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DEVELOPMENT OF APPLICATION OF THE METHOD OF THE ANALYSIS OF SCENARIOS IN PROFITABLE APPROACH TO ESTIMATION OF COST OF THE OIL COMPANY

L.I. Vanchukhina[1], T.B. Leybert[2], E.A. Halikova[3], Y.R. Rudneva[4]

[1]Doctor of Economic Sciences, Professor, Ufa state petroleum technological university, Kosmonavtov st., 1, Ufa, 450062, Russian Federation.
[2]Doctor of Economic Sciences, Professor, Ufa state petroleum technological university, Kosmonavtov st., 1, Ufa, 450062, Russian Federation.
[3]Candidate of Economic Sciences, associate Professor, Ufa state petroleum technological university, Kosmonavtov st., 1, Ufa, 450062, Russian Federation.
[4]Candidate of Economic Sciences, associate Professor, Ufa state petroleum technological university, Kosmonavtov st., 1, Ufa, 450062, Russian Federation.

Abstract:

The article proposes a technique for estimating the value of an enterprise on the basis of a profitable approach, supplemented by an analysis of optimistic, pessimistic and basic scenarios for the development of the enterprise.

The results of its application for estimating the value of the oil company are given. To calculate these retrospective data, three cash flow projections for the next five years were analyzed. When calculating the combination of accounting rates of CWM IWACC methods to ensure compliance with the current situation in the company and the market, a measurement of the income and expense scale was required.

Studying the dynamics of stock prices allowed to prove the probability distribution of the implementation of each of the scenarios and to identify the overall assessment.

Keywords: company value, estimated cost, discount rate, cost of capital, analysis of scenarios of sequence of events, cash flow.

I. INTRODUCTION

The basis of business of any company is capital, as it represents the material base of the modern economic system, and is formed and used within certain organizational structures, as well as in a certain business sphere.

Owners of the company have the right to dispose of the entire complex of the enterprise's property. At the same time, the creation of a new business is accompanied by certain costs. The real profitability of the company, compared with the alternative profitability of a similar amount of bank capital, is the amount that makes up the initial basis of the market price, which can be identified as market value. In Russia, the procedure for assessing the value of all types of property is regulated by the Federal Law "On Valuation Activities in the Russian Federation" of July 29, 1998 No. 135-FZ and Federal Valuation Standards approved by the Ministry of Economic Development of the Russian Federation. The Russian regulatory framework determines the market value as follows: "The most probable price at which a given valuation object can be alienated on the open market, when the parties to a transaction act reasonably, having all the necessary information, and the magnitude of the transaction price does not reflect any extraordinary circumstances ... " [1]. In the practice of countries with developed market economies, the concept of value is generally applied without clarifying its link to the market, because it is considered obvious that it is the elements and market participants that determine it. Currently, the peculiarity of the development of market mechanisms is the standardization and globalization of markets, as well as the intensification of competition. Thanks to this, in modern conditions, the concept of "value" is gradually becoming a means of consolidating the resources and efforts of the company to ensure effective management.

This leads to the need to define the definition of "market value" from the position of market capitalization. The above aspects form the basis of the concept of "market capitalization of the company", which implies an equivalent monetary valuation of the entire aggregate of the enterprise's property, financial assets, as well as property and other rights and benefits of the owner from owning, using and disposing of a particular type of business. The benefits of a business owner are financial receipts and various socio-economic preferences (benefits) that are associated with the creation of economic added value in the process of business functioning. Assess the size of the market value of the company is possible in conditions of special evaluation procedures.

Therefore, you can determine the value of the company as an aggregate indicator that is able to adequately reflect its potential ability to satisfy the various interests (financial and economic) of all participants in the relationship both within the company and in its relationship with the surrounding business environment. You can also determine the market value of the company from the position of the stock market as the total value of the market price of shares of a particular company.

When calculating the company's market value, it is necessary to fully take into account the influence of all the main factors, such as:

- income generated by the target;
- risks accompanying the process of generating income;
- average market yield on analogical objects;
- Distinctive features characteristic of the assessed object (including the composition and structure of assets and liabilities, as well as constituent elements);
- market conditions;
- the current general economic situation and the state of the industry.

The value of the company can also be affected by its relationship with stakeholders. For example, the interests of the owners of the company are very important from the point of view of the formation of its value, therefore, the building of relations with investors becomes more important.

