
INTRODUCTION TO VALUATION

Every asset, financial as well as real, has a value. The key to successfully investing in and managing these assets lies in understanding not only what the value is but also the sources of the value. Any asset can be valued, but some assets are easier to value than others and the details of valuation will vary from case to case. Thus, the valuation of a share of a real estate property will require different information and follow a different format than the valuation of a publicly traded stock. What is surprising, however, is not the differences in valuation techniques across assets, but the degree of similarity in basic principles. There is undeniably uncertainty associated with valuation. Often that uncertainty comes from the asset being valued, though the valuation model may add to that uncertainty.

This chapter lays out a philosophical basis for valuation, together with a discussion of how valuation is or can be used in a variety of frameworks, from portfolio management to corporate finance.

A philosophical basis for valuation

It was Oscar Wilde who described a cynic as one who “knows the price of everything, but the value of nothing”. He could very well have been describing some equity research analysts and many investors, a surprising number of whom subscribe to the 'bigger fool' theory of investing, which argues that the value of an asset is irrelevant as long as there is a 'bigger fool' willing to buy the asset from them. While this may provide a basis for some profits, it is a dangerous game to play, since there is no guarantee that such an investor will still be around when the time to sell comes.

A postulate of sound investing is that an investor does not pay more for an asset than its worth. This statement may seem logical and obvious, but it is forgotten and rediscovered at some time in every generation and in every market. There are those who are disingenuous enough to argue that value is in the eyes of the beholder, and that any price can be justified if there are other investors willing to pay that price. That is patently absurd. Perceptions may be all that matter when the asset is a painting or a sculpture, but investors do not (and should not) buy most assets for aesthetic or emotional reasons;

financial assets are acquired for the cashflows expected on them. Consequently, perceptions of value have to be backed up by reality, which implies that the price paid for any asset should reflect the cashflows that it is expected to generate. The models of valuation described in this book attempt to relate value to the level and expected growth in these cashflows.

There are many areas in valuation where there is room for disagreement, including how to estimate true value and how long it will take for prices to adjust to true value. But there is one point on which there can be no disagreement. Asset prices cannot be justified by merely using the argument that there will be other investors around willing to pay a higher price in the future.

Generalities about Valuation

Like all analytical disciplines, valuation has developed its own set of myths over time. This section examines and debunks some of these myths.

Myth 1: Since valuation models are quantitative, valuation is objective

Valuation is neither the science that some of its proponents make it out to be nor the objective search for the true value that idealists would like it to become. The models that we use in valuation may be quantitative, but the inputs leave plenty of room for subjective judgments. Thus, the final value that we obtain from these models is colored by the bias that we bring into the process. In fact, in many valuations, the price gets set first and the valuation follows.

The obvious solution is to eliminate all bias before starting on a valuation, but this is easier said than done. Given the exposure we have to external information, analyses and opinions about a firm, it is unlikely that we embark on most valuations without some bias. There are two ways of reducing the bias in the process. The first is to avoid taking strong public positions on the value of a firm before the valuation is complete. In far too many cases, the decision on whether a firm is under or over valued precedes the actual

valuation¹, leading to seriously biased analyses. The second is to minimize the stake we have in whether the firm is under or over valued, prior to the valuation.

Institutional concerns also play a role in determining the extent of bias in valuation. For instance, it is an acknowledged fact that equity research analysts are more likely to issue buy rather than sell recommendations,² i.e., that they are more likely to find firms to be undervalued than overvalued. This can be traced partly to the difficulties they face in obtaining access and collecting information on firms that they have issued sell recommendations and to the pressure that they face from portfolio managers, some of whom might have large positions in the stock. In recent years, this trend has been exacerbated by the pressure on equity research analysts to deliver investment banking business.

When using a valuation done by a third party, the biases of the analyst(s) doing the valuation should be considered before decisions are made on its basis. For instance, a self-valuation done by a target firm in a takeover is likely to be positively biased. While this does not make the valuation worthless, it suggests that the analysis should be viewed with skepticism.

