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METHODS FOR VALUATION OF THE SHARES

Abstract

The value of the securities, in that context the shares, presents one of the crucial issue in the financial and investment management. Namely, to make the certain decision in the financial management for the current and future financial and investment performance of the company, the value of the share presents important input variable.

Determination of the value of the share presents complex issue that is determining by the number variables and factors. In order to, in the literature and practice are realized more types of analysis, methods and criteria to determine the value of the share. The focus in the article is the methods for the valuation. Generally, there are two groups of methods, methods that are based on the discounted cash flow and methods that are based on the relative variables. Because of the imperfection of the methods of the valuation, it is necessary to use the combination of the various methods to get the more relevant results in the analysis and in accordance with this to make the relevant decision.

Key words: share; valuation; model of valuation; market price; fundamental value.

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Introduction

For making an investment decision, a decision to invest in securities, besides the market price is necessary to determine the value of the respective securities.

Under the value generally means the money expression of the marginal utility of goods, cash or an expression of utility that is achieved by them¹⁾. Shares, as the most common type of security is an important determinant in corporate finance. The determination of the fundamental value of the shares is important for all stakeholders of the corporation: management of the company, shareholders, creditors and other creditors of the company, potential investors and others.

The determination of the value of the share, unlike the market price is a category that is obtained through application of appropriate analysis used appropriate indicators and measures that represent the subject of research of this paper. The goal of this paper is the implication of the complex nature of determining the fundamental value of the shares as an essential variable in the investment and financial performance of companies.

¹⁾ Arsov S.: "Financial management", Faculty of economics, UKIM, 2008, p.199

1. THE NEED AND SIGNIFICANCE OF THE VALUATION OF THE SHARES

The goal of management of the corporation is increasing the present value of the stock. This way of defining according to certain authors is a close understanding of the purpose of financial management. In the case of the companies which don't trade with their shares, it is difficult to determine the value of their shares at any time. Therefore it is necessary to make appropriate modifications in the definition of the purpose of management. For that purpose should start from the premise that the total value of shares of the corporation is equal to the value of equity of the corporation from which derives more general way of defining the purpose of the corporation which includes: maximization of the market value of equity of the corporation.²⁾

This definition of the goal of management is relevant to whatever form of organization-corporation, partnership or company registered on one person. From other side the task of management in the function of achieve the interests of the shareholders necessary understands that the activities being undertaken in this direction should not be contrary to positive law and moral principles.

In the modern environment, in terms of broad dispersion of the shareholding either by direct or indirect way in the economy, the maximization of the value contributed to an increase (growth) of social welfare. This effect is achieved on multiple grounds by: increased number of stakeholders in the economy, benefits to consumers resulting from lower production cost and higher quality products and services, increase employment and the like³⁾.

The valuation of shares used two types of models depending on variables that take in the calculation of the value as follows: models based on discounted cash flow and based on relative indicators.

2. DISCOUNTED CASH FLOW MODELS

The models for the valuation of ordinary shares through a discounted cash flow, the value of the share represents the present value of cash flow that it generates.

²⁾ Ross S.: "Fundamental od corporate finance", IRWIN, 2005, p. 11.

³⁾ Brigham F.E. and other: "Financial management: theory and practise", ninth edition, Harcourt College Pub., 1999, p.14-15.

Depending on how the cash flow is defined there are three different valuation techniques:

- Valuation technique based on the dividend payable to shareholders, and required rate of return or discount rate takes the cost of equity;
- Valuation technique based on the operating free cash flow and the average cost of capital (WACC) as the discount rate;
- Valuation technique based on free cash flow available to owners of capital (shareholders) and the cost of equity as the discount rate.

The main advantage of these techniques is a high degree of flexibility in changing the revenue or expenditure. While the basic weakness, negativity is their great dependence on adequate assessment of the value of the discount rate or the growth rate of cash flow (the amount of the growth rate or duration of growth).

That would mean that if is made inadequate estimates of these input variables will not be possible to achieve and a realistic assessment of the value of the stock.

Basic model for calculating the value of the stock based on discounted cash flow has the following format:

$$V_i = \sum_{t=1}^n \frac{CF_t}{(1+k)^t}$$

where:

- V_i - value of stock i ;
- CF_t - cash flow in period t ;
- K - discount rate or required rate of return on stock i , which is determined by the riskiness of the stock;
- N - the period of owning the stock.

