CHAPTER 1

What Is Intrinsic Value?

Intrinsic value is an elusive concept.

—Benjamin Graham[1]

Intrinsic value is an all-important concept that offers the only logical approach to evaluating the relative attractiveness of investments and businesses.

—Warren Buffett[2]

Valuation methods start with the goal of calculating intrinsic value, the *true* worth of a stock based on established financial information and clear forecasts about the business. Intrinsic value is, or should be, independent of market opinion and investor sentiment. The basic assumption is that over time the price of the stock will move toward its intrinsic value. This means that knowing the intrinsic value of a stock, if only approximately, provides a firm foundation for all investment decisions, whether to buy, to sell, or to do nothing. In this sense, value comes from putting together and comparing intrinsic value and price. However, as we will soon see, the idea and use of intrinsic value is not as straightforward as it first seems.

Intrinsic Value

The general idea is that the intrinsic value of a unit of stock in a publicly traded company is its *true* worth, which may be quite different from its market price. Over 70 years ago Benjamin Graham,

often referred to as the dean of Wall Street, gave the following description:

> [Intrinsic value] is understood to be that value which is justified by the facts, e.g., the assets, earnings, dividends, definite prospects, as distinct, let us say, from market quotations established by artificial manipulation or distorted by psychological excesses.[3]

Around the same time, John Burr Williams[4] wrote about the "real worth" of equities and emphasized that it could actually be calculated in a precise manner from data obtained from financial statements coupled with judicious forecasts. Williams' methods put particular emphasis on current dividends and forecasts of dividends. The result was the dividend discount method, which is described in Chapter 8.

Intrinsic Value

The theory of intrinsic value is that it is the *true* worth of a stock based on established financial information and clear forecasts about the business.

When someone starts to look at intrinsic value, often the first characteristic they notice is that there are many ways of calculating it, giving a wide range of results. The second problem is that, even if there is agreement on the method chosen to calculate intrinsic value, there is unlikely to be agreement on the levels of the input parameters in the calculations. This often leads to even wider variations in the calculations. *Sensitivity* is the size of the variation of the outcome compared to variations in the input. Some methods are very sensitive with just a few percentage points change in the inputs leading to twofold and higher variations in the output. Other models are more stable, meaning that the results do not vary much with changes in the input levels.

Just the same, by having an improved understanding of the assumptions and the parameters that go into the various calculations, we are in a stronger position to make better investment decisions. Without this understanding, we are vulnerable to many of the claims and statements by market participants and investment advisers. The

other good news is that all the methods for calculating intrinsic value have different strengths and weaknesses. For example, some may be suited for companies with consistent levels of dividends while others may be better suited to companies that do not pay dividends. Furthermore, all the methods have been developed to meet specific needs and applied to good effect at different times.

Whatever definition of intrinsic value of a company is used, the overall idea is that the financial data from the company's current and historical financial statements forms the basis of the calculations. In addition, the calculations usually include forecasts of this data as to what it will be in the future or how it will grow.

The basic assumption is that, over time, the price of a stock will move toward its intrinsic value. If the price is $20 and the intrinsic value is $30, then it would be a good time to buy since the price would be anticipated to rise toward $30. In the opposite direction, if the price is $30 and the intrinsic value is $20, then it is time to sell. Burton Malkiel refers to this as the firm-foundation theory of stock prices. He writes:

> The firm-foundation theory argues that each investment instrument, be it a common stock or a piece of real estate, has a firm anchor of something called "intrinsic value," which can be determined by careful analysis of present conditions and future prospects. When market prices fall below (rise above) this firm foundation of intrinsic value, a buying (selling) opportunity arises, because this fluctuation will eventually be corrected—or so the theory goes.[5]

Benjamin Graham was questioned about this tendency when he appeared before the Senate Banking Committee in 1955. When asked by J. William Fulbright, the committee chair, why stock prices move up to their intrinsic value, he replied, "That is one of the mysteries of our business, and it is a mystery to me as well as to everybody else. [But] we know from experience that the market catches up with value."[6] There is actually a second part to this assumption, namely that stocks that are more undervalued will initially rise in price more quickly than those that are less undervalued. In other words, they will have a higher rate of return. Importantly, the research on different valuation methods mentioned throughout the book generally supports the assumption of the firm-foundation theory.

