

REVENUES AS A SIGNIFICANT VALUE DRIVER OF METALLURGICAL ENTERPRISEPLUNDER Karel¹, JUŘICOVÁ Anna¹, WALA Aleksander²¹VSB - Technical University of Ostrava, Ostrava, Czech Republic, EU,karel.plunder@gmail.com, anna.juricova@vsb.cz²Silesian University of Technology, Gliwice, Poland, EU, aleksander.wala@warido.com**Abstract**

Based on the analysis of value drivers, the main aim is to assess whether and to what extent an enterprise creates value for its owners. The value of a metallurgical enterprise in the Czech Republic is usually estimated using an income approach, which is generally based on the capitalization of future benefits (profit or cash flow) arising from the enterprise. The basic drivers of enterprise value include corporate revenues. These can be very hard to predict, especially due to overall development of metallurgical industry when more steel products are imported into the Czech Republic and global manufacturing is dominated by Asian countries. In practice, this causes the decrease in volume contracts for the Czech Republic. Therefore the valuation of metallurgical enterprises becomes even more complicated and more specific. The aim of the article is to try to estimate the viable profit opportunities in such a specific area such as metallurgical production.

Keywords: Revenues, value, value drivers**1. VALUE CHARACTERISTICS**

The value of an enterprise can be characterized through value drivers. Based on the analysis of value drivers, it is possible to assess whether and to what extent an enterprise creates value for its owners. The value of an economically viable metallurgical enterprise in the Czech Republic is usually estimated using an income approach which is generally based on the capitalization of future benefits arising from the enterprise.

The basic drivers of enterprise value include corporate revenues. Revenues reflect how successful a company is in meeting customer needs and - combined with the efficiency of transformation of inputs into outputs - they generate the enterprise value. The income approach, which is also the most appropriate means of assessment of metallurgical enterprises, is based primarily on the estimation of future development of the business, making it fundamentally different from other methods of enterprise value assessment (comparative and cost-based) and presenting a starting point for discussion within the approach in general. Since it is necessary to deal with the future, which is always unknown and therefore uncertain, the future development can only be estimated (predicted, projected or modelled). Due to the material and energy demands of the metallurgical sector and the transfer of heavy industry to third world countries, the situation is even more specific in these companies.

In theory and in practice, the enterprise value assessment deals with the said fundamental issue of income approach using essentially two methods. The first method is based on the fact that certain countries can be reasonably expected to have specialized and trusted entities involved in the compilation of market analyses and forecasts of future development of individual markets or businesses, including the metallurgical sector, which are in public domain or which are widely available. The second method is based on the fact that there are no reliable market analyses and projections publicly accessible or readily available, which may be due to a lower degree of development and efficiency of the capital market, and for this reason it is up to the assessors themselves to individually estimate the future development of the enterprise and its relevant environment. This is typical mainly for emerging markets, including the Czech Republic and other countries of the former socialist block (notably Slovakia, Hungary and Poland).

In the Czech Republic, the development of value assessment methods in all sectors, including metallurgy, was disrupted for a long period of time and it was only after 1989 that it was resuscitated again, following the changes in the political and economic system. Initially, the Czech theory of enterprise value assessment was greatly inspired mainly by western authors who worked with facts in relatively developed economies. In the course of time, however, the Czech theory, too, began to emphasize specific conditions of our economic environment, including the degree of development and efficiency of the capital market, and began to deal with the issue of how to predict the future development of an enterprise and its relevant environment in the Czech Republic within the income approach to the enterprise value assessment. It needs to be noted, however, that the Czech metallurgical sector is still characterized by being concentrated into a single region. Specifically, up to 98 % of production originates from the Moravian-Silesian Region despite the fact that the local environmental limits are among the toughest in the entire EU.

2. VALUE CATEGORIES

The following value categories are used in the evaluation practice in the Czech environment: market value, investment value, fair/real/ value, objective value, common price.

Three basic approaches to value assessment according to IVS [1]:

- *Market or comparative approach.* The value of goods is indicated through comparison to available prices of identical or similar goods.
- *Income approach.* The value of goods is indicated by means of converting future benefits into the current value of capital.
- *Cost approach.* The value of goods is indicated through an economic principle according to which the buyer will not pay more for the goods than the costs of acquiring goods of equal utility which the buyer would acquire by purchase or development.

The income approach to the enterprise value assessment is based on the fundamental premise that the value of goods is determined by the expected benefits of owning the goods and, consequently, it is closely focused on the future development of the enterprise. As part of the income approach, three basic methods of profit (net income) capitalization are usually considered, based on the economic value added (EVA) and discounted cash flow (DCF). Under certain conditions, all three methods provide the same result or, in other words, they weigh the future of enterprises in a similar way.