Depending on what is taken for cash, because of the existence alternative measures of cash flow, the general model is modified accordingly.

2.1. Dividend Discount Model (DDM)

The dividend discount model starts from the definition that the value of shares implies present value of all future dividends that owners (shareholders) will achieve by the certain share⁴⁾:

⁴⁾ Initially, such model is presented by the Williams J.B in 1938 in his article: The theory of investments value, but it is actualized from the Myron J.Gordon again in 1962 year in the article: The investments, financing and valuation of the corporation.

$$Vi = \sum_{t=1}^n \frac{D_t}{(1+k)^t}$$

Where, D_t cover the dividends that shareholders will receive during the period possess specific share.

This model is relevant in cases of a shorter period of time of possession of share or non-payment of dividend because of its reinvestment in new investment projects of the corporation.

When it comes to investing in the share of single or multiple periods (3-4 years) for determining the value is needed to assess three variables: future dividends, price share in the final period (year) and the required rate of return used as the discount rate.

In view of the estimate of the dividend is necessary to consider two factors:

- Future earnings of the corporation as a source of dividend and
- Dividend policy of the corporation.

To estimate the price of the stock at the end of the period in the year when the shareholder makes decision to sale it, there are two ways:

- By using the dividend discount model or
- Model of the earning multiplier.

If a DDM model, in which case there is need for assessment of the dividends, but that would be realized after the period of sale of stock. In the case when it comes to investing in stocks for the long term (forever), the problem is the assessment of the flow of the expected dividends. If we assume that the future flow of expected dividends increases with constant growth rate, the model received the following format:

$$Vi = \frac{Do(1+g)}{(1+k)} + \frac{Do(1+g)^2}{(1+k)^2} + \dots + \frac{Do(1+g)^n}{(1+k)^n}$$

or,

$$Vi = \frac{D_1}{k-g} ; D_1 = Do(1+g)$$

where:

- g - constant rate of growth of dividend;
- Do -dividend in the current period;
- $D1$ - dividend in the first period (year).

From the model, it can be concluded that the value of share is determined by the required rate of return and expected growth rate, whereas the dependence with the required rate of return is inversely proportional, while proportional with the expected

growth rate. However, this model allows determining the value of the stock if required rate of growth exceeds the growth rate of dividend. Hence there is the problem for its use in valuing the shares of fast-growing corporations, whose growth rate exceeds the required rate of return in certain periods.⁵⁾ Because of it, there is a need for further modifications of the model for constant growth in the long run. For that purpose in the period when achieved above average growth rate is necessary calculates the present value of the dividend for each period (year).

If in multiple different periods are exercised different growth rate it will be necessary to apply multiply phase model of growth. In each of the periods in which they are exercised certain above average growth rate is necessary to determine the present value of the dividend that is achieved in the corresponding period. Unlike in the period when the growth rate will stabilize and will be below the required rate of return (because of the entry of competition in the relevant market segment), the present value of expected dividend will be calculated based on the DDM, the model of constant growth of dividend.

When will be determine the value of the stock by DDM model or its modifications, the same value it is necessary to compare with the current market price of the stock. If real (fundamental) value of stock is greater than the market price is positive to decide to purchase a given share, on the contrary decision not to buy or if you already own it to sell.

2.2. Operating free cash flow discount model

The operating free cash flow discount model determines the present value of the corporation. To get the current value of the share is necessary resulting present value of the corporation to reduce with the value of total liabilities (which is the value of equity), and this result found to be divided by the number of issued shares of the respective corporation. Because, it comes to calculating the value of the corporation, discount rate is average cost of capital of the corporation - WACC.

The model for calculating the present value of the corporation has the form:

$$V_i = \sum_{t=1}^n \frac{OFCF_t}{(1 + WACC_i)^t}$$

Where:

- V_i - present value of the corporation i ;

⁵⁾ Between rate of growth and the risk there isn't direct relation, that not determine the fast growing corporations to be more riskiness, because it's supposed to have higher required rate of return.

- OFCF_t - operative free cash flow for period t;
- WACC - average capital cast of corporation i.