The Biases in Equity Research

The lines between equity research and salesmanship blur most in periods that are characterized by “irrational exuberance”. In the late 1990s, the extraordinary surge of market values in the companies that comprised the new economy saw a large number of equity research analysts, especially on the sell side, step out of their roles as analysts and become cheerleaders for these stocks. While these analysts might have been well meaning in their recommendations, the fact that the investment banks that they worked for were leading the charge on new initial public offerings from these firms exposed them to charges of bias and worse.

¹This is most visible in takeovers, where the decision to acquire a firm often seems to precede the valuation of the firm. It should come as no surprise, therefore, that the analysis almost invariably supports the decision.

²In most years, buy recommendations outnumber sell recommendations by a margin of ten to one. In recent years, this trend has become even stronger.

In 2001, the crash in the market values of new economy stocks and the anguished cries of investors who had lost wealth in the crash created a firestorm of controversy. There were congressional hearing where legislators demanded to know what analysts knew about the companies they recommended and when they knew it, statements from the SEC about the need for impartiality in equity research and decisions taken by some investment banking to create at least the appearance of objectivity. At the time this book went to press, both Merrill Lynch and CSFB had decided that their equity research analysts could no longer hold stock in companies that they covered. Unfortunately, the real source of bias – the intermingling of investment banking business and investment advice – was left untouched.

Should there be government regulation of equity research? We do not believe that it would be wise, since regulation tends to be heavy handed and creates side costs that seem to quickly exceed the benefits. A much more effective response can be delivered by portfolio managers and investors. The equity research of firms that create the potential for bias should be discounted or, in egregious cases, even ignored.

Myth 2: A well-researched and well-done valuation is timeless

The value obtained from any valuation model is affected by firm-specific as well as market-wide information. As a consequence, the value will change as new information is revealed. Given the constant flow of information into financial markets, a valuation done on a firm ages quickly, and has to be updated to reflect current information. This information may be specific to the firm, affect an entire sector or alter expectations for all firms in the market. The most common example of firm-specific information is an earnings report that contains news not only about a firm's performance in the most recent time period but, more importantly, about the business model that the firm has adopted. The dramatic drop in value of many new economy stocks from 1999 to 2001 can be traced, at least partially, to the realization that these firms had business models that could deliver customers but not earnings, even in the long term. In some cases, new information can affect the valuations of all firms in a sector. Thus, pharmaceutical companies that were valued highly in early 1992, on the assumption that the high growth from the eighties would continue into the future, were valued much less in early 1993, as the prospects of

health reform and price controls dimmed future prospects. With the benefit of hindsight, the valuations of these companies (and the analyst recommendations) made in 1992 can be criticized, but they were reasonable, given the information available at that time. Finally, information about the state of the economy and the level of interest rates affect all valuations in an economy. A weakening in the economy can lead to a reassessment of growth rates across the board, though the effect on earnings are likely to be largest at cyclical firms. Similarly, an increase in interest rates will affect all investments, though to varying degrees.

When analysts change their valuations, they will undoubtedly be asked to justify them. In some cases, the fact that valuations change over time is viewed as a problem. The best response may be the one that Lord Keynes gave when he was criticized for changing his position on a major economic issue: “When the facts change, I change my mind. And what do you do, sir?”

Myth 3.: A good valuation provides a precise estimate of value

Even at the end of the most careful and detailed valuation, there will be uncertainty about the final numbers, colored as they are by the assumptions that we make about the future of the company and the economy. It is unrealistic to expect or demand absolute certainty in valuation, since cash flows and discount rates are estimated with error. This also means that you have to give yourself a reasonable margin for error in making recommendations on the basis of valuations.

The degree of precision in valuations is likely to vary widely across investments. The valuation of a large and mature company, with a long financial history, will usually be much more precise than the valuation of a young company, in a sector that is in turmoil. If this company happens to operate in an emerging market, with additional disagreement about the future of the market thrown into the mix, the uncertainty is magnified. Later in this book, we will argue that the difficulties associated with valuation can be related to where a firm is in the life cycle. Mature firms tend to be easier to value than growth firms, and young start-up companies are more difficult to value than companies with established products and markets. The problems are not with the valuation models we use, though, but with the difficulties we run into in making estimates for the future.

