FREE CASH FLOW VALUATION MODEL IN CAPITAL BUDGETING

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Abstract: Modern performance measures should provide an accurate assessment of the intrinsic value of the company, as well as the value for the owners (shareholders). The essence is maximizing the immanent or guaranteed value of the company. Free cash flow is a starting point for many valuation ratios, including discounted cash flow, price to cash flow (or its inverse, the free cash flow yield). The Discounted Cash Flow (DCF) valuation reflects the ability of the company to generate cash in future. In knowledge economy the main goal of acompany should be directed generating the value for the firm and owners. This implicated the rising importance of free cash flow methodologies that enable investors to efficiently value the companies. The aim of this paper is to present practical approach towards the discounted cash flow of the company (free cash flow to the firm and free cash flow to equity) as valuation method.

Key words: Project Valuation, Discounted Cash Flow, Free Cash Flow to the Firm, Free Cash Flow to Equity, Capital Budgeting

1. INTRODUCTION

Discounted cash flow methodology assumes that the present range of values of the firm as of the valuation date is equal to the present value of future cash flows to the firm shareholders. Due to the limitation of the period of the financial projections the value of the firm is a sum of two factors: 1. present value of cash flows (sum of the present value of dividends that the company may afford to pay out to shareholders and/or additional capital injections made by the shareholders) and 2.terminal (residual) value of the firm, which is the discounted value of the firm resulting from cash flows generated by the firm after the projections period. Predictions are usually made for the next five to fifteen years. The goal of this paper is to introduce the reader to the method of company valuation using discounted cash flows, often referred to as discounted cash flow. The discounted cash flow method is a standard procedure in modern finance and it is therefore very important to thoroughly understand how the method works and what its limitations and their implications are. The process of valuing a company with the discounted cash flowmethod contains different stages. In the first stage scenarios are developed to predict future free cash flows for the next five to ten years. Afterwards, an appropriate discount rate, the weighted average cost of capital (WACC) has to be determined to discount all future cash flows to calculate their net present values. In the next step the terminal value has to be identified. The terminal value is the net present value of all future cash flows that accrue after the time period that is covered by the scenario analysis. In the last step the net present values of the cash flows are summed up with the terminal value.There are two ways of using cash flows for the discounted cash flow valuation. You can either use the free cash flow to the firm which is the cash flow that is available to debt and equity holders, or you can use the free cash flow to equity which is the cash flow that is available to the company's equity holders only.

2. FREE CASH FLOW AS VALUATION METHOD

Discounted cash flow (Steiger, 2008) is a direct valuation technique that values a company by projecting its future cash flows and then using the net present value method to

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value those cash flows. The net present value is simply a mathematical technique for translating each of these projected annual cash flow amounts into today-equivalent amounts so that each year's projected cash flows can be summed up in comparable, current amounts. The mentioned method of assessment is supported by the following requirements (Weiss &Majkuthova, 2006):

- there are no transaction costs and no segmentation of the market,
- the market subjects have homogeneous expectations,
- information is free of charge,
- the costs of own, loan and overall capital are known,
- the tax rate, costs of loan capital and the entrepreneurial risks are constant,
- the costs of own capital are determined by the capital structure.

In corporate finance, free cash flowor free cash flow to the firm, is a way of looking at a business's cash flow to see what is available for distribution among all the securities holders of a corporate entity. This may be useful to parties such as equity holders, debt holders, preferred stock holders, and convertible security holders when they want to see how much cash can be extracted from a company without causing issues to its operations. The point about the free cash flow calculationis it represents the amount of cash left over after all essential deductions have been made. Companies then have a choice about how free cash flow is spent. It can be paid to shareholders in the form of dividends, used for acquisitions, used for share buy-backs, and used for straightforward "organic" capital investment in the business, or simply retained. How a company spends its free cash flow can be revealing about its view of future events. If it fears a recession, it may build cash; if it believes the economy will be strong, it may institute a share buy-back or make a big acquisition.It is characteristic for discounted cash flow methods that the value of an enterprise is determined by discounting future cash flows.

All discounted cash flow models ultimately boil down to estimating four inputs:

- cash flows from existing assets,
- anexpected growth rate in such cash flows,
- a terminal value (i.e., when a firm has reached stable growth),
- a discount rate.