The Basic Assumption of Intrinsic Value

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As we will see, it is not hard to develop and support calculations for the worth of a stock and to call the result intrinsic value . . . but is there really such a thing, whether in the stock market or anywhere else? Despite all the talk about intrinsic value, is it just a will-o'-the-wisp with no real substance and not worth trying to track down? Experts in many areas, not just theoretical finance, argue these questions with weighty articles and books.[7] To avoid being stuck in existential quicksand, we are going to take a pragmatic approach and skirt around the main philosophical problems.

The core argument against intrinsic value in the stock market is that if it existed and could be properly measured, then everyone would know what it is. Consequently no one would sell anything for a price less than the per-share intrinsic value and no one would pay more than this amount. There would be either no transactions or very few on any of the stock exchanges. One weakness of this argument is that perhaps intrinsic value exists for equities but the method for calculating it is so complex or abstruse that only a very small number of people can determine what it is. Even among those who can determine it, many may not bother.

We will take a down-to-earth approach in this book and look at intrinsic value in an operational sense. As a starting point, we define *intrinsic value* as any of the outcomes of the application of calculations that arrive directly at a dollar amount for the worth of a stock, where the calculations are based on defensible rational logic using two sets of inputs. The first set of inputs comes directly from the financial statements of the company and may include items such as equity and earnings per share. The levels of these input numbers are well defined and usually have a high degree of mutual agreement on their actual values. (But not always—we will see examples where there can be disagreement over some of the input figures based on such considerations as whether certain items should be expensed or capitalized. In the first case, the cost of the item is fully reported as an expense in the profit and loss statement; in the second case, only

the depreciation appears there.) The second set of inputs involves forecasts of key financial parameters such as dividends and earnings per share. Based on opinion, these are much more variable between individuals.

This is the *direct* approach to intrinsic value. The intrinsic value is obtained directly as a dollar amount. Examples are the book value or equity per share, described in Chapter 6; or the dividend discount method, described in Chapter 8, where the intrinsic value is the discounted value of the dividends generated by the business over its life.

There is a second approach to intrinsic value in which the intrinsic value is calculated indirectly. As an example, in Chapter 11, price ratio methods calculate the expected total average annual return of a stock from particular input financial parameters over specified investment periods. Suppose that, to compensate for the risks associated with a business, a reasonable return is 14 percent per year. The intrinsic value is the price of the stock needed to achieve this return. It is like a reverse engineering exercise. Different prices are tried in the calculation until a price is found that gives the required return. Bingo! This is the intrinsic value according to the price ratio method with the associated input parameters.

Another example is the PEG ratio, defined in Chapter 10 as the ratio of the price-to-earnings ratio divided by the expected growth rate. In this setting, the intrinsic value is the price of the stock that would give a satisfactory level for the index. Suppose you are interested in a company that currently has a PEG ratio of 1.2. However, you believe that the company is trading at a fair price when its PEG ratio is 1.0. You invert the formula to find the price that gives a PEG ratio of 1.0; this price is the intrinsic value according to the PEG ratio method. In this case, the price of the stock exceeds the intrinsic value and so, according to this method, it is not a time to buy.

More generally, suppose we have a method for calculating an index associated with each stock that measures its worth. This could be the expected total average annual return, as just described. Another example is described in Chapter 9: Intrinsic value is the number of years it would take the earnings of the stock to pay back its price. Or it could be a more abstract index such as the PEG ratio described in the previous paragraph. In each case we can calculate a dollar amount as the price of the stock that would give a satisfactory or fair level for the index. This dollar amount is called the intrinsic value of

the stock. Comparison with the current price determines what action to take: whether to buy, to sell, or to do nothing. Admittedly, this may seem a little theoretical at this stage but later chapters contain many examples.

