Chapter 6: Business Valuation (Income Approach)

Cash flow determination is one of the most critical elements to a theater valuation. If cash flow is high, then the value is high; if the cash flow is low, then the value is low. However, many sellers have the false illusion that a buyer will pay more than what the cash flows indicate in theater value.

Introduction

The best known methodologies in the income approach to valuing the equity of a firm are the *dividend growth model* and the *discounted cash flow* model. While many look at the dividend growth model for publicly traded companies, few look at the 'free cash flows' to the company or to the equity holders. Most privately held companies pay no dividends. This chapter covers the three most commonly used free cash flow models for valuing privately held companies and focuses on the debt free cash flow models for illustration.

Three of the most used valuation techniques are:

(1) Valuing the cash flow to the invested capital (debt + equity), or free cash flow to the firm (FCFF);

(2) Valuing the cash flow of the equity holders, or free cash flows to equity (FCFE);

(3) Valuing the debt free cash flow. Most Typical Cash Flow Models

A summary of the most typical cash flow models used for closely held businesses can be seen in Table 6-1 on page 126.

An illustration of the use of the discounted free cash flow to the firm model will be applied to our subject theater. The resulting value can be compared with the other valuation methods explored in Chapter 4 (Adjusted Book Approach) and Chapter 5 (Market Approach).

Table 6-1: Summary of Typically Used Cash Flow Models

Value Needed	Cash Flow Used	Discount Rate	When to Use
Free Cash Flow of Equity (FCFE)	EBIT(1-t) -Interest Expense(1-t) -Principal Repaid +New Debt issued -Preferred Dividends +Depreciation & Amortization -Capital Expenditures -Change in Working Capital	Discount Rate is R_e (return on equity).	Good for companies growing at or below that of the economy.
Free Cash Flow of Firm (FCFF) or Cash Flow to Invested Capital	EBIT(1-t) +Depreciation & Amortization -Capital Expenditures -Change in Working Capital	Discount rate r_w (weighted average cost of capital: tax affected).	Good for highly leveraged or cyclical firms.
EBITDA	EBITDA	Discount rate is pretax cost of capital.	Good for highly leveraged or cyclical firms where capital expenditures and working capital cannot be calculated.

Free Cash Flow to Equity Model (valuing the equity)

Direct Capitalization

Free Cash Flow to Equity (FCFE) can be inflated/deflated by reducing or increasing capital expenditures as compared to depreciation. This model is sensitive to growth rate assumptions. The growth rate of earnings, revenue, depreciation and capital expenditures need to be similar to the growth of the economy. Overall, the model is good for companies growing at or below that of the economy.

Discounted Cash Flow

FCFE in a discounted cash flow can also be inflated/deflated by reducing or increasing capital expenditures as compared to depreciation. The model is also sensitive to growth rate assumptions. Growth rates need to be similar to the growth of the economy (usually Gross Domestic Product growth), as well as depreciation and capital expenditures.

Overall, this model is good for companies growing at or below that of the economy. This calculation better tracks the solvency of a firm by continually adjusting for leverage. In addition, capital expenditures will differ from depreciation depending upon where a firm is in the growth cycle. High growth should have higher capital expenditures, relative to depreciation, and stable companies

should have similar depreciation and capital expenditures. Mature companies will have smaller capital expenditures relative to depreciation. Assumptions about the future selling value (*terminal value*) are needed.

Direct Capitalization

Free Cash Flow to the Firm Model (valuing the company)

Free Cash Flow to the Firm (FCFF) can also be inflated/deflated by reducing or increasing capital expenditures as compared to depreciation. The model is sensitive to growth rate assumptions and the growth rates need to be similar to the growth of economy. Depreciation and capital expenditure growth rates need to also be similar to that of the growth in the economy. In summary, to arrive at the equity of the firm, subtract the total *mark to market* value of debt (short term portion plus long term debt-See Table 6-11 on page 150 for an example) from the business enterprise value (total invested capital). Notice in Table 6-11 that $925,672 ($868,548 plus $57,124) is subtracted from the value of the firm to arrive at the value of equity.

Discounted Cash Flow

FCFF for a discounted cash flow is similar to that of a direct capitalization calculation. This model is good for highly leveraged or cyclical firms. The capital expenditures will differ from depreciation depending upon where a firm is in the growth cycle. The high growth firm will have higher capital expenditures, relative to depreciation. Stable companies should have similar depreciation and capital expenditures, and mature companies will have smaller capital expenditures relative to depreciation. Finally, the assumptions about the future selling value as well as changes in working capital need to be identified

EBITDA Model

For a direct capitalization, this model assumes no capital expenditures and no working capital. The growth rate needs to be similar to the growth of the economy. To arrive at the equity of the firm, subtract the total *mark to market* value of debt from the total enterprise value. For a discounted cash flow, additional assumptions about the future selling value need to be identified. This model is useful for highly leveraged or cyclical companies where capital expenditures and working capital cannot be quantified.