The concept of free cash flow can best be explained as a firm-wide application of the net present value rule to value a project. Essentially a firm is an evolving bundle of projects that commence and cease at different points in time. If we have an individual project we can easily apply the net present value rule. This usually involves discounting the future cash flows of a project to obtain their present value and then subtracting the cost of an initial outlay or investment (It) from this present value. The discounted cash flow analysis is one of the most widely used and accepted methods for calculating the intrinsic value of the firm.After having determined the net present value of the cash flowsaccruing within the scenario period and the terminal value, the terminal value is discounted to its net present value whether the valuation is based on free cash flow to the firm (FCFF) or free cash flow to equity (FCFE).

Free cash flow to the firm (FCFF) is the cash flow available to the firm's suppliers of capital after all operating expenses have been paid and necessary investments in working capital and fixed capital have been made. The firm's suppliers of capital include common stockholders, bondholders, and, sometimes, preferred stockholders. The FCFF is the cash flow to all holders of capital in the firm, i.e., the equity holders and the bond holders. To calculate FCFF, differing equations may be used depending on what accounting information is available.

Free cash flow to equity is the amount of cash flow that accrues to equity shareholders after all the operating, growth, expansion and even financing costs of the firm have been met. Since this is the amount which is expected to be paid to equity shareholders, the value of equity shares can be directly calculated using these values. The free cash flow to equity is the cash flow that is left over after meeting all reinvestment needs and making debt payments. So, this cash flow could be paid out as dividends, and therefore will yield a more realistic value of the firm. Free cash flow (Schweser, 2008, p. 197-198) actually has two popular definitions:

- FCFF: EBIT x (1-Tax rate) + Depreciation&Amortization +/- Working Capital Changes - Capital expenditures (Investments);
- FCFE: Net Income + Depreciation&Amortization +/- Working Capital Changes - Capital Expenditures +/- Inflows/Outflows from Debt.

So, free cash flow is further sub divided into two categories:

- FCFF: It is the cash flow available to the providers of capital after all operating expenses, taxes, working capital and capital investments are made;
- FCFE: It is the cash flow available to the equity owners, calculated by subtracting taxes, reinvestment needs and debt cash flow.

Free cash flow to the firm can be expressed (Bešlić, Bešlić&Rupić, 2014) in two ways:

- The direct method is based on the data from the Cash Flow Statement,
- The indirect method is based on the data from theIncome Statementand the Balance Sheet.

I The direct way of expression free cash flow to the firm (using OCF to determine FCFF)

FCFF = OCF (Operating Cash Flow)
Less: Capital Expenditure or CAPEX;

Or you can write the equation as:
FCFF = OCF - Inv(FC).

Where is:
Inv(FC) - Investment in Fixed Capital.

The formula used is valid, provided that the joint stock company does not have long-term liabilities, that is, debts (interest = 0). Then the invested capital is equal to equity capital, that is, the following is valid equity: Return on Invested Capital (ROIC) = Return on Equity (ROE).

To estimate free cash flow to the firm by starting with Cash Flow from Operations (CFO), we must recognize the treatment of interest paid. If, as the case with U.S. GAAP, the after-tax interest was taken out of Net Income (NI) and out of CFO, after-tax interest must be added back in order to get FCFF. So, free cash flow to the firm, calculated from CFO, is:

FCFF = Cash Flow from Operations
Plus: Interest Expense times x (1 - Tax rate)
Less: Investment in Fixed Capital;

Or you can write the equation as:
FCFF = CFO + Int x (1 - Tax rate) - Inv(FC).

In foreign literature, certain business cash flow (OCF) authors use and the abbreviation CFO (Cash Flow from Operations). The Operating Cash Flow (OCF) is as follows:

OCF = NI + NCC -Inv(WC);

Where are:
NI – Net Income,
NCC – Non-Cash Charges,
Inv(WC) – Investment in Working Capital.

So, the relation is:

FCFF = (NI + NCC - Inv(WC)) - Inv(FC).

This formula is valid provided that the joint stock company does not have long-term liabilities (liabilities), that is, interest = 0.

II The indirect way of expression free cash flow to the firm (using Net Income to determine FCFF)

Free Cash Flow to the Firm (FCFF) is the cash flow available to the firm's suppliers of capital after all operating expenses (including taxes) have been paid and operating investments have been made. The firm's suppliers of capital include creditors and bondholders and common stockholders (and occasionally preferred stockholders that we will ignore until later).

If a joint stock company acquires capital by issuing shares and long-term debt,in this case, the invested capital of the joint stock company, besides own capital, includes long-term liabilities (liabilities), and free cash flow to the firm is expressed as follows:

FCFF = Net Income

Plus: Depreciation/Amortization
Less: Change in Working Capital
Less: Capital Expenditure or CAPEX;

Or you can write the equation as:

FCFF = NI + Depreciation/Amortization - Change in Working Capital - Inv(FC).