Prospects for the growth of shares of a public company are also important for a potential investor, which can be determined on the basis of analysis, the company is overvalued or undervalued in the stock market. To do this, you need to determine the internal value of the company and compare it with the current price in the market.

II. METHODOLOGY

In the world practice, various methods of valuation of business are used, combined into approaches depending on the indicators underlying the assessment and the tools used.

So, for example, Professor Asvat Damodaran identifies the following approaches:

- estimation of discounted cash flows;
- evaluation by comparing the valuation object with analogs and deducing the dependence of their value on the values of the set of indicators;
- estimation of conditional requirements - options.

In Russia, the Federal Standard for Evaluation No. 1 established three approaches:

- profitable - based on the assessment of expected revenues from the use of the valuation object;
- comparative - uses the prices of analogical objects and a set of comparison parameters;
- Expensive - estimates the costs of creating an object that is similar to the estimated one.

In the revenue stream, the company's value (as well as the value of any company asset) is a function of three variables: the cash flows generated by the company (or its assets); the degree of uncertainty in the forecast for obtaining these flows; time of waiting for the given cash flows (from the investments made).

For a comparative approach, the information base is the indicators of the financial condition and effectiveness of the activity of the valuation object and analogical objects, as well as their prices in the market. The zatrat approach estimates the real current value of the entire property of the enterprise, net of its debts.

Profitable and comparative approaches are recognized in the world and are widely used. But a costly approach characterizes the value of the property and does not take into account either its ability to generate revenue or the investment attractiveness of the market, nor does it require the making of forecasts or the formation of a large body of market information about analogs. Therefore, it is more in demand on the Russian market.

In accordance with FSO № 1 approaches to the assessment of business in the work of VA Shcherbakov are presented. and N. Shcherbakova. However, the collective of authors from the Financial University under the Government of the Russian Federation under the leadership of professors Gryaznova A.G. and Fedotova M.A. complements standard approaches by the method of evaluation based on the concept of economic profit and the optional method of business valuation.

In the work presented, a methodology for estimating the company's value is proposed, based on combining the method of discounting cash flows and scenario analysis. In accordance with this methodology, a study was made of the value of PJSC "AK" Rosneft ".

The valuation of the company is based on a retrospective analysis, since any studies related to long-term analysis require an evaluation of past experience.

It was decided to calculate the cash flow from EBITDA, while the average EBITDA margin for the past 5 years was 21%, the median margin was 20.2%.

As a forecast period, a gap of 5 years was chosen. Three predictions were used to construct the cash flow model: basic, optimistic, and pessimistic. Each forecast is based on such indicators as revenue, cost, EBITDA.

The basic scenario implies the usual course of the company's affairs without sudden fluctuations in financial performance. In the baseline scenario, the revenue growth rate was assumed at 3% throughout the period and the gradual decrease in the rate of growth by 0.3% per year, beginning in 2018. This will ensure an average annual growth rate of revenue of 2.8%. The gross margin was adopted at a rate of 38%, which is approximately the average value in the retrospective period. Similarly, the EBITDA margins were adopted based on the average for the last 5 years.

The optimistic forecast implies stable growth of the company's key performance indicators in the foreseeable future. In this scenario, the growth rate of revenue was adopted at 5%, with a gradual decrease

of 0.3% per year, starting from the second year. Thus, the average annual growth rate of revenue will be 4.2%. Gross margin was adopted at 40% in the first forecast year, which is slightly above the average for the past 5 years. The value of gross margin gradually increases to 41% by the end of the forecast period. The EBITDA margin is adopted at 22%, and gradually increases to 25%.

The pessimistic forecast implies a decrease in the company's key performance indicators in the near future. In constructing a pessimistic forecast, the rate of revenue decline was taken at a rate of -2.0% per year, which gradually increases to a 0.5% increase in the last year. Gross margin gradually declines from 35.0% in 2017 to 34.0% in 2021. The EBITDA margin gradually decreases from 19.2% in 2017, which is 1 percentage point less than the median value for the last 5 years, to 18.2% in 2021. In order to correctly calculate the cash flow, it is necessary to take into account changes in working capital. Given that three predictions were chosen to build the model, a change in equity was calculated for both the retrospective period and the forecast period in the three scenarios. When calculating working capital, the model did not take into account cash and equivalents, since for modeling purposes it is necessary to understand how the business need for these funds will change, whether the company will need to invest money back into its daily operations, or the required working capital will be decrease with sales growth. In addition to operating activities, cash can be spent, for example, on investment or financial activities. This model uses information on the company's operating activities.

