**Which approach should you use?**

The values that you obtain from the four approaches described above can be very different and deciding which one to use can be a critical step. This judgment, however, will depend upon several factors, some of which relate to the business being valued but many of which relate to you, as the analyst.

***Asset or Business Characteristics***

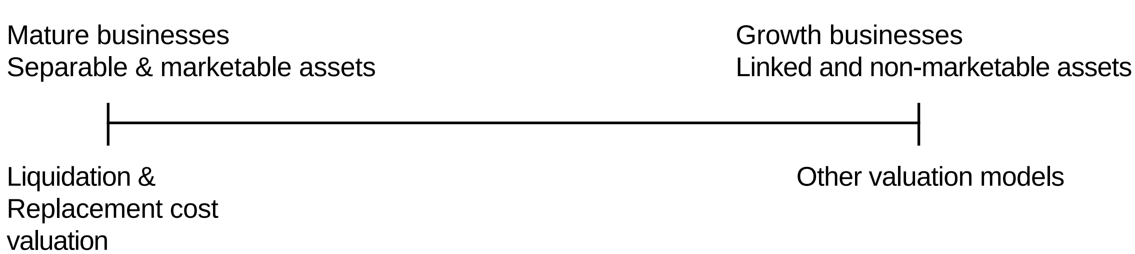
The approach that you use to value a business will depend upon how marketable its assets are, whether it generates cash flows and how unique it is in terms of its operations.

*Marketability of Assets*

Liquidation valuation and replacement cost valuation are easiest to do for firms that have assets that are separable and marketable. For instance, you can estimate the liquidation value for a real estate company because its properties can be sold individually and you can estimate the value of each property easily. The same can be said about a closed end mutual fund. At the other extreme, consider a brand name consumer product like Gillette. Its assets are not only intangible but difficult to separate out. For instance, you cannot separate the razor business easily from the shaving cream business and brand name value is inherent in both businesses.

You can also use this same analysis to see why the liquidation or replacement cost value of a high growth business may bear little resemblance to true value. Unlike assets in place, growth assets cannot be easily identified or sold.

*Figure 35.2: Asset Marketability and Valuation Approaches*

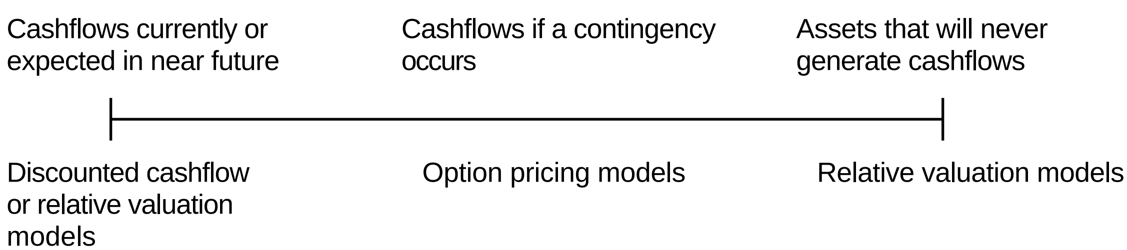



*Cash Flow Generating Capacity*

You can categorize assets into three groups based upon their capacity to generate cash flows – assets that are either generating cash flows currently or are expected to do so in the near future, assets that are not generating cash flows currently but could in the future in the event of a contingency and assets that will never generate cash flows.

- The first group includes most publicly traded companies and these firms can be valued using discounted cash flow models. Note that we do not draw a distinction between negative and positive cash flows and young, start-up companies that generate negative cash flow can still be valued using discounted cash flow models.
- The second group includes assets such as drug patents, promising (but not viable) technology, undeveloped oil or mining reserves and undeveloped land. These assets may generate no cash flows currently and could generate large cash flows in the future but only under certain conditions – if the FDA approves the drug patent, if the technology becomes commercially viable, if oil prices and commercial property values go up. While you could estimate expected values using discounted cash flow models by assigning probabilities to these events, you will understate the value of the assets if you do so. You should value these assets using option pricing models.
- Assets that are never expected to generate cash flows include your primary residence, a baseball card collection or fine art. These assets can only be valued using relative valuation models.