Also, FCFF = Net Income available to common shareholders
Plus: Net Non-Cash Charges
Plus: Interest Expense times x (1 - Tax rate)
Less: Investment in Fixed Capital
Less: Investment in Working Capital.

This equation can be written more compactly as:

FCFF = NI + NCC + Int x (1 - Tax rate) - Inv(FC) - Inv(WC).

The value of the firm is the present value of the expected future free cash flow to the firm discounted at the weighted average cost of capital (WACC). The basic equation for discounted cash flow(Mielcarz&Mlinarič, 2014) is as follows:

Firm Value = $\sum_{t=0}^{n} \frac{FCFFt}{(1+r)n} + \frac{TVn}{(1+r)n}$;

Where are:
FCFF – Free Cash Flowto the Firm for Period of 1,2,3, … , n,
r – Discount rate (WACC),
TV – Terminal Value.

The cost of capital is the required rate of return that investors should demand for a cash flow stream like that generated by the firm. The cost of capital is often considered the opportunity cost of the suppliers of capital. If the suppliers of capital are creditors and stockholders, the required rates of return for debt and equity are the after-tax required rates of return for the firm under current market conditions. The weights that are used are the proportions of the total market value of the firm that are from each source, debt and equity:

r_a=WACC (Weighted Average Cost of Capital) = r_{equity} x (Equity/(Debt + Equity)) + r_{debt} x (1-Tax rate) x (Debt/(Debt + Equity)).

Where are:
r_a= WACC (Weighted Average Cost of Capitalof an unlevered firm or the cost of capital representing the business risk of the firm),
r_{equity} – Cost of Equity (Expected Return on Shares – ROE),
r_{debt} – Cost of Debt: Interest rate on Borrowings,
Debt – Market Value of Debt,
Equity– Market Value of Equity.

The terminal value is the value of the company beyond the forecast period. To forecast the long term future cash flows after the projection period is practically not possible. Therefore we calculate the terminal value under the going concern assumption using two methodologies mentioned below:

- Gordon growth perpetuity model: It is the growing perpetuity method and assumes that business will continue to grow and earn more than its cost. Nominal GDP growth rate of the country can be taken as a proxy for sustainable growth rate. Discounting free cash flow to the Firm at the WACC gives the total value of all of the firm's capital. The value of the firm if free cash flow to the firm is growing at a constant rate is: Firm Value = FCFFx(1+g)/(WACC-g);
- Exit multiple: This approach is applied when the business is valued on market multiple basis. Usually, value is determined based on EBIT (Earnings Before Interest and Taxes) or EBITDA(Earnings Before Interest, Taxes, Depreciation and Amortization) multiples. A normalized multiple is used which is the industry multiple adjusted for cyclical variations.

The purpose of calculating free cash flow to the firm is to estimate the value of the firm, by discounting forecasted free cash flow to the firm by the average cost of capital (debt and equity).

The value of the firm is the present value of the expected future free cash flow to the firm discounted at the weighted average cost of capital (WACC):

Firm Value = FCFF discounted at the WACC;

The nominal weighted average cost of capital (Nominal WACC) is determined (Copeland &Dolgoff, 2005, p. 297) as follows:

1 + Nominal WACC = (1 + Real WACC) x (1 + Inflation rate); i.e.,
Nominal WACC = (1 + Real WACC) x (1 + Inflation rate) - 1.

In the case of a constant increase in free cash flow, the value of the firm between two periods is determined through the expression:

Firm Value = $FCFF_1/(WACC - g) = (FCFF_0 x(1 + g))/(WACC - g)$;

Where are:
$FCFF_1$ – Expected Free Cash Flow to the Firm in One Year,
$FCFF_0$ – Starting Level of Free Cash Flow to the Firm,
g – Constant Expected Growth Rate in Free Cash Flow,
WACC – Weighted Average Cost of Capital.

The value of the equity is the present value of the expected future FCFE discounted at the required rate of return on equity (r):

Equity Value = FCFE discounted at the required rate of return on equity (ROE);

The cost of equity is calculated with the help of the capital asset pricing model (CAPM). The CAPM (Steiger, 2008) reveals the return that investors require for bearing the risk of holding a company's share. This required return is the return on equity that investors demand to bear the risk of holding the company's share, and is therefore equivalent to the company's cost of equity.