To calculate the projected working capital values, the following shares were selected:

- accounts receivable - 8.7% of revenue (average);
- reserves - 4.6% of revenue (average);
- advances given - 6.3% of revenue (average);
- Accounts payable - 15.3% of the cost (average value);
- prepayments - 16.1% of revenue (median value);
- liabilities for taxes - 3.7% (median value).

On the basis of the data obtained, forecasted working capital items and their overall impact on cash flow in three scenarios were calculated.

Thus, in the forecast period, a gradual increase in cash flow occurs, starting from the second forecast year, due to changes in working capital. In the first year, the change in working capital adversely affects the cash flow, which is also related to averaging the shares of individual items in revenue and cost. The total impact on the cash flow is 99.57 billion rubles.

III. RESULTS

On the basis of cash flow for equity, the market value of the company's own funds is determined. The calculation, which is based on the cash flow for the invested capital (total value of equity and long-term debt), makes it possible to determine the total market value of equity and long-term debt of the company.

Thus, the share of borrowed capital of PJSC "NK Rosneft" in 2016 is 66.22%.

It follows that the company actively attracts borrowed capital and the share of borrowed funds is above 30%. Therefore, for cash flow calculations, the cash flow for the entire invested capital (FCFF) was selected.

The usual formula for calculating FCFF is as follows:

However, to build a model, the formula is chosen:

Both formulas give approximately the same result with one exception: formula 2 is more suitable for analysis of retrospective cash flows, since the amounts of taxes for retrospective periods are already known.

At the next stage, in order to bring the value of future cash flows to the current moment, it is necessary to calculate the discount rate.

The economic meaning of the discount rate is the rate of return required by investors for capital invested in comparable objects at the level of risk.

Depending on the chosen cash flow model, such methods are used to determine the discount rate,

such as the cumulative build method, the CAPM model, and the WACC model. Since I chose the cash flow for the entire invested capital (FCFF) to build the model, the discount rate is calculated using the weighted average cost of capital method. Since the dividend policy of the company does not imply the obligation to pay dividends based on the results of each year, it is proposed to use the rate calculated on the capital assets valuation model (CAPM), which is the expected return on equity for investors. The problem of estimating the cost of equity was examined in more detail in.

(Rm-Rf) - the size of the market premium, which is the difference between the expected return on the market portfolio and the risk-free rate; Rc is the value of the country risk premium.

As a risk-free rate, the rate of return on long-term government bonds was chosen, which at the time of the valuation was 8.45%. To determine the size of the market premium and the premium for country risk, data from the table of Professor Asvat Dadomaran was used, which annually recounts market and country premiums for most countries in local currency. The values obtained were 9.24% and 2.56%, respectively.

Calculation of the beta was based on the company's quotes compared with the MICEX index. The beta coefficient was -0.0042, which means almost complete absence of interdependence between changes in the company's quotes and the market as a whole.

The discount rate for the WACC model is calculated by the formula:

Ws - the share of equity in the structure of the capital of the enterprise;

kd - cost of borrowed capital;

tc is the corporate income tax rate;

Wd - the share of borrowed capital in the structure of the capital of the enterprise;

ks is the cost of raising equity (ordinary shares).

To calculate the share of equity in the model, the market value of equity was used, since market and book values of capital can vary significantly.

Thus, the discount rate of cash flows by the weighted average cost of capital model was 6.3%.

One of the elements of the cash flow are capital costs (CapEx).

When calculating depreciation for each year, depreciation of the previous year and depreciation on capital investments of the previous year were taken into account. The amount of tax payments in the forecast period was calculated through EBIT (interest payments were accepted at the level of 2016) by subtracting interest from EBIT and multiplying by effective tax The rate, which in 2016 was 36.6%.

In the baseline scenario, the cash flow is smoothly increasing, the value and share of FCFF in the revenue is gradually equalized. Throughout the forecast period, cash flow remains positive.

In a pessimistic scenario, the cash flows of recent years are smaller than the base period flows, which leads to a lower value of the terminal value in further calculations. The share of the cash flow does not have any trend, but its values become more average, the spread is smoothed out.

The cash flow of 2021 is 9.7% of revenue.

One of the components of the final cost in the model is the discounted terminal value (TerminalValue), which is defined as the product of the EBITDA of the post-forecast period by the current EV / EBITDA multiplier. To determine this, you need to calculate the current EV, taking into account market capitalization, net debt and the market value of non-controlling interests.