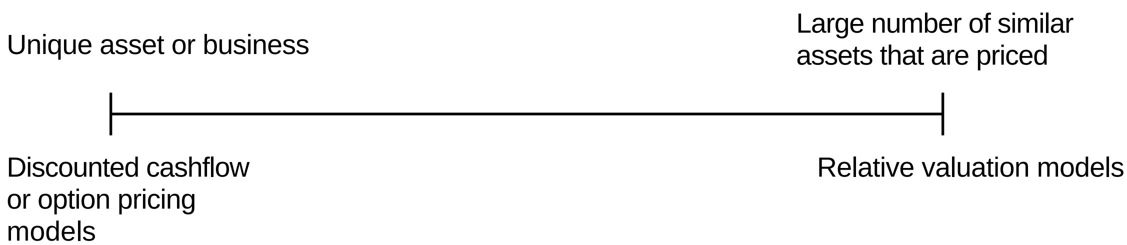
*Figure 35.3: Cash Flows and Valuation Approaches*




*Uniqueness (or presence of comparables)*

In a market where thousands of stocks are traded and tens of thousands of assets are bought and sold every day, it may be difficult to visualize an asset or business that is so unique that you cannot find comparable assets. On a continuum, though, some assets and businesses are part of a large group of similar assets, with no or very small differences across the assets. These assets are tailor-made for relative valuation, since assembling comparable assets (businesses) and controlling for differences is simple. The further you move from this ideal, the less reliable is relative valuation. For businesses that are truly unique, discounted cash flow valuation will yield much better estimates of value.

*Figure 35.4: Uniqueness of Asset and Valuation Approaches*



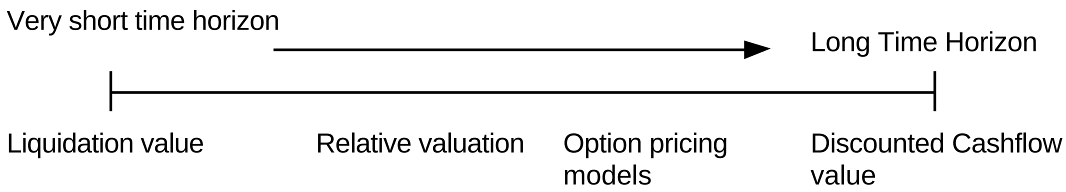

***Analyst Characteristics and Beliefs***

The valuation approach that you choose to use will depend upon your time horizon, the reason that you are doing the valuation in the first place and what you think about markets – whether they are efficient and if they are not, what form the inefficiency takes.

*Time Horizon*

At one extreme, in discounted cash flow valuation you consider a firm as a going concern that may last into perpetuity. At the other extreme, with liquidation valuation, you are estimating value on the assumption that the firm will cease operations today. With relative valuation and contingent claim valuation, you take an intermediate position between the two. Not surprisingly, then, you should be using discounted cash flow valuation, if you have a long time horizon, and relative valuation, if you have a shorter time horizon. This may explain why discounted cash flow valuation is more prevalent in valuing a firm for an acquisition and relative valuation is more common in equity research and portfolio management.