In fact, since we can always turn calculations involving measures such as return or other various indexes into an intrinsic value in terms of dollars, it makes sense to expand the definition of intrinsic value. Quite simply, we define *intrinsic value* as the result of any calculation that evaluates the worth of a stock. In other words, we will talk about measures such as the expected return, the expected payback period, or the PEG ratio as the intrinsic value. We are not going to keep stating that the results of these calculations can always be converted into an actual dollar amount. Of course, as stated earlier for the direct method, to be included as a genuine method we require each method to have a firm, logical foundation with clear assumptions.

Types of Intrinsic Value

Our operational definition of intrinsic value contradicts much of the financial literature, which assumes there is really only one approach, and that is via the discounted cash flow method. Even Warren Buffet explains that "intrinsic value can be defined simply: It is the discounted value of the cash that can be taken out of a business."[8] (It is often inferred from this statement that this is the method used by Buffett, although this is not what he actually says. Indeed, at the end of Chapter 7 we will see that he probably does not use this method.) Not only is discounted cash flow not a unique method for calculating intrinsic value, but we will see in Chapter 7 that it has many variations, with still more interpretations of these variations, giving a wide range of results. Should we be using free cash flows to the firm or free cash flows to equity for the "cash" in Buffett's definition? Or perhaps it is better to use dividends? Does it make sense to use a one-stage model, a two-stage model, or perhaps even a three-stage model?

Suppose we manage to gain agreement at the level of which variation to use. We may still be faced with quite different opinions on the appropriate values of the input variables. Buffett makes this clear when he continues: "Two people looking at the same set of facts, moreover—and this would apply even to Charlie and me—will almost inevitably come up with at least slightly different intrinsic value figures." (The "Charlie" to whom Warren Buffett is referring here is

Charlie Munger, the vice-chairman of Berkshire and long-term friend of Buffett.) It is actually much worse than this. In Chapter 7 we see that it is uncomfortably easy to come up with widely divergent intrinsic value figures rather than the "slightly different" figures referred to by Buffett.

Many Variations of Intrinsic Value

In practice, there are many ways of calculating intrinsic value, giving a wide range of results depending on the method and the input parameters.

On top of the variations of discount methods and the extreme range of possible results, there are actually many other approaches to intrinsic value. The following is an introduction to the main types.

Balance Sheet Calculations of Intrinsic Value

As is explained in detail in Chapter 4, the balance sheet is a snapshot of the financial position of a company at the end of its reporting period and includes such items as cash, receivables and payables, inventory, and short-term and long-term debt. They are listed in two categories, assets and liabilities, which in turn are broken into *current* assets and liabilities and *other* (noncurrent) assets and liabilities. Assets minus liabilities gives the *equity* of a company. When the equity is divided by the number of shares outstanding, we have the *book value*, a type of intrinsic value of the company.

To get a more conservative measure, Benjamin Graham, who was the master of balance sheet methods, would reweight the different line items to recalculate the book value. As an example, for his net current asset method he completely disregarded all the noncurrent assets and calculated a new book value, which he compared with the price of the equity. Chapter 6 looks at a range of balance sheet methods, including Graham's methods.

Discount Methods of Intrinsic Value

Assume that a business intends to pay dividends over its entire life. We might be tempted to value the business as the sum of these

dividends. This raises the problem, however, that if the business goes for an indefinite period, the sum of the dividends could grow to infinity. The problem is resolved by recognizing that payments in the future need discounting. The rate of the discount makes up for the lost revenue that could have been earned from an investment of equal risk during the period covered by the delay in payment. With this in mind, the dividend discount method declares that the intrinsic value is the sum of the discounted dividends over the life of the business.