In order to determine the value of the firm (Van Horne &Wachowicz, 2007, p. 381), we first have to calculate the cost of equity (r_{equity}) using the CAPM model of valuation:

$r_{equity} = r_f + \beta x(r_m - r_f)$;

Where are:
r_{equity}– Cost of Equity Capital (Expected Return on the Shares - ROE),
β – Levered Beta, a measure of Systematic Risk,
r_m– Expected Return on the Market Portfolio,
r_f– Risk-free Interest rate on Government Bills,
(r_m-r_f) – Market Risk Premium,
$\beta (r_m-r_f)$ – Expected Risk Premium.

FCFE in any period will be equal to FCFE in the preceding period times (1 + g): $FCFE_t = FCFE_{t-1}x(1 + g)$. The Value of Equity if FCFE is growing at a constant rate is:

Equity Value = $FCFE_1/(r - g) = (FCFE_0 x(1 + g))/(r - g)$;

Where are:
$FCFE_1$ – Expected Free Cash Flow to Equity in One Year,
$FCFE_0$ – Starting Level of Free Cash Flow to Equity,
g – Constant Expected Growth Rate in Free Cash Flow,
r – Cost of Equity (Expected Return on the Shares – ROE).

The overall process of value management is called value-based management (Hejazi &Oskouei, 2007, p. 23). Value based management (VBM) requires benchmarking creating value in relation to competition. It must be connected with strategic business plans, business and investment decisions. All this has an impact on the creation of the value of the company and the value for shareholders (owners).

3. USING FREE CASH FLOW IN CAPITAL BUDGETING

"Smart investors" are interested for business companies which "produce" a satisfactory free cash flow, which is determined on the basis of information provided by the following financial reports: Balance Sheet, Income Statement and Cash Flow Statement. If the company has a positive free cash flow, it is able to pays interest, pays dividends, redeems shares, and achieves business growth. Insufficient free cash flow (FCF) can force a company to more borrows in order to be liquid and in able to maintain the continuity of the business. So, free cash flow is used for business, financial and the investment activity of a company (Stančić, 2005, p. 145):

- purchase of business property,
- payment of dividends,

- loan repayment,
- purchase of own shares,
- to be reserved for future development opportunities etc.

Discounted cash flow methodology assumes that the present range of values of the company as of the valuation date is equal to the present value of future cash flows to the company shareholders. Discounted cash-flows within the projections period this is the sum of the normalized cash flows multiplied by the cumulative discount factor for each year of the financial projection period. Due to the limitation of the period of the financial projections the value of the firm is a sum of two factors (Janiszewski, 2011, p. 82):

- The present value of cash flows (sum of the present value of dividends that the company may afford to pay out to shareholders and/or additional capital injections made by the shareholders);
- Terminal (residual) value of the company, which is the discounted value of the company resulting from cash flows generated by the company after the projections period.

The cash flows are derived from financial projections compiled in accordance with assumptions.

Table 1: Assumptions for Example

Inputs	
Earnings before Interest and Taxes =	5,000 RSD
Expected Growth for the Next Five Years =	10%
Expected Growth after Year 5 =	5%
Tax Rate =	15%
Debt Ratio for the Firm =	30%
Cost of Equity =	12%
Pre Tax Cost of Debt =	8%
Return on Capital in Stable Growth=	12%

Source: Authors

Free cash flows to the firm are the cash flows that are available to all providers of the company's capital, both creditors and shareholders, after covering capital expenditures and working capital needs. A methodology of free cash flow to the firmcalculation is presented in Table 2. According to the analysis of financial reports, there is a projection of the free cash flow to the firm in the next five years.

Table 2: Projection Free Cash Flow to the Firm *in RSD*

	0	**1**	**2**	**3**	**4**	**5**	**Terminal Year**
Expected Growth rate		10%	10%	10%	10%	10%	5%
Reinvestment rate		83.33%	83.33%	83.33%	83.33%	83.33%	41.7%
EBIT	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50	8,052.55	8,455.18
Taxes (T)		825.00	907.50	998.25	1,098.08	1,207.88	1,268.28
EBIT x (1-T)		4,675.00	5,142.50	5,656.75	6,222.43	6,844.67	7,186.90
- Reinvestment		3,895.83	4,285.42	4,713.96	5,185.35	5,703.89	2,994.54
FCFF		779.17	857.08	942.79	1,037.07	1,140.78	4,192.36
Terminal Value						77,065.42	
Present Value FCFF		705.51	702.70	699.90	697.11	47,600.24	
Firm Value	50,405.47						
Equity Value	35,283.83						
Value of Debt	15,121.64						