Many investors and analysts use the uncertainty about the future or the absence of information to justify not doing full-fledged valuations. In reality, though, the payoff to valuation is greatest in these firms.

Myth 4: .The more quantitative a model, the better the valuation

It may seem obvious that making a model more complete and complex should yield better valuations, but it is not necessarily so. As models become more complex, the number of inputs needed to value a firm increases, bringing with it the potential for input errors. These problems are compounded when models become so complex that they become 'black boxes' where analysts feed in numbers into one end and valuations emerge from the other. All too often the blame gets attached to the model rather than the analyst when a valuation fails. The refrain becomes "It was not my fault. The model did it."

There are three points we will emphasize in this book on all valuation. The first is the principle of parsimony, which essentially states that you do not use more inputs than you absolutely need to value an asset. The second is that there is a trade off between the benefits of building in more detail and the estimation costs (and error) with providing the detail. The third is that the models don't value companies: you do. In a world where the problem that we often face in valuations is not too little information but too much, separating the information that matters from the information that does not is almost as important as the valuation models and techniques that you use to value a firm.

Myth 5: To make money on valuation, you have to assume that markets are inefficient

Implicit often in the act of valuation is the assumption that markets make mistakes and that we can find these mistakes, often using information that tens of thousands of other investors can access. Thus, the argument, that those who believe that markets are inefficient should spend their time and resources on valuation whereas those who believe that markets are efficient should take the market price as the best estimate of value, seems to be reasonable.

This statement, though, does not reflect the internal contradictions in both positions. Those who believe that markets are efficient may still feel that valuation has something to contribute, especially when they are called upon to value the effect of a change in the way a firm is run or to understand why market prices change over time.

Furthermore, it is not clear how markets would become efficient in the first place, if investors did not attempt to find under and over valued stocks and trade on these valuations. In other words, a pre-condition for market efficiency seems to be the existence of millions of investors who believe that markets are not.

On the other hand, those who believe that markets make mistakes and buy or sell stocks on that basis ultimately must believe that markets will correct these mistakes, i.e. become efficient, because that is how they make their money. This is a fairly self-serving definition of inefficiency – markets are inefficient until you take a large position in the stock that you believe to be mispriced but they become efficient after you take the position.

We approach the issue of market efficiency as wary skeptics. On the one hand, we believe that markets make mistakes but, on the other, finding these mistakes requires a combination of skill and luck. This view of markets leads us to the following conclusions. First, if something looks too good to be true – a stock looks obviously under valued or over valued – it is probably not true. Second, when the value from an analysis is significantly different from the market price, we start off with the presumption that the market is correct and we have to convince ourselves that this is not the case before we conclude that something is over or under valued. This higher standard may lead us to be more cautious in following through on valuations. Given the historic difficulty of beating the market, this is not an undesirable outcome.

Myth 6: The product of valuation (i.e., the value) is what matters; The process of valuation is not important.

As valuation models are introduced in this book, there is the risk of focusing exclusively on the outcome, i.e., the value of the company, and whether it is under or over valued, and missing some valuable insights that can be obtained from the process of the valuation. The process can tell us a great deal about the determinants of value and help us answer some fundamental questions -- What is the appropriate price to pay for high growth? What is a brand name worth? How important is it to improve returns on projects? What is the effect of profit margins on value? Since the process is so

informative, even those who believe that markets are efficient (and that the market price is therefore the best estimate of value) should be able to find some use for valuation models.

The Role of Valuation

Valuation is useful in a wide range of tasks. The role it plays, however, is different in different arenas. The following section lays out the relevance of valuation in portfolio management, acquisition analysis and corporate finance.