As of 01.06.2016, the market capitalization of PJSC NK Rosneft amounted to 3,190 billion rubles, net debt as of 01.01.2017 was 1890 billion rubles, and the market value of non-controlling interests was 402 billion rubles. The calculated value of EV amounted to 5,482 billion rubles. The next step was to calculate the terminal multiplier by dividing the resulting EV value by EBITDA for the nearest retrospective period. The multiplier value was 4.8x. At this stage, it is possible to calculate the total costs in the model, representing the sum of the discounted cash flows and the discounted terminal value of the company in the post-forecast period.

Let's take the classical distribution of the probabilities of realization of each of the three scenarios:

- base scenario - 50%;
- optimistic scenario - 25%;
- pessimistic scenario - 25%.

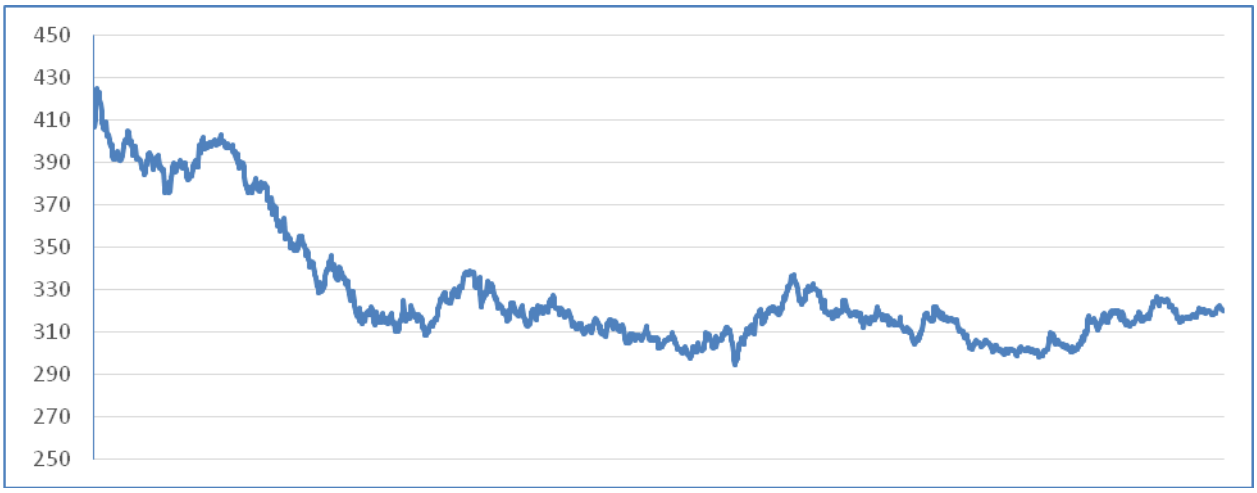
In this case we get the average weighted cost of the company (CV):

CV = 5924 • 0.5 + 7140 • 0.25 + 4839 • 0.25 = 5956.75 billion rubles.

Average share price (SV):

SV = 343 • 0.5 + 457 • 0.25 + 240 • 0.25 = 345.75 rubles / acc.

During the current year, quotations of shares of PJSC "NK" Rosneft "fluctuated in the range from 294.4 to 425.1 rubles per share. This reflects the moderate market expectations. However, the analysis of the dynamics of stock price dynamics for January-October 2017 revealed the following. If optimistic expectations prevailed at the beginning of the year, then in February-March quotes dropped sharply. During the next six months, quotes failed to break the forecast level of the base scenario and tend to a pessimistic option.



In this regard, we consider it necessary to revise the weight of the scenarios and redistribute them in favor of a pessimistic one:

- base scenario - 50%;
- optimistic scenario - 20%;
- pessimistic scenario - 30%.

As a result, we get the following values of the company's value and its shares:

CV = 5924 • 0.5 + 7140 • 0.2 + 4839 • 0.3 = 5847.7 billion rubles.

IV. CONCLUSION

Thus, the analysis allowed to assess the value of the company in three scenarios of its development. The validity of the results is determined by the following conditions:

- forecasting in three scenarios of the company's development of all elements of cash flow based on an analysis of retrospective data for five years;
- use as a starting point in the calculation of the cash flow of EBITDA instead of net profit, which cleared the calculation of the impact of investment and financial components of the activity, focusing on the operating;
- supplementing the model for calculating the discount rate as the average weighted cost of capital by estimating the cost of equity by the capital asset valuation model, which allowed the calculation in the absence of data on the forecast of dividend payments.

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