Source: Authors' calculation

All sources of capital, including common stock, preferred stock,bonds and any other long-term debt, are included in a weighted average cost of capital(WACC) calculation. To calculate WACC, multiply the cost of each capital component by its proportional weight and take the sum of the results. The method for calculating WACC can be expressed in the following formula:

$WACC = w_d \times (r_d \times (1\text{-Tax rate})) + w_e \times r_e$;

Where are:
W_d ,W_e – Weightings of Sources Financing,
W_d – Percentage of Financing that is Debt (w_d= Value of the Firm's Debt/Total Value of the Firm's Financing (Equity and Debt)),
W_e – Percentage of Financing that is Equity (w_e = Value of the Firm's Equity/Total Value of the Firm's Financing (Equity and Debt)),
r_d x (1-Tax rate) – After Tax Cost of Debt,
r_e – Cost of Equity .

In our example, WACC computed using a 70% Equity and 30% Debt ratio:

WACC = ((0.70 x Cost of Equity (0.12) + 0.30 x After-tax Cost of Debt (0.068)) x 100% = 10.44%;
Firm Value = $FCFF_t/\sum_{t=1}^{4}(1 + WACC)^t$+ $(FCFF_5 + FCFF_{Terminal\ Year}) / (1 + WACC)^5$;
Firm Value = 50,405.47 RSD.

Taking into account a 30% share of debt in total value at each stage of the project, it is possible to calculate the implied market value of debt at time 0: 50,405.47 x 0.30 = 15,121.64 RSD. Market value of equity at time 0 is: 50,405.47 x 0.70 = 35,283.83 RSD.

Table 3: Calculating Weighted Average Cost of Capitalbased on Market Value of Equity and Debt

Capital Structure		0.30 x 54,888.63	0.30 x 59,761.92	0.30 x 65,058.28	0.30 x 70,813.29	0.30 x 77,065.42	**Debt at End of Year** (23,119.63 x (1+0.05)
Debt at End of Year	15,121.64	16,466.59	17,928.58	19,517.48	21,243.99	23,119.63	24,275.61
Cost of Equity		12.00%	12.00%	12.00%	12.00%	12.00%	12.00%
Pre-tax Cost of Debt		8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
After-tax Cost of Debt (0.08x(1 - 0.15)x100%		6.80%	6.80%	6.80%	6.80%	6.80%	6.80%
Weighted Average Cost of Capital (WACC)		10.44%	10.44%	10.44%	10.44%	10.44%	10.44%

Source: Authors' calculation

The growth rate of an economy reflects the contributions of both: young, higher-growth firms and mature, stable growth firms. Stable growth firms tend to reinvest less than high growth firms and it is critical that we both capture the effects of lower growth on reinvestment and that we ensure that the firm reinvests enough to sustain its stable growth rate in the terminal phase.
Reinvestment rate in stable growth = Expected Stable Growth rate/ROC; (Damodaran, 2002)

Where the ROC is the return on capital that the firm can sustain in stable growth.This reinvestment rate can then be used to generate the free cash flow to the firm in the first year of stable growth. If the return on capital is higher than the cost of capital in the stable growth period, increasing the stable growth rate will increase value. If the return on capital is equal to the cost of capital, increasing the stable growth rate will have no effect on value.

Reinvestment rate = 0.10/0.12x100% = 83.3333% (the same for first year).

The share of reinvestment of 83.33% means that 83.33% of the realized profit the company can use it for the purchase of new real estate, plant and equipment. Reinvestment may be part of the realized profit or the total amount. The larger the part realized profit for reinvestment will also have a higher growth rate (g). In the long term, the reinvestment of realized profits into new investments can result in a trend of increasing profits of the company and dividends.

Reinvestment rate in Terminal Year = 0.05/0.12 x100% = 41.6666%.

Reinvestment = EBIT x (1 - Tax rate) x Reinvestment rate; (Damodaran, 2002)
Terminal (residual) value of the company is the discounted value of cash flows generated by the company after the projections period. If we assume that free cash flows, beyond the terminal year, will grow at a constant rate forever, the terminal value can be estimated as:

Terminal Value = $FCFF_{\text{Terminal Year}}$ /(WACC - Expected Growth after Year 5).