If we assume that the corporation realizes a constant operating free cash flow in the long term (forever) the present value of the corporation would be established as:

$$V_i = \frac{OFCF_1}{WACC_i - g_{OFCF}}$$

where:

- OFCF₁- operating cash flow equal to OFCF₀ (1+ g_{OFCF});
- g_{OFCF} - long-term constant growth rate of operating cash flow

If there isn't constant growth of operating cash flow for the entire period, as in

Year	The growth rate of OFCF
1-4	20 %
5-7	16%
8-10	12%
11..	7%

the DDM model, it is necessary to assess above average growth rate and the period of its duration. If there are more periods in which they are realized growth rate greater than the required rate of return, and the rates are different, it is necessary to determine the present value of operating cash flow for each of these periods:

When the growth of the operating cash flow will be stabilized (after 10 year in the example), in that period of time the present value will be determined on the basis of the model of constant growth of the operating free cash flow.

2.3. Free cash flow to equity discount model

The model for calculating the value of the stock on the basis of free cash flow which remains available to owners of ordinary shares, it is necessary the operating free cash flow to reduce for the liabilities of the creditors and owners of preferential shares. Discount rate which will discount free cash flow for each year presents the price (cost) of equity.

The model calculation has the following format:

$$V_i = \sum_{t=1}^n \frac{FCFE_t}{(1 + k_i)^t}$$

where:

- V_i - present value of the equity of the corporation i ;
- $FCFE_t$ - free cash flow in period t ;

As in previous cases, if achieved stable growth, in the analysis can be used the model of an infinite constant growth. Otherwise if there is unstable growth of free cash flow, i.e. there are periods when realize above-average growth rates, to assess the value of the shares is necessary to use multy -phase growth model.

3. RELATIVE INDICATORS FOR VALUATION OF THE SHARES

Techniques for evaluation of ordinary shares through a relative indicators, allow the determination of the current stock price levels on different level such as:

1. Overall capital market;
2. Alternative industries and
3. Individual stocks.

Hence, one can conclude that unlike the model of valuation by discounted cash flow which determines the value of a specific stock, the techniques of relative indicators determine the value of whatever economic entity: market, industry, a corporation, stock and the like. Valuations are based on the relative indicators, i.e. by comparing the cost of stock with variables that determine its value.

However, these techniques, in order to provide adequate current value of shares, is necessary to satisfy two conditions:⁶⁾

1. Corporations that are compared should be compatible with each other according to: type of activity, size, level of risk and the like.
2. Estimates of the value of the total market or industries should not be extreme (serious overestimation or underestimation).

⁶⁾ Reilly K. F, Brown C.K.: "Investment analysis and portfolio management" seventh edition, Harcourt College Publisher, 2002, p.379.

The major variables affecting the price of the stock are: earnings, cash flow, book value and income from sales.

No matter what kind of indicator concerned, the valuation of shares through these indicators takes place in two steps.

At the first step the appropriate indicator is comparing to the same kind of indicator set at the market, industry or competitors level. Based on this comparison is made statement about it size, or realize whether the corresponding indicator is similar, lower or higher in terms of compatible indicators at the level of market, industry or competition.

The second step is an analysis of the factors (variables) that determine the appropriate value of a given indicator. By comparing these factors with the same kind of factors at the level of appropriate economic entity (market, industry and the stocks of competitors) will be confirmed or not the relevance of the corresponding indicator.

In this group of models as a significant indicator methods we sand out: market price/earnings (P / E) as known as earning multiplier and market price/cost (P / BV).

3.1. Market price/earning (P/E) or earning multiplier

Indicator of market price-earning or known as earning multiplier is the most popular relative indicator of valuation of ordinary shares:

$$\frac{P}{E} = \frac{\text{Curent market price}}{\text{Earning}} \text{ } ^7)$$

This indicator determines how many units the investor should pay for a one unit of earning. Or in other words, this indicator shows how many times the investor is willing to pay for the stock more than earnings per share, from where it gets the name earning multiplier per share.

It is necessary for investors, in order to assess the validity of this indicator, to establish what caused the corresponding value of the multiplier. For this purpose is taking into account DDM model of infinite growth dividend:

$$P_i = \frac{D_1}{k - g}$$

model in which left and right side should be divided with the same value-expected earning, so the result would be:

⁷⁾ Takes into account the expected earnings for next period of one year.

$$\frac{P_i}{E_1} = \frac{D_1}{k - g}$$

From this equation should perceive the variables that determine the appropriate earning multiplier:

1. expected rate of dividends (D / E);
2. estimated required rate of return (k);
3. expected growth rate of dividends (g).

The larger percentage of dividend paid and / or lower growth rate of dividend will conditions and higher value of the multiplier. While the higher value of the required rate of return will determine lower the multiplier. But of particular importance in the analysis is the ratio (difference) between the required rate of return and the rate of growth (k-g).

