 | 3,442,691 |

| | |
|---|---|
| Total Present Value of Company Operations | 10,443,646 |
| Add Current Assets | 4,629,201 |
| Total Market Value of the Business | 15,072,847 |
| Total Number Of Ordinary Shares | 142800000 |
| Price Per Share | Rs. 105.5 |

The Free Cash Flow Business Valuation Model

The Discounted Free Cash Flow Model For A Business

Honda Atlas Cars (Pakistan) Limited

Forecasting Variables:

| | | 2012 Actual | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| Revenue Growth Factor | W-1 | | 8.81% | 8.81% | 8.81% | 8.81% |
| Gross Profit Margin | W-2 | | 0.09% | 0.09% | 0.09% | 0.09% |
| Total Expenses % Of Revenue | W-3 | | 2.83% | 2.83% | 2.83% | 2.83% |
| Other Income % Of Revenue | W-4 | | 0.55% | 0.55% | 0.55% | 0.55% |
| Depreciation & Amortization % Of Revenue | W-5 | | 4.09% | 4.09% | 4.09% | 4.09% |
| Capital Expenditure Growth Factor | W-6 | | 3.90% | 3.90% | 3.90% | 3.90% |
| Working Capital To Sales Ratio | W-7 | | -14.97% | -14.97% | -14.97% | -14.97% |

| | | |
|---|---|---|
| Income Tax Rate | 22% | |
| Assumed Long-term sustainable Growth Rate | 5% | Per Year After 2016 |
| Discount Rate | 12% | |

The asset-based valuation method for Honda Atlas Cars (Pakistan) Limited complements the earlier discounted cash flow (DCF) valuation and offers an alternative perspective grounded in the book value of net assets. This approach is particularly suitable for firms with significant tangible assets and less predictable or volatile earnings, such as those in capital-intensive manufacturing sectors. According to the data provided, as of March 31, 2012, the firm's total assets amount to Rs. 9,479.82 million, of which Rs. 4,850.62 million are non-current assets and Rs. 4,629.20 million are current assets. The breakdown of non-current assets includes major fixed assets such as property, plant, and equipment, which alone account for Rs. 3,255.76 million, representing the firm's significant investment in production capacity. Additionally, intangible assets and capital work-in-progress account for Rs. 56.37 million and Rs. 355.81 million, respectively. Deferred taxation, a non-cash asset typically arising from temporary timing differences in tax treatments, stands at Rs. 1,144.79 million, contributing significantly to the total asset base. This signals the potential tax shields available to the company in the future (Penman, 2013). On the liability side, current liabilities dominate at Rs. 8,251.51 million, primarily driven by trade and other payables totaling Rs. 8,102.68 million. This suggests a heavy reliance on supplier credit and operational debt financing. Long-term liabilities are comparatively modest, with only Rs. 83.33 million recorded, resulting in total liabilities of Rs. 8,334.84 million. Subtracting this figure from total assets gives a residual value, i.e., the net asset value, of Rs. 1,144.98 million. To arrive at the intrinsic value per share using this method, the residual market value of the business is divided by the total number of ordinary shares (142.8 million), resulting in a per-share value of Rs. 8.01. This is considerably lower than the Rs. 105.5 per share derived from the DCF model. The substantial discrepancy between these two valuation approaches is not uncommon. Asset-based valuations tend to underestimate the firm's value in situations where the company has intangible strengths such as brand reputation, growth potential, or operational efficiencies that are not reflected on the balance sheet (Damodaran, 2006). Furthermore, the various financial ratios computed as part of the model assumptions provide deeper insight into operational dynamics. For instance, the revenue growth factor, averaging 8.81% over four years, and the gross profit margin at only 0.09%, imply extremely tight margins, possibly due to intense competition or pricing pressure in the automotive sector. Similarly, the working capital to sales ratio is highly negative (-14.97%), which reveals aggressive working capital management or potentially strained liquidity. While the asset-based method gives a conservative estimate of the business's liquidation value, it underrepresents the firm's going-concern value, which is more accurately captured through the DCF model, especially when future cash flows are positive and stable. As highlighted in corporate valuation literature, combining multiple approaches—asset-based, income-based, and market-based—enhances the robustness and reliability of the valuation.

**Table 2**

| ASSET-BASED VALUATION METHOD | | | |
|---|---|---|---|
| Honda Atlas Cars (Pakistan) Limited | | | |
| Data for the period 31 March 2012 | | | |
| ASSETS | | | |
| Non-Current Assets | Rs. (000's) | Rs. (000's) | Rs. (000's) |
| Property, Plant & Equipment | | | 3,255,755 |
| Intangible Assets | | | 56,366 |
| Capital Work-in-Process | | | 355,812 |
| Long-term Loans & Advances | | | 33,855 |
| Long-term Deposits | | | 4,042 |
| Deferred Taxation | | | 1,144,790 |
| Total Non-Current Assets | | | 4,850,620 |
| Current Assets | | | |
| Stores and Spares | | 112,139 | |

| | | | | | |
|---|---|---|---|---|---|
| Stock-in-trade | | | 2,853,523 | | |
| Advancement, prepayments and other receivables | | | 1,581,062 | | |
| Cash and Bank balances | | | 82,477 | | |
| Total Current Assets | | | | 4,629,201 | |
| Total Assets | | | | 9479821 | |
| LIABILITIES | | | | | |
| Current Liabilities | | | | | |
| Current portion of long-term finance | | 83,334 | | | |
| Mark-Up Accrued on Borrowings | | 65,496 | | | |
| Trade and Other Payables | | 8,102,678 | | | |
| Total Current Liabilities | | | 8251508 | | |
| Long-term Liabilities | | | 83,333 | | |
| Total Liabilities | | | | 8334841 | |
| Total Market value of a Business | | | | 1144980 | |
| Total Number of Ordinary Shares | | | | 142800000 | |
| Price Per Share (W-10) | | | | Rs. 8.01 | |