1. Valuation and Portfolio Management

The role that valuation plays in portfolio management is determined in large part by the investment philosophy of the investor. Valuation plays a minimal role in portfolio management for a passive investor, whereas it plays a larger role for an active investor. Even among active investors, the nature and the role of valuation is different for different types of active investment. Market timers use valuation much less than investors who pick stocks, and the focus is on market valuation rather than on firm-specific valuation. Among security selectors, valuation plays a central role in portfolio management for fundamental analysts and a peripheral role for technical analysts.

The following sub-section describes, in broad terms, different investment philosophies and the role played by valuation in each.

1. Fundamental Analysts: The underlying theme in fundamental analysis is that the true value of the firm can be related to its financial characteristics -- its growth prospects, risk profile and cashflows. Any deviation from this true value is a sign that a stock is under or overvalued. It is a long term investment strategy, and the assumptions underlying it are:

- (a) the relationship between value and the underlying financial factors can be measured.
- (b) the relationship is stable over time.
- (c) deviations from the relationship are corrected in a reasonable time period.

Valuation is the central focus in fundamental analysis. Some analysts use discounted cashflow models to value firms, while others use multiples such as the price-earnings and price-book value ratios. Since investors using this approach hold a large number of 'undervalued' stocks in their portfolios, their hope is that, on average, these portfolios will do better than the market.

2. *Franchise Buyer*: The philosophy of a franchise buyer is best expressed by an investor who has been very successful at it -- Warren Buffett. "We try to stick to businesses we believe we understand," Mr. Buffett writes³. "That means they must be relatively simple and stable in character. If a business is complex and subject to constant change, we're not smart enough to predict future cash flows." Franchise buyers concentrate on a few businesses they understand well, and attempt to acquire undervalued firms. Often, as in the case of Mr. Buffett, franchise buyers wield influence on the management of these firms and can change financial and investment policy. As a long term strategy, the underlying assumptions are that :

- (a) Investors who understand a business well are in a better position to value it correctly.
- (b) These undervalued businesses can be acquired without driving the price above the true value.

Valuation plays a key role in this philosophy, since franchise buyers are attracted to a particular business because they believe it is undervalued. They are also interested in how much additional value they can create by restructuring the business and running it right.

3. *Chartists*: Chartists believe that prices are driven as much by investor psychology as by any underlying financial variables. The information available from trading -- price movements, trading volume, short sales, etc. -- gives an indication of investor psychology and future price movements. The assumptions here are that prices move in predictable patterns, that there are not enough marginal investors taking advantage of these patterns to eliminate them, and that the average investor in the market is driven more by emotion rather than by rational analysis.

While valuation does not play much of a role in charting, there are ways in which an enterprising chartist can incorporate it into analysis. For instance, valuation can be used to determine support and resistance lines⁴ on price charts.

³This is extracted from Mr. Buffett's letter to stockholders in Berkshire Hathaway for 1993.

⁴On a chart, the support line usually refers to a lower bound below which prices are unlikely to move and the resistance line refers to the upper bound above which prices are unlikely to venture. While these levels are usually estimated using past prices, the range

4. Information Traders: Prices move on information about the firm. Information traders attempt to trade in advance of new information or shortly after it is revealed to financial markets, buying on good news and selling on bad. The underlying assumption is that these traders can anticipate information announcements and gauge the market reaction to them better than the average investor in the market.

For an information trader, the focus is on the relationship between information and changes in value, rather than on value, per se. Thus an information trader may buy an 'overvalued' firm if he believes that the next information announcement is going to cause the price to go up, because it contains better than expected news. If there is a relationship between how undervalued or overvalued a company is and how its stock price reacts to new information, then valuation could play a role in investing for an information trader.

5. Market Timers: Market timers note, with some legitimacy, that the payoff to calling turns in markets is much greater than the returns from stock picking. They argue that it is easier to predict market movements than to select stocks and that these predictions can be based upon factors that are observable.

While valuation of individual stocks may not be of any use to a market timer, market timing strategies can use valuation in at least two ways:

- (a) The overall market itself can be valued and compared to the current level.
- (b) A valuation model can be used to value all stocks, and the results from the cross-section can be used to determine whether the market is over or under valued. For example, as the number of stocks that are overvalued, using the dividend discount model, increases relative to the number that are undervalued, there may be reason to believe that the market is overvalued.

