

Research and Application of Company Valuation Methods

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Abstract. The idea of company valuation originated from Irving Fisher's financial budget theory. The MM theory of American scholars F.Modigliani and Merton H.Miller marks the emergence of valuation theory in the modern sense. This paper mainly studies the theory and application of two company valuation methods—relative valuation method and absolute valuation method. It can be concluded from the research that the essence of valuation methods is the discounted valuation of future cash flows. In the case of stable performance, the price-earnings ratio P/E relative valuation method is the most intuitive. At various stages of development, the same company uses various valuation methodologies. The valuation approach should be modified in accordance with the company's current position. In addition, there is some subjectivity involved in valuing something because there is no universally accepted method. The significance of this research lies in valuation methods have their own advantages and limitations, and they have different emphases. Multiple valuation methods can be used for a comprehensive comparison.

Keywords: Company valuation methods; relative valuation method; absolute valuation method.

1. Introduction

The financial budget theory developed by Irving Fisher is the source of the concept of firm value. Irving Fisher (1906) talked about the connection between income and capital as well as related topics like value. He began by analyzing how people felt about their income before describing the source of capital value and summarizing how they made their investment decisions. He continued by pointing out that any property or wealth owned by an individual has the potential to provide expected monetary income, and that this potential income may be discounted to determine an asset's value. The interest rate acts as a link between income and capital. The present value of money can be determined by subtracting the present value from the future worth of money using the interest rate, and vice versa. The relationship between capital income and capital value is further investigated from the analysis of the nature and influences of the interest rate, forming a thorough and systematic framework for capital valuation. The capital valuation technology under certainty conditions proposed is a modern standard or the foundation of traditional valuation techniques. He came to the conclusion that a company's value, if it is to be regarded an investment, is the present value of the potential future revenue streams.

Even though Irving Fisher's study laid the groundwork for contemporary valuation theory, the predominant method of valuation prior to the 1950s was the summation approach, which included adding the valuation values of various corporate components to get the overall value of the company. Summation approach usually calculated depending on the value of the asset, such as its market value, book value, initial cost, etc. As economic theory evolved, people began to understand that profit maximization is a difficult idea to define in terms of evaluation techniques. Cash flow has evolved into a measure of value as a result of the inclusion of risk elements. The concept that a company's value is the discounted present value of its predicted future cash flows over the course of the business has been accepted during this time. However, in terms of specific activities, there are still significant issues with calculating predicted cash flow and selecting a discount rate.

The MM theory was developed by American academics F. Modigliani and Merton H. Miller between 1958 and 1963 after extensive research on the relationship between capital cost, investment philosophy, and firm value. MM theory consists of two propositions. Proposition risks and uncertainties can be measured by comparing companies with the same risk level, and then a model that financial leverage has nothing to do with company value can be established. Under the condition of no company income tax, company value has nothing to do with financing decisions; under the

condition of company income tax, company value increases. They contend that investment choices largely determine the company's worth [1]. The market value of the company in the equilibrium state is equal to the capitalization value of the expected income, which has been discounted using a rate appropriate for the level of risk. Proposition II examines both the absence of company income tax and the situation with company income tax. When there is no company income tax, the risk of shareholders and the corresponding expected rate of return increase with the use of financial leverage; when there is company income tax, the value of the company increases. This theory provides a methodology for the study of company value, introduces the analysis of company value into the norm, and marks the emergence of valuation theory in the modern sense.

2. Methodology develop

The analytical method of calculating a firm's current (or predicted) value is called company valuation. Different types of companies can use different methods to conduct valuation analysis, but in general, the main method is to use fundamental analysis tools, although several other methods can be used, such as the capital asset pricing model (CAPM) or dividend discount model (DDM), etc.

Indicators such as corporate governance, asset structure, potential future earnings, market value, fair value, and other factors will all be carefully taken into account when analyzing corporate valuation. According to different valuation methods and different input variables, the final valuation results will be different [2]. Valuations can also be quickly affected by corporate earnings or sudden economic events, requiring timely adjustments to our valuation models.

Company valuation analysis is primarily a quantitative calculation process, but it also involves some art, because the input conditions of various valuation methods require some assumptions. Essentially, the Present Value (PV) of all the future cash flows that a company is anticipated to produce is the value of the company. To make the valuation calculation, a number of assumptions are made about sales growth, profit margins, capital expenditures, tax rates and discount rates.

Once the valuation model is established, the trend of how the valuation results change with different input variables or assumptions can be seen. Companies in different industries, even the same company in different stages of development have different valuation methods. For instance, a DCF model would be appropriate for the manufacturing industry, whereas current net operating income and capitalization rate indicators are the best ways to represent a real estate company. Beginning in the company, and many are losing money, because of the large fluctuations in performance financial indicators can't reflect objectively the value of the company, users are often used, the market share and other non-financial indicators to measure the value of the company, when the company into the mature period, with stable cash flow, then a DCF model or p/e ratio can be used to compared to peers [3].