*Figure 35.5 Investor Time Horizon and Valuation Approaches*




*Reason for doing the valuation*

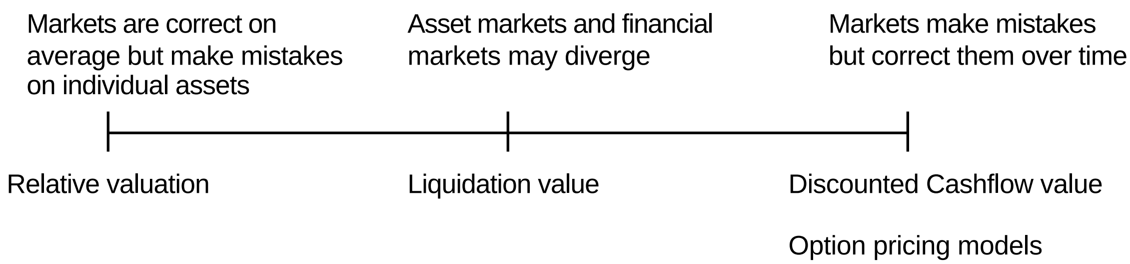
Analysts value businesses for a number of reasons and the valuation approach used will vary depending upon the reason. If you are an equity research analyst following steel companies, your job description is simple. You are asked to find the most under and over valued companies in the sector and not to take a stand on whether the sector overall is under or over valued. You can see why multiples would be your weapon of choice when valuing companies. This effect is likely to be exaggerated if the way you are judged and rewarded is on a relative basis, i.e., your recommendations are compared to those made by other steel company analysts. If you are an individual investor setting money aside for retirement or a private businessperson valuing a business for purchase, on the other hand, you want to estimate intrinsic value. Consequently, discounted cash flow valuation is likely to be more appropriate for your needs.

*Figure 35.6: Market Neutrality and Valuation Approaches*


*Beliefs about Markets*

Embedded in each approach are assumptions about markets and how they work or fail to work. With discounted cash flow valuation, you are assuming that market prices deviate from intrinsic value but that they correct themselves over long periods. With relative valuation, you are assuming that markets are on average right and that while individual firms in a sector or market may be mispriced, the sector or overall market is fairly priced. With asset-based valuation models, you are assuming that the markets for real and financial assets can deviate and that you can take advantage of these differences. Finally, with option pricing models, you are assuming that markets are not very efficient at assessing the value of flexibility that firms have and that option pricing models will therefore give you an advantage. In each and every one of these cases, though, you are assuming that markets will eventually recognize their mistakes and correct them.

*Figure 35.7: Views on market and Valuation Approaches*




**Bridging the Philosophical Divide**

Philosophically, there is a big gap between discounted cash flow valuation and relative valuation. In discounted cash flow valuation, we take a long term perspective, evaluate a firm's fundamentals in detail and try to estimate a firm's intrinsic value. In relative valuation, we assume that the market is right on average and estimate the value of a firm by looking at how similar firms are priced. There is something of value in both approaches and it would be useful if we could borrow the best features of relative valuation while doing discounted cash flow valuation or vice versa.

Assume that your instincts lead you to discounted cash flow valuation, but that you are expected, as an analyst, to be market neutral. You can stay market neutral in a discounted cash flow framework, if you use the implied risk premium for the market (which we described in Chapter 7) to estimate the cost of equity for the valuation. You can also bring in information about comparable firm margins and betas, when estimating fundamentals for your firm. Your estimate of intrinsic value will then be market-neutral and include information about comparables.

Alternatively, assume that you prefer relative valuation. Your analysis can carry the rigor of a discounted cash flow valuation, if you can bring in the details of the fundamentals into your comparisons. We attempted to do this in the chapters on relative valuation by noting the link between multiples and fundamentals and also by examining how best to control for these differences in our analysis.

**Choosing the Right Discounted Cash flow Model**

The model used in valuation should be tailored to match the characteristics of the asset being valued. The unfortunate truth is that the reverse is often true. Time and resources are wasted trying to make assets fit a pre-specified valuation model, either because it is considered to be the 'best' model or because not enough thought goes into the process of model choice. There is no one 'best' model. The appropriate model to use in a particular setting will depend upon a number of the characteristics of the asset or firm being valued.