This method has the severe difficulty of requiring forecasts of dividends over an infinite or unlimited period. Typically, this is done by making statements such that for 10 years the dividends are expected to grow by 8 percent per year and after that they are expected to grow by 3 percent per year. This method also requires forecasts of the discount rate over an unlimited period. It is these forecasts over an unlimited number of years that cause the most problems with the dividend discount method. This method and two variations using return on equity and residual income are covered in Chapter 8. Another variation called *abnormal earnings growth* is described in Chapter 12.

The partner to the dividend discount method is the discounted cash flow method. Instead of dividends, it uses free cash flow. As stated earlier, this is the standard method associated with the concept of intrinsic value. It is covered in Chapter 7.

Payback Methods of Intrinsic Value

We all like at least to get our money back when we make an investment. It does not matter whether it is a used car, an investment property, or blue-chip stocks. If it is a used car or vacant block of land, we have the opportunity of getting our money back when we sell. If it is a rental property, we could think in terms of how long it will take for the accumulated rent to equal our purchase price. It is similar in the stock market. We could ask how long it will take for the sum of the dividends to reach the price paid for the stock—the shorter the time, the better. Or if the company does not pay dividends, we could use free cash flow or earnings. Finally, as for the discount methods, we could apply a discount rate to compensate for the lost revenue and the risk of not receiving the payments. The payback method measures the time taken for the discounted payments to equal or pay

back the cost of the original investment. The method is explained in Chapter 9.

Index Methods of Intrinsic Value

The methods just described provide results in terms that are immediately relevant to buying and selling decisions. They are in terms of either dollars and cents, expected return, or expected payback period. It is easy for investors to interpret their significance.

By contrast, index methods provide an index or ratio that gives a type of valuation score. It is necessary to look at a range of examples to be able to transfer the index level into an understanding of whether the equity is undervalued or overvalued. The most common index method is the PEG ratio, the ratio of the price-to-earnings (P/E) ratio of the company divided by a forecast of the growth rate of earnings expressed as a percentage. The PEG ratio method and several variations are covered in Chapter 10.

Expected Return or Price Ratio Methods of Intrinsic Value

In equity markets, value is the combination of intrinsic value and price. It is generally approached by going from intrinsic value, to price, and then to value. In contrast, price ratio methods put intrinsic value, price, and value together right from the start. For example, by making estimates of the growth of earnings and dividends, and including the ratio of price and earnings per share (the P/E ratio), it is possible to determine what is the expected return over, say, the next five years. In this sense, value is measured by the percentage return that can be expected rather than whether the equity is selling at a price that is above or below a particular measure of a price-independent intrinsic value. Instead of answering the question: "How much is the stock really worth?" the primary question now becomes: "What rate of return can I confidently expect?" If you want an actual intrinsic value in dollar terms, it can be extracted as the price of the equity necessary to achieve a particular return.

Expected return or price ratio methods are more practical since they do not require the extreme forecasts used in discount methods. They are also distinct from the other methods in that they do not rely on the firm-foundation assumption that price moves toward some price-independent intrinsic value. Expected return methods are covered in Chapter 11.

Miscellaneous Methods of Intrinsic Value

There are also various miscellaneous methods for calculating intrinsic value. For example, Benjamin Graham developed two simple formulas for calculating intrinsic value in terms of current earnings per share and forecasts of its growth. His second formula also included the yield on corporate bonds. Other methods do not provide a direct valuation but rely on choosing stocks through analyzing a range of factors such as return on equity and the P/E ratio. Options can also be used to value companies. These methods are gathered together in Chapter 12.

Figure 1.1 illustrates the different groupings of valuation methods. Some of the methods are applicable in certain situations, while others are more effective in quite different circumstances. However, they have all been applied to good effect at different times. For example, in the case of a company struggling to pay its debts, the best calculation of intrinsic value may be one of the balance sheet methods