6. Efficient Marketeters: Efficient marketeters believe that the market price at any point in time represents the best estimate of the true value of the firm, and that any attempt to exploit perceived market efficiencies will cost more than it will make in excess profits. They assume that markets aggregate information quickly and accurately, that marginal

of values obtained from a valuation model can be used to determine these levels, i.e., the maximum value will become the resistance level and the minimum value will become the support line.

investors promptly exploit any inefficiencies and that any inefficiencies in the market are caused by friction, such as transactions costs, and cannot be arbitrated away.

For efficient marketers, valuation is a useful exercise to determine why a stock sells for the price that it does. Since the underlying assumption is that the market price is the best estimate of the true value of the company, the objective becomes determining what assumptions about growth and risk are implied in this market price, rather than on finding under or over valued firms.

2. Valuation in Acquisition Analysis

Valuation should play a central part of acquisition analysis. The bidding firm or individual has to decide on a fair value for the target firm before making a bid, and the target firm has to determine a reasonable value for itself before deciding to accept or reject the offer.

There are also special factors to consider in takeover valuation. First, the effects of synergy on the combined value of the two firms (target plus bidding firm) have to be considered before a decision is made on the bid. Those who suggest that synergy is impossible to value and should not be considered in quantitative terms are wrong. Second, the effects on value, of changing management and restructuring the target firm, will have to be taken into account in deciding on a fair price. This is of particular concern in hostile takeovers.

Finally, there is a significant problem with bias in takeover valuations. Target firms may be over-optimistic in estimating value, especially when the takeover is hostile, and they are trying to convince their stockholders that the offer price is too low. Similarly, if the bidding firm has decided, for strategic reasons, to do an acquisition, there may be strong pressure on the analyst to come up with an estimate of value that backs up the acquisition.

3. Valuation in Corporate Finance

If the objective in corporate finance is the maximization of firm value⁵, the relationship among financial decisions, corporate strategy and firm value has to be

⁵Most corporate financial theory is constructed on this premise.

delineated. In recent years, management consulting firms have started offered companies advice on how to increase value⁶. Their suggestions have often provided the basis for the restructuring of these firms.

The value of a firm can be directly related to decisions that it makes -- on which projects it takes, on how it finances them and on its dividend policy. Understanding this relationship is key to making value-increasing decisions and to sensible financial restructuring.

Conclusion

Valuation plays a key role in many areas of finance -- in corporate finance, mergers and acquisitions and portfolio management. The models presented in this book will provide a range of tools that analysts in each of these areas will find useful, but the cautionary note sounded in this chapter bears repeating. Valuation is not an objective exercise; and any preconceptions and biases that an analyst brings to the process will find its way into the value.

⁶The motivation for this has been the fear of hostile takeovers. Companies have increasingly turned to 'value consultants' to tell them how to restructure, increase value and avoid being taken over.

Questions and Short Problems: Chapter 1

1. The value of an investment is
 - A. the present value of the cash flows on the investment
 - B. determined by investor perceptions about it
 - C. determined by demand and supply
 - D. often a subjective estimate, colored by the bias of the analyst
 - E. all of the above

2. There are many who claim that value is based upon investor perceptions, and perceptions alone, and that cash flows and earnings do not matter. This argument is flawed because
 - A. value is determined by earnings and cash flows, and investor perceptions do not matter.
 - B. perceptions do matter, but they can change. Value must be based upon something more stable.
 - C. investors are irrational. Therefore, their perceptions should not determine value.
 - D. value is determined by investor perceptions, but it is also determined by the underlying earnings and cash flows. Perceptions must be based upon reality.

3. You use a valuation model to arrive at a value of \$15 for a stock. The market price of the stock is \$25. The difference may be explained by
 - A. a market inefficiency; the market is overvaluing the stock.
 - B. the use of the wrong valuation model to value the stock.
 - C. errors in the inputs to the valuation model.
 - D. none of the above
 - E. either A, B, or C.