Finally, through the company valuation analysis, the fair value or intrinsic value of the company can be roughly assessed, which can then be compared with the current market value, so as to determine whether the company is overvalued or undervalued, and provide support for investment decisions.

The main valuation methods fall into two broad categories: 1. Comparing related or comparable businesses to ascertain their respective valuation levels is the relative valuation method. In most cases, the relative value approach determines a multiple or ratio, which is a simple multiplier method. For instance, the P/E ratio compares the company's current stock price to its earnings per share. 2. Absolute valuation method is a discount method to evaluate the intrinsic or "real" value of an enterprise only from the fundamentals. Absolute valuation means focusing only on the performance of a single company, such as dividends, cash flow and growth rates, and not on any other company [4].

3. Relative valuation method

The relative valuation method, as the name implies, is to find the comparable enterprise equity value for comparison, so as to obtain the target enterprise valuation. The relative valuation method is generally divided into the following three steps: First, select comparable companies. Refers to the company which is the same or similar to the industry, main business, business model and capital structure of the company. The second is to calculate the valuation metrics of comparable companies, such as the price-to-earnings ratio and price-to-book ratio (see below). The third is to calculate the valuation of the target company according to the valuation indicators of comparable companies. Therefore, the selection of comparable companies is a common feature of relative valuation methods. The accuracy of this strategy depends on how similar the target company and comparable company are to one another. This is where relative valuation is limited. Based on commonality, different valuation indicators determine different relative valuation methods. The two methods Price-earnings multiple valuation Method and the EV/EBITDA valuation method are described in detail below.

3.1 Price-earnings multiple valuation Method (P/E)

The market value of a firm's stock is divided by the net earnings of the company to arrive at the P/E ratio. That is:

$$\text{price/earnings ratio} = \text{company market value/net profit.} \quad (1)$$

The metric represents what the market anticipates the company will earn. When employing the P/E valuation approach, choose the comparable businesses first. Then, based on their market value and net profits, get the comparable P/E ratio. The worth of the company is then determined using the comparable company P/E ratio and the net profit of the company. Namely:

$$\text{company equity value} = \text{comparable company P/E} * \text{company net profit.} \quad (2)$$

Because the intuitive, simple, P/E valuation method has been widely used in the capital market. But its limitations are clear [5]. First off, when the company's earnings or anticipated earnings are in the negative, this strategy cannot be applied. Second, this method uses short-term income as the parameter, which cannot reflect the value brought by the growth of the company. For example, for two companies with the same earnings, if one grows at 3%, the other at 60%, if the P/E ratio is used, the two companies have the same market value, obviously, it does not make sense. In order to make up for the deficiency of the P/E valuation method in estimating the growth of enterprises, investors will use the PEG method of market earnings growth ratio as an auxiliary index. Applicable industry: Internet, education, training consulting and other asset-light industries.

3.2 EV/EBITDA valuation method

The enterprise value (EV) divided by earnings before interest, taxes, and depreciation is known as the EV/EBITDA valuation approach (EBITDA). Earnings before interest, tax, and depreciation is the profit before subtracting interest, income tax, depreciation, and amortization, and enterprise value is the market worth of all capital invested in the business. This approach follows a similar rationale to the P/E valuation method, with the exception that the EV/EBITDA multiple employs EV, or the market value of all capital invested in the company, as opposed to the stock price in P/E, and EBITDA as opposed to net profit per share in PE. The comparable enterprise is chosen first when utilizing the EV/EBITDA valuation method, and the comparable EV/EBITDA is then computed using the comparable enterprise's EV and EBITDA. Then, using the comparable company's EV/EBITDA ratio, the company's EBITDA, and the debt value, the equity value of the business is determined. That is:

$$\begin{aligned} \text{company equity value} \\ = (\text{comparable company EV/EBITDA}) * \text{company EBITDA} - \text{debt value} \end{aligned} \quad (3)$$

The valuation of businesses in various markets is more similar when using EV/EBITDA as opposed to P/E because it is unaffected by characteristics like capital structure, depreciation and amortization method, income tax rate, and other variables. Although comparatively complicated, EV/EBITDA computation cannot predict the company's future growth like P/E [6]. In practical application, it needs to be combined with other valuation methods.

4. Absolute valuation method

Absolute valuation is a technique for calculating a target company's intrinsic worth based on expected future cash flows. With this approach, the value is derived from the expected cash flow input, which is then discounted back to the present and added to obtain the equivalent value. The absolute valuation approach has the advantage of more correctly revealing the inherent value of the company's equity when compared to the relative valuation method, but it is challenging to build the right financial model and choose the right parameters [7]. The dividend discount model (DDM) and the free cash flow discount model are the two fundamental components of the absolute valuation technique (DCF). The detailed description is given below.