Weighted average cost of capital (WACC) is a calculation of a firm'scost of capital in which each category of capital is proportionately weighted(Lončar, Barjaktarović&Pindžo, 2015).

The free cash flows to equity technique, in turn, presents only free cash flow gained by the owners. Free cash flows to equity are the cash flows leftover after meeting all financial obligations, including debt payments and after covering capital expenditures and working capital needs. A methodology of free cash flows to equity calculation is presented in Table 4. According to the analysis of financial reports, there is a projection of the free cash flow to equity in the next five years.

Table 4: Projection Free Cash Flow to Equity *in RSD*

	0	1	2	3	4	5	Terminal Year
EBIT	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50	8,052.55	8,455.18
Interest Expense		1,209.73	1,317.33	1,434.29	1,561.40	1,699.52	1,849.57
EBT		4,290.27	4,732.67	5,220.71	5,759.10	6,353.03	6,605.61
Taxes		643.54	709.90	783.11	863.87	952.95	990.84
Net Income		3,646.73	4,022.77	4,437.61	4,895.24	5,400.08	5,614.77
- Reinvestment		3,895.83	4,285.42	4,713.96	5,185.35	5,703.89	2,994.54
+ New Debt Issued		1,344.95	1,461.99	1,588.91	1,726.50	1,875.64	1,155.98
FCFE		1,095.84	1,199.34	1,312.55	1,436.39	1,571.83	3,776.21
Terminal Value of Equity						53,945.79	
Present Value FCFE		978.43	956.11	934.25	912.85	31,502.19	
Value of Equity	35,283.83						

Source: Authors' calculation

In a free cash flow to equity model, where we are focusing on net income growth, the expected growth rate is a function of the equity reinvestment rate and the return on equity. If we are valuing the equity, the terminal value of equity can be written as:

Terminal Value of Equity = $FCFE_{\text{Terminal Year}}$ /(Cost of Equity - Expected Growth after Year 5);
Equity Value=$FCFF_t/\sum_{t=1}^{4}(1 + \text{Cost of Equity})^t + (FCFF_5 + FCFF_{\text{TerminalYear}})/(1 + \text{Cost of Equity})^5$;

Equity Value = 35,283.83 RSD.

4. CONCLUSION

The main advantage of cash flow from operations is that tells you exactly how much cash a firm generated from operating activities during a period. Starting with net income, it adds back noncash items like depreciation&amortization and captures

changes from working capital. We should not rely solely on accrual based accounting either – and must always have a handle on cash flows: Since accrual accounting depends on management's judgment and estimates, the income statement is very sensitive to earnings manipulation and shenanigans. The benefits of cash flow from operations are that it is objective. It is harder to manipulate cash flow from operations than accounting profits (although not impossible since firms still have some leeway in whether they classify certain items investing, financing, or operating activities, thereby opening the door for messing with cash flow from operations).

Discounted cash flow is used by investment bankers, internal corporate finance and business development professionals, and academics. The discounted cash flow method values the company on basis of the net present value of its future free cash flows which are discounted by an appropriate discount rate. Free cash flow to the firm adjusts cash flow from operations to exclude any cash outflows from interest expense, ignores the tax benefit of interest expense, and subtracts capital expenditures from cash flow from operations. This is the cash flow figure that is used to calculate cash flows in discounted cash flow. In this way it is possible to develop different scenarios of the company's business. The advantage over cash flow from operations is that it accounts for required investments in the business like capital expenditure or CAPEX (which cash flow from operations ignores) and it also takes the perspective of all providers of capital instead of just equity owners. In other words, it identifies how much cash the firm can distribute to providers of capital, regardless of the firm's capital structure. The free cash flow to the equity is the cash flow to all holders of capital in the firm, i.e., the equity holders and the bond holders.Free cash flow to equity is the cash flow available to the firm's common equity holders after all operating expenses, interest and principal payments have been paid, and necessary investments in working and fixed capital have been made. Free cash flow to the equity is the cash flow from operations minus capital expenditures minus payments to (and plus receipts from) debt holders. Done consistently, the free cash flow to equity and the free cash flow to the firm should give the same value for equity. In this paper, we have used the free cash flow to equity valuation model and the free cash flow to the firm valuation model.

To conclude, as it is quite evident that discounted cash flow is a very powerful tool to determine the intrinsic value of the company, however the accuracy of the value determined is highly dependent on the quality of the inputs used. Therefore discounted cash flow should be used only when there is a high degree of confidence to forecast cash flows otherwise a small change in a component could lead to big change in the intrinsic value.

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