The resulting multiplier in this way is then multiplied by the expected value of earnings per share which is obtained as a product of the earning in the current period with the expected growth rate of earning. The product of earning multiplier and expected earning per share represents the expected value of the stock. "This assessment of value is known as two-stage process of evaluation, because it requires to estimate the future earning per share and the ratio P / E based on expectations for k and g."⁸⁾ To make an appropriate decision by the investor, this value is necessary to compare to the current market price of stock, with purpose to determine whether the value of the stock is real determined, under or overestimated.

3.2. Market price/book value (P/BV)

This relative indicator is the ratio between the market price and the cost of the stock:

$$P / BV_i = \frac{P_t}{BV_{t+1}}$$

where:

- P / BV_i - market price / book value for the corporation i;
- P_t - market price of stock in period t;
- BV_{t+1} - estimated book (balance) value per share for corporation I for the period $t + 1$.

⁸⁾ Same, p. 391.

At first, this relative indicator P / BV represented a good indicator of the fundamental value of the stock. But later in the paper of Fama and French⁹⁾ have confirmed its validity for all types of corporations, based on the inverse relationship between P / BV and the rate of return.

Ratio P / BV is conditional by the relationship between ROE and the required rate of return (cost of equity). If the value of ROE is equal to the required rate of return, the ratio P / BV will be equal to one. But if the value of ROE exceeds the required rate of return, then investor will be willing to pay higher price for the stock (amount that will exceed the book value of the share).

4. COMPARISON OF METHODS OF VALUATION- DISCOUNTED CASH FLOW METHOD AND METHOD OF RELATIVE INDICATORS

Valuations of certain types of assets or corporations through the application of two models-the model of cash flow and the model of relative indicators often determines the different values for the same asset or corporation. Such a differentiation in the value that occurs between the two models is the result of differences in terms of market (none) efficiency in both models.

The model of discounted cash flow starts from the assumption that the market makes mistakes, and that such errors occur in the whole sector or even the in entire market. But with time comes to correcting such errors.

Unlike this model, the model of relative indicators starts from the assumption that the market can make a mistake in individual stocks, but not in average. Or in other words, the application of this model, two corporations of the same activity on average can be evaluated correctly, although the individual assessment (valuation) may be with errors.

In context of the above mentioned, there can occur situation when in term of the model of discounted cash flow, the share has overestimated value, while in the same time in term of model of relative indicators share should be underestimate, if the corporations that have taken for comparison are overvalued by the market, and the effect is reverse if the sector or overall market is underestimated.

Hence, generally can be drawn two (conclusions) for the valuation in term of the different valuation models.

The first conclusion refers to the fact that the model of discounted cash flow should be based on the assumption of valuation based on long term, so there will be enough time to correct errors on the market.

⁹⁾ Fama E. and French K.: "The cross section of expected returns", Journal of finance 47, no.2, 1992.

The second conclusion concerns that the use of the model of relative indicators of evaluation based on comparison with similar assets or corporations, it is necessary to take into account the different financial fundamentals between "comparable" assets or corporations: growth, risk and cash flow.

Conclusion

The decision to invest or to sell a particular security (and in this context the shares that are the subject of searching of the present paper) is necessary to compare the value of the securities (shares) and its market price. Based on this comparison it should be possible to determine whether the market price of the stock is real, underestimated, or overestimated.

The determination of the value of the share is a complex process. On such complexity suggests the fact that in literature and practice of valuing of shares have established more approaches, indicators and methods for their valuation. Depending on the input variables, the methods for valuing stocks are grouped into two groups: methods based on discounted cash flow and methods based on relative indicators. Because of the imperfection of the two groups of models it possible to occur differences in the determined value. Namely, according to the model of discounted cash flow, the share has overestimated value, but in the same time according to the model of relative indicators, is underestimated, if the corporations that have taken for comparison are overvalued by the market. The effect would be reversed when the sector or overall market are underestimated. To reduce these disparities in the application of the two groups of models for valuing stocks need to be taken: 1) model of discounted cash flow that be used to evaluate on the long term, so there will be enough time to correct errors on the market and 2) use the model of relative indicators of evaluation based on comparison with similar assets or corporations, it is necessary to take into account the different financial fundamentals between "comparable" assets or corporations such as growth, risk and cash flow.

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