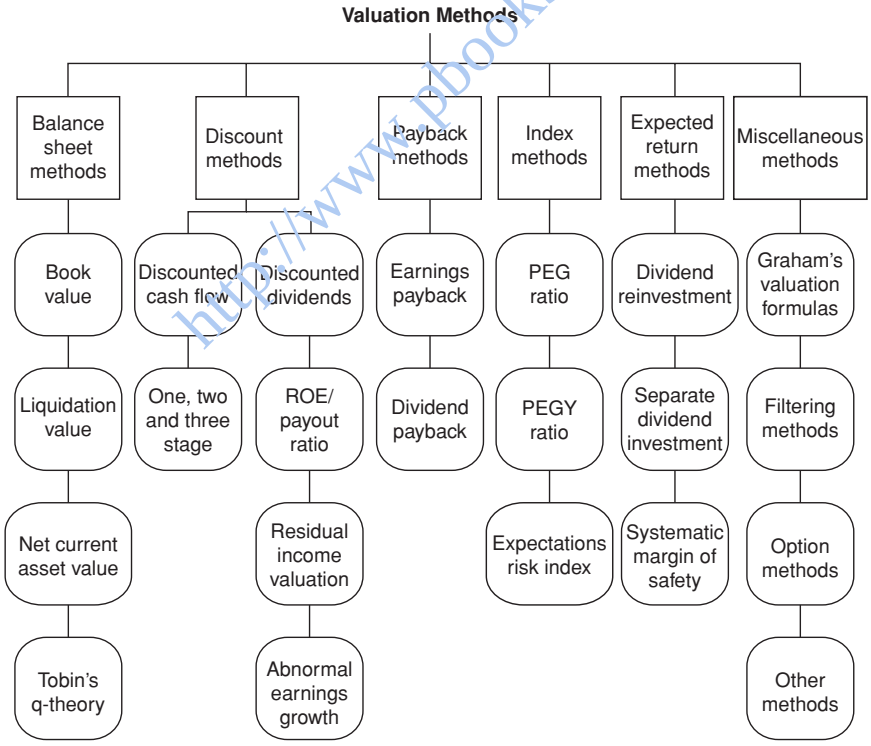

Figure 1.1 Taxonomy of Valuation Methods

described in Chapter 6. For a stable company with consistent growth in sales and earnings, discounted cash flow methods described in Chapters 7 and 8 or ratio methods described in Chapter 10 may be the most appropriate. If a quick rule-of-thumb check of value is needed, the PEG ratio may be the method of choice. Sometimes, measuring how long it will take for dividends to compensate for the outlay in buying stocks in a company may be critical. In this case, the best choice would be one of the payback methods of Chapter 9. When the company is a start-up with only a brief history, it may not be the actual method that is critical but rather that a generous margin of safety be used. These ideas are discussed in Chapter 13. To make it easier to choose the best methods in different circumstances, the strengths and weaknesses of each method are listed in detail after the description of the method.

Warning: Many Believe That Intrinsic Value Is Not Necessary

It is important to state right at the outset that many stock market participants do not believe that the calculation of intrinsic value is either necessary or useful. They jump straight from price to value without considering intrinsic value. Some believe that levels and movements of share prices have patterns and regularities and that, properly understood, these patterns and regularities forecast whether prices are likely to go up, stay the same, or go down. The opposite view is that share prices are random, or sufficiently close to random, so that no profitable trading strategies are possible based solely on price movements. A third view is that price levels are due to the collective mood of investors. We briefly examine the evidence for these viewpoints in the next chapter. However, we take the view that the calculation of intrinsic value by a method or methods that you understand and are comfortable with is the essential first step in being a successful investor.

The Bottom Line

1. Even though intrinsic value is often thought of as the true worth of an equity, in practice there are dozens of different definitions and methods with a wide variety of outcomes depending on the inputs. As shorthand, we

(*continued*)

will use intrinsic value to mean the result of any calculation that evaluates the worth of a stock according to a specific method with specific inputs.

2. The basic assumption is that over time price moves toward intrinsic value. The secondary assumption is that stocks that are more undervalued will initially rise in price more quickly than those that are less undervalued.
3. It is the relationship between intrinsic value and price that determines value. It is up to each individual investor to compare intrinsic value with market prices to make the most profitable transactions.