Workings

W-1 Revenue Growth Factor

| | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|
| Revenue | 14149646 | 15854142 | 22026109 | 16,599,608 | |
| Revenue Growth Factor | | 12.04% | 38.99% | -24.60% | 8.81% |

W-2 Expected Gross Profit Margin

| | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|
| Gross Profit | 176502 | -239545 | 199310 | -43999 | |
| Gross Profit Margin | 1.25% | -1.51% | 0.90% | -0.27% | 0.09% |

W-3 Selling, Distribution and Administration Expenses Percentage of Revenue

| | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|
| Distribution and Marketing Cost | 190088 | 124916 | 139185 | 130,550 | |
| Administration Expenses | 139749 | 136131 | 171729 | 158,943 | |
| Other Expenses | 311025 | 64945 | 64,945 | 217,842 | |
| Total Expenses | 640862 | 325992 | 375,859 | 507335 | |
| % of Revenue | 4.52% | 2.05% | 1.68% | 3.05% | 2.83% |

W-4 Other Income Percentage of Revenue

| | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|
| Other Income | 64844 | 26323 | 83977 | 204,456 | |
| % of Revenue | 0.46% | 0.17% | 0.38% | 1.20% | 0.55% |

W-5 Depreciation Percentage of Revenue

| | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|
| Depreciation | 522267 | 756288 | 653734 | 638,345 | |
| Amortization | 39428 | 71038 | 38965 | 31,422 | |
| Depreciation & Amortization | 561695 | 827326 | 692699 | 669767 | |
| % of Revenue | 3.97% | 5.22% | 3.14% | 4.03% | 4.09% |

| W-6 Capital Expenditure Growth Factor | | | | | |
|---|---|---|---|---|---|
| | 2009 | 2010 | 2011 | 2012 | Average |
| Capital Expenditure | 160555 | 1944276 | 85623 | 42999 | |
| % of Revenue | 1.09% | 13.74% | 0.55% | 0.20% | 3.90% |
| | 2009 | 2010 | 2011 | 2012 | Average |
| Current Asset | 3929738 | 3511320 | 5663620 | 4,629,201 | |
| Current Liabilities | 5614243 | 5636805 | 8479567 | 8,251,508 | |
| Net Working Capital | -1684505 | -2125485 | -2815947 | -3622307 | |
| Working Capital To Sales Ratio | -11.90% | -13.40% | -12.78% | -21.80% | -14.97% |
| W-8 Corporation Tax | | | | | |
| | 2012 | 2013 | 2014 | 2015 | 2016 |
| Earnings Before Interest and Tax (EBIT) | (3,476,156) | (163,141) | (188,804) | (218,501) | (252,872) |
| Less Interest (Interest as a percentage of EBIT) | (151,926) | (267,551) | (309,639) | (358,342) | (414,710) |
| Taxable Income | (3,628,082) | (430,692) | (498,443) | (576,843) | (667,582) |
| Tax at Rate of 21.90% | 794,550 | 94,321 | 109,159 | 126,329 | 146,200 |
| W-9 Terminal Value | | | | | |
| Discount Rate | 12% | | | | |
| Sustainable growth Rate (Assumed) | 5% | | | | |
| Using constant growth model | CF(1+g)/K-g | 3965986(1+5%)/12%-5% | 5948971 | | |

## 6. CONCLUSION

After a comprehensive exploration of various business valuation methods, the Free Cash Flow (FCF) method emerges as the optimal approach for determining the value of a business. This conclusion is substantiated through a detailed analysis, particularly in the context of Honda Atlas Cars (Pakistan). Two distinct methods, the Free Cash Flow method and the Asset-Based method, were employed to calculate the value of Honda Atlas Cars (Pakistan). The detailed workings of both methods were presented, leading to a definitive conclusion that the Free Cash Flow method surpasses the Asset-Based method in terms of accuracy and reliability. Crucially, the Free Cash Flow method relies on forecasted future values derived from meticulous analysis of the previous year's financial data. This forward-looking perspective enhances its predictive power, providing a more realistic and dynamic valuation of the business. A noteworthy aspect reinforcing the superiority of the Free Cash Flow method is the alignment with the findings of numerous researchers in the field of business valuation. Consistent with prior studies, this research affirms that the Free Cash Flow method stands out as the most robust and effective approach. For shareholders, the implications of business valuation are profound. The decision-making process hinges on the calculated net value. A positive net value signals a favorable investment opportunity, while a negative net value advises caution. In the case of Honda Atlas Cars (Pakistan), both the Free Cash Flow and Asset-Based approaches yield positive values. However, the Discounted Cash Flow (DCF) calculation, a refinement of the Free Cash Flow method, yields a higher value compared to the Asset-Based approach. Consequently, shareholders are advised to base their decisions on the Discounted Cash Flow method, leveraging its nuanced evaluation of future cash flows and the time value of money. In conclusion, business valuation, particularly when applied to Honda Atlas Cars (Pakistan), underscores the pivotal role of the Free Cash Flow method. Its ability to provide a forward-looking, nuanced valuation, supported by consensus among researchers, positions it as the method of choice for shareholders seeking informed investment decisions.

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