Problems with Models

One of the problems with these three models, and for discounted cash flow models in general, is that they are all sensitive to the assumptions made about growth rates and capital expenditures.

Relationship between Discount and Capitalization Rates

Having looked at the models described in Table 6-1 on page 126, it is important to understand how capitalizing income leads to a value conclusion. Capitalization is a technique used to convert an estimate of a single year's income expected into a value, in one step. Generally, the value of the business

can be calculated by one of two ways: (1) a discounted cash flow (Equation 6-7 on page 129); or, (2) a direct capitalization of the firm's cash flow, or weighted average cash flow of the previous 3-5 years (Equation 6-10 on page 129). As will be shown, the capitalization is a derivation of the discount rate.

Capitalization

Capitalization is defined as the conversion of income into value. This method is most appropriate for smaller businesses and can be seen in Equation 6-1.

$$Value = \frac{CF_t}{i} \quad \textbf{(EQ 6-1)}$$

where

CF = next year's cash flow

i = capitalization rate

t = time

Example of Capitalization:

For example, assuming that the FCFF is $500,000, and the long term capitalization rate for the firm is 23%, the business enterprise or invested capital value (debt + equity) is $2,173,913 ($500,000/0.23). Assuming that the total long and short term debt is $1,000,000, then the value of the equity component is $1,173,913. Theoretically, the capitalization rate plus the growth rate equals the discount rate (see "Growth Rates" on page 140).

When providing a valuation, the choice needs to be made as to whether to use one year's *normalized cash flow*[1] to establish a value, or to use a number of successive (next year's) cash flows. If cash flow has stabilized, then only one year's normalized cash flow is used and a direct capitalization method is executed.

Equation 6-2 through Equation 6-4 show the basic formula for capitalizing a cash flow (e.g., EBITDA) to a value indicator for a business. If you have two of the variables seen in the following three equations, then you can calculate the third variable. This calculation is important to understand when you want to know what the return on equity would be for a given cash flow or sale price.

$$\text{Value} = \frac{\text{Cash flow}}{\text{Capitalization rate}} \quad \textbf{(EQ 6-2)}$$

$$\text{Capitalization rate} = \frac{\text{Cash flow}}{\text{Value}} \quad \textbf{(EQ 6-3)}$$

$$\text{Capitalization rate} \times \text{Value} = \text{Cash flow} \quad \textbf{(EQ 6-4)}$$

1. Normalized means after you have made adjustments for nonrecurring items, and so on (See See "Adjustments for Extraordinary and Nonrecurring Items" on page 82).

Discounted Cash Flow

A discounted cash flow is a multi-year, or period, calculation of value. Its basic formula can be seen in Equation 6-5.

$$Value = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \ldots + \frac{CF_\infty}{(1+k)^\infty} \quad \textbf{(EQ 6-5)}$$

$$Value = \sum_{n=1}^{\infty} \frac{CF_n}{(1+k)^n} \quad \textbf{(EQ 6-6)}$$

or

$$Value = \sum_{n=1}^{t} \frac{CF_n}{(1+k)^n} + \frac{TV_t}{(1+k)^t} \quad \textbf{(EQ 6-7)}$$

where

CF	= cash flow
k	= discount rate
n	= time periods, time = 1 to t
t	= time
TV	= terminal value

Basically, the cash flows of the business, designated as *CF* for each time period (n) are added together and discounted. The terminal value (TV) is the value which the business is assumed to be sold at in the future, discounted at the discount rate (k), for (n) years or time periods.

Equity discount rates usually incorporate either the growth rate (g) of a company's earnings or the long term rate of inflation, depending upon the type of discount rate (k) which is calculated. In the long term few companies or equity returns grow faster than the rate of inflation. The discount rate (k) many times equals the capitalization rate plus the growth rate. This can be seen in Equation 6-8 and Equation 6-9.

$$\text{Capitalization rate} = k - \text{g (growth rate)} \quad \textbf{(EQ 6-8)}$$

$$\text{Discount rate (k)} = \text{capitalization rate} + g \quad \textbf{(EQ 6-9)}$$

$$Value = \frac{CF_0(1+g)}{(k-g)} = \frac{\text{Next years cash flow}}{\text{Capitalization rate}} \quad \textbf{(EQ 6-10)}$$

Example:

If the growth rate is 5% and the discount rate is 25%, then the capitalization rate would be 20%. If the growth rate is negative 10% (obsolete industry, which is contracting) and the discount rate is 25%, then the capitalization rate is 35%. Finally, if the growth rate is 0%, and the discount rate is 25%, then the