***Choosing a cashflow to discount***

With consistent assumptions about growth and leverage, you should get the same value for your equity using the firm approach (where you value the firm and subtract outstanding debt) and the equity approach (where you value equity directly). If this is the case, you might wonder why you would pick one approach over the other. The answer is purely pragmatic. For firms that have stable leverage, i.e., they have debt ratios that are not expected to change during the period of the valuation, there is little to choose between the models in terms of the inputs needed for valuation. You use a debt ratio to estimate free cashflows to equity in the equity valuation model and to estimate the cost of capital in the firm valuation model. Under these circumstances, you should stay with the model that you are more intuitively comfortable with.

For firms that have unstable leverage, i.e., they have too much or too little debt and want to move towards their optimal or target debt ratio during the period of the valuation, the firm valuation approach is much simpler to use because it does not require cashflow projections from interest and principal payments and is much less sensitive to errors in estimating leverage changes. The calculation of the cost of capital requires an estimate of the debt ratio, but the cost of capital itself does not change as much as a consequence of changing leverage as the cost of equity. If you prefer to work with assumptions about dollar debt rather than debt ratios, you can switch to the adjusted present value approach.

In valuing equity, you can discount dividends or free cashflows to equity. You should consider using the dividend discount model under the following circumstances.

- You cannot estimate cashflows with any degree of precision either because you have insufficient or contradictory information about debt payments and reinvestments or because you have trouble defining what comprises debt. This was our rationale for using dividend discount models for valuing financial service firms.
- There are significant restrictions on stock buybacks and other forms of cash return, and you have little or no control over what the management of a firm does with the cash. In this case, the only cashflows you can expect to get from your equity investment are the dividends that managers choose to pay out.

In all other cases, you will get much more realistic estimates of a firm's value using the free cashflow to equity, which may be greater than or lower than the dividend.

***Should you use current or normalized earnings?***

In most valuations, we begin with the current financial statements of the firm and use the reported earnings in those statements as the base for projections. There are some firms, though, where you may not be able to do this, either because the firm's earnings are negative or because these earnings are abnormally high or low - a firm's earnings are abnormal if they do not fit in with the firm's own history of earnings.

When earnings are negative or abnormal, you can sometimes replace current earnings with a normalized value, estimated by looking at the company's history or industry averages and value the firm based upon these normalized earnings. This is the easiest route to follow if the causes for the negative or abnormal earnings are temporary or transitory, as in the following cases.

(a) A cyclical firm will generally report depressed earnings during an economic downturn and high earnings during an economic boom. Neither may capture properly the true earnings potential of the firm.

(b) A firm may report abnormally low earnings in a period during which it takes an extraordinary charge.

(c) A firm in the process of restructuring may report low earnings during the restructuring period, as the changes made to improve firm performance are put into effect.
The presumption here is that earnings will quickly bounce back to normal levels and that little will be lost by assuming that it will occur immediately.

For some firms, though, the negative or low earnings may reflect factors that are unlikely to disappear quickly. There are at least three groups of firms where the negative earnings are likely to be a long term phenomena and may even threaten the firm's survival.

a. Firms with *long term operating, strategic or financial problems* can have extended periods of negative or low earnings. If you replace current earnings with normalized earnings and value these firms, you will over value them.

- If a firm seems to be in a hopeless state, and likely to go bankrupt, the only models that are likely to provide meaningful measures of value are the option pricing model (if financial leverage is high) or a model based upon liquidation value.
- If on the other hand, the firm is troubled but unlikely to go bankrupt, you will have to nurse it back to financial health. In practical terms, you will have to adjust the operating margins over time to healthier levels and value the firm based upon its expected cash flows.

b. An *infrastructure firm* may report negative earnings in its initial periods of growth, not because it is unhealthy but because the investments it has made take time to pay off. The cashflows to the firm and equity are often also negative, because the capital expenditure needs for this type of firm tend to be disproportionately large relative to depreciation. For these firms to have value, capital expenditure has to drop once the infrastructure investments have been made and operating margins have to improve. The net result will be positive cashflows in future years and a value for the firm today.

c. *Young start-up companies* often report negative earnings early in their life cycles, as they concentrate on turning interesting ideas into commercial products. To value such companies, you have to assume a combination of high revenue growth and improving operating margins over time.