4.1 Dividend Discount Valuation Method (DDM)

The dividend discount valuation method takes all dividends issued by the enterprise in the future as cash flow, discounts them at a certain discount rate, and then adds them up to estimate the value of the target company. That is:

$$\text{equity value of the company} = \sum \text{future dividends} / (1 + \text{discount rate}). \quad (4)$$

Dividend discount is the most fundamental model in the absolute valuation approach. Dividend discount can be classified as zero growth, constant (fixed) growth, two-stage growth, and multiple growths based on various dividend growth rate assumptions. Because the payout is assumed to be fairly consistent in the dividend discount valuation approach. This strategy is therefore appropriate for businesses with steady operational circumstances and steady dividend payments, but it is inappropriate for newly formed businesses with variable dividend growth rates or no dividend payment at all. In addition, the application of this method is limited to the company's dividend policy [8]. Even if two enterprises with similar performance and size may differ greatly in value calculated by the dividend discount model due to different dividend policies.

4.2 Discounted Free Cash Flow Valuation Method (DCF)

In order to avoid the uncertainty of dividends in DDM method, DCF valuation method replaces dividends with free cash flow. Free cash flow is the sustainable cash flow created under the premise of preserving the operation scale and production capacity of the company. That is:

$$\text{free cash flow} = (\text{net operating profit after tax} + \text{depreciation and amortization} + \text{other non-cash costs and expenses}) - \text{preserved capital expenditures}. \quad (5)$$

The value of the company is equal to the total of the present value of the company's free cash flow in future years calculated at the appropriate discount rate, according to the discounted free cash flow valuation technique. To get the equity value, the company's worth is subtracted from the value of the creditors' rights. Cash flow, discount rate, and life cycle are some of its primary factors. The application of discounted free cash flow valuation, which involves first estimating the company's future free cash flow and then applying the proper discount rate to determine the current worth of the business. That is:

$$\text{the equity value of the company} = \sum \text{future free cash flow} / (1 + \text{discount rate}) - \text{the value of the debt}. \quad (6)$$

This method requires investors to fully understand the company's business model and establish a financial model, which has high professional requirements. Because its valuation logic is based on the real value of the enterprise, it is highly respected by value investors [9]. But because the discounted cash flow valuation requires a lot of assumptions. For instance, the amount of investment in a few years and the growth rate of the company's future operations are both inherently speculative. Buffett values free cash flow, but Munger says he's never seen Buffett actually calculate it. In practice, this valuation method is suitable for companies with relatively mature businesses and strong predictability and can be cross-verified with the relative valuation method when used.

5. Advantages & Limitations

The relative valuation method has the benefit of being straightforward to apply and comprehend. Less arbitrary parameters that reflect market conditions objectively. It may accurately reflect shifts in how investors view companies on the capital market. Typically, the relative valuation method's findings can be utilized as a reliable benchmark for determining the price of an IPO and subsequent issues for listed companies.

The relative valuation approach has a disadvantage in that it may not be able to accurately reflect the inherent value of the firm to be valued when the industry level is used to represent the level of a single company, and the stock price per share is simple to manipulate. The multiplier approach compresses and concentrates a vast amount of data into a multiplier, which then displays a static indicator.

The benefit of using the absolute valuation method is that it makes future predictions based on actual financial data more convincing and credible. It serves as the foundation for valuing publicly traded corporations and contains a comprehensive theoretical model. The ability of the company to generate the essential cash flow can directly reflect its operating and growth potential. It can assist analysts in identifying the primary drivers of corporate value. To get a fair valuation range, sensitivity analysis can be done on important parameters like the discount rate and growth rate. It is less impacted by transient changes in the market and non-economic factors because it assesses the company's fundamental value.

The absolute valuation method's drawback is that it takes more data and more intricate model operation, which means analysts must have stronger analysis skills for the company's future growth [10]. Subjective presumptions have a bigger influence on the outcomes. The most challenging factors to calculate are future dividends, cash flows, and discount rates, which have an impact on valuation accuracy. It has limited guiding relevance for short-term transaction pricing and is unable to react quickly to market movements.

There is no debate as to which is superior between the relative valuation approach and the absolute valuation method because each has its own benefits and drawbacks as well as distinct suitable items. Typically, for specific valuation, at least one absolute valuation model and several relative techniques are chosen. Investors can take advantage of market opportunities and make wise selections by using accurate valuation and pricing. In actuality, a variety of factors affect stock price movements, which ultimately results in the art of pricing and strict standards for analysts.

6. Conclusion

Although there may appear to be numerous techniques of valuation, the discounted valuation of future cash flows is the fundamental one. The price-earnings ratio P/E relative valuation method makes the most sense in the situation of stable performance.

At various stages of development, the same company uses various valuation methodologies. The asset structure, financial situation, and operating environment of the organization should all be taken into consideration when adjusting the valuation technique.

In reality, the final valuation findings will differ greatly even when the same valuation method is applied because of the different input factors or assumptions that were chosen. As a result, there is no accepted method for valuing something, and doing so involves some subjectivity.

Different valuation techniques emphasize different things and each has its own benefits and drawbacks. For a thorough comparison, several valuation techniques can be utilized. The multi-dimensional evaluation will improve the understanding or persuasiveness of the valuation outcomes, particularly for those expanding businesses whose profits fluctuate significantly.

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