***Growth Patterns***

In general, when valuing a firm, you can assume that your firm is already in stable growth, assume a period of constant high growth and then drop the growth rate to stable growth (two-stage growth) or allow for a transition phase to get to stable growth (3-stage or n-stage models). There are several factors you should consider in making this judgment.

*a. Growth Momentum*

The choice of growth pattern will influence the level of current growth in earnings and revenues. You can categorize firms, based upon growth in recent periods, into three groups.

(a) Stable growth firms report earnings and revenues growing at or below the nominal growth rate in the economy that they operate in.

(b) Moderate growth firms report earnings and revenues growing at a rate moderately higher than the nominal growth rate in the economy – as a rule of thumb, we would consider any growth rate within 8-10% of the growth rate of the economy as a moderate growth rate.

(c) High growth firms report earnings and revenues growing at a rate much higher than the nominal growth rate in the economy.

For firms growing at the stable rate, the steady state models that assume constant growth provide good estimates of value. For firms growing at a 'moderate' rate, the two-stage discounted cashflow model should provide enough flexibility in terms of capturing changes in the underlying characteristics of the firm, while a three-stage or n-stage model may be needed to capture the longer transitions to stable growth that are inherent in 'high' growth rate firms.

*b. Source of growth (Barriers to entry)*

The higher expected growth for a firm can come from either 'general' competitive advantages acquired over time such as a brand name or reduced costs of production (from economies of scale) or 'specific' advantages that are the result of legal barriers to entry – such as licenses or product patents. The former are likely to erode over time as new competitors enter the market place, while the latter are more likely to disappear abruptly when the legal barrier to entry are removed. The expected growth rate for a firm that has specific sources of growth is likely to follow the two-stage process where growth is high for a certain period (for instance, the period of the patent) and drops abruptly to a stable rate after that. The expected growth rate for a firm that has 'general' sources of growth is more likely to decline gradually over time, as new competitors come in. The speed with which this competitive advantage is expected is a function of several factors, including:

a. *The nature of the competitive advantage*: Some competitive advantages, such as brand name in consumer products – seem to be more difficult to overcome and consequently are likely to generate growth for longer periods. Other competitive advantages, such as a first-mover advantage, seem to erode much faster.

*b. Competence of the firm's management* - More competent management will be able to slow, though not stop, the loss of competitive advantage over time by creating strategies that find new markets to exploit the firm's current competitive advantage and new sources of competitive advantage.

*c. Ease of entry into the firm's business* -- The greater the barriers to industry in entering the firm's business, either because of capital requirements or technological factors, the slower will be the loss of competitive advantage.

These factors are summarized and presented in the Figure 35.8, with the appropriate discounted cashflow model highlighted for each combination of the factors.

**Status Quo versus Optimal Management**

In the chapters on valuing acquisitions and troubled firms, we noted that the value of a firm can be substantially higher if you assume that it is optimally run than if it is run by incumbent management. A question that you are often faced with in valuation is whether you should value the firm with incumbent management or with the optimal management. The answer is simple in some cases and complicated in others.

- If you are interested in acquiring the firm and intend to change the management, you should value the firm with the optimal management policies in place. Whether you will pay that amount in the acquisition will depend upon your bargaining power and how long you think it will take you change the way the firm is run.
- If you are a small investor looking at buying stock in the firm, you cannot change incumbent management yourself but you can still pay a premium if you believe that

there is a possibility of change. If there are strong mechanisms for corporate governance – hostile takeovers are common and poor managers get replaced quickly – you can assume that the value will quickly converge on the optimal value. If, on the other hand, it is difficult to dislodge incumbent management, you should value the firm based upon their continue stewardship of the firm.

- If you are an institutional investor, you fall between these two extremes. While you may not intend to take over the firm and change the way it is run, you could play a role in making this change happen.