3. VALUE DRIVERS

Koller, Goedhart, Wessels [2] define enterprise value drivers as "...quantities that have a short-term or long-term effect on the business performance and thus they create value". As part of a so called performance management, the relation between the value drivers and the business performance can be assessed according to a mixture of quantitative criteria (value indicators) and qualitative criteria (comparison of development or degree). Growth, ROIC and WACC are considered to be the basic enterprise value drivers. These three basic quantities can be broken down into further levels, allowing to track causal relationships affecting the development of individual indicators. With regard to the nature of value drivers, Copeland, Dolgoff [3] state that: "the general approach is to describe value drivers as financial indicators which have significant leverage with regard to the enterprise value." They distinguish between financial and operational value drivers. Revenues, costs, growth and WACC are examples of financial drivers. Operational drivers include, among others, customer loyalty, the quality of means of production or accrued costs of developing new products. Dobbs, Koller [4] perceive value drivers as tools for business performance management. They consider long-term growth, ROIC and cost of capital as the main factors influencing the discounted cash flow and these quantities are determined by the ability of the enterprise to generate future value in short, medium and long term. Scott [5] sees value drivers as quantities influencing the shareholder value. According to him, the

shareholder value is determined mainly by sustainable growth and profitability. The principal categories affecting the shareholder value on the company level include the business strategy, mission, culture, values and financial performance. Rappaport [6] also perceives value drivers in the context of managing shareholder value which, according to him, is the primary business objective. He considers cash flow, discount rate and debts as the components of the shareholder value generation. He distinguishes between three main categories of enterprise value drivers, namely operational drivers (revenue growth, operating profit margin, tax rate), investment drivers (working capital, fixed capital) and financial drivers (cost of capital). Regarding this topic, Dluhošová [7] adds: "Value drivers form the basis of business performance since they represent predictive performance indicators...". Dluhošová considers the generation of shareholder value as the principal goal of the business. According to her, the following value drivers are included in the operational strategy: revenues, margins, planning horizon; in the investment strategy: capital investments, working capital, acquisitions; and in the financial strategy: credit rating, tax rate, capital structure and dividend policy. Mařík et al. [8] use the following definition: "Value drivers are defined as a set of basic business-economic factors, which together determine the value of the enterprise." Mařík et al. use the following value drivers: revenues (turnover) and revenue growth, operating profit margins, investments in working assets and long-term net operating assets, discount rate, method of funding and time of existence of the business.

Table 1 Overview of value drivers per authors

Author/authors	Value drivers
Koller, Goedhard, Wessels	growth, ROIC, WACC
Copeland, Dolgoff	<i>financial</i> - revenues, costs, growth, WACC; <i>operational</i> - customer loyalty, quality of means of production, accrued costs of developing new products
Dobbs, Koller	long-term growth, ROIC, cost of capital
Scott	business strategy, mission, culture, values, financial performance
Rappaport	<i>operational</i> - revenue growth, operating profit margin, tax rate; <i>investment</i> - working capital, fixed capital, <i>financial</i> - cost of capital
Dluhošová	<i>operational strategy</i> - revenues, margins, planning horizon, <i>investment strategy</i> - capital investments, working capital, acquisitions; <i>financial strategy</i> - credit rating, tax rate, capital structure, dividend policy
Mařík	revenues and revenue growth, operating profit margins, investments in working assets and net operating assets, discount rate, method of funding, time of existence of the business

In summary, as you can see from the **Table 1**, each author perceives value drivers as certain business-economic indicators which allow to manage efficiently the business performance and value (shareholder value). However, there are differences in the extent and depth to which authors deal with the value drivers.

3.1. Individual Value Drivers

Shareholder value represents the primary objective of the business performance management. Business performance can be characterized mainly through value drivers and their development. If the shareholder value is quantified through income-based methods, then the basic parameters of long-term enterprise value on the primary level may be assumed to consist of the business growth (FCFF g growth) and the value range (ROIC - WACC). By breaking down the basic parameters it is possible to reach the individual value drivers. The growth of free cash flow for shareholders and creditors of foreign interest-bearing capital (FCFF) is

determined by the growth of NOPAT and IC. The increments of NOPAT and IC (IC growth must correspond with NOPAT growth) determine the return on new invested capital (RONIC), which - as an incremental factor - affects the average value of ROIC. If \uparrow RONIC, then \uparrow ROIC and vice versa. With RONIC = ROIC, the average value is stable. The NOPAT growth is influenced by the corporate revenues growth (T), the operating profit margin at the level of EBITDA/T, depreciations (A) and tax rate (d) (income tax). Increase in the net investment operating capital (IC) (fixed assets + working capital) is generated by net investments (In), which in proportion to NOPAT create net investment rate (m), which can be expressed in the long term as g/RONIC. The range of value of ROIC - WACC depends, through ROIC (which is defined as NOPAT/IC), on RONIC and, through weighted average cost of capital WACC, on the funding structure (St) of net investment operating capital (IC), due costs of equity n_{VK} and costs of foreign interest-bearing capital n_{CK} .

Consequently, the enterprise value drivers are as follows: revenues and revenue growth; operating profit margin at the level of EBITDA/T; gross investments in net investment operating capital (i.e. depreciations as replacement investments + net investments); tax rate; funding structure of net investment operating capital; indebted costs of equity; costs of foreign interest-bearing capital.

Using the value drivers, it is also possible to express the free cash flow to firm (FCFF), as per below equation (1):

$$FCFF = NOPAT - In = KPVH \cdot (1 - d) - In = \left(T \cdot \frac{EBITDA}{T} - A \right) \cdot (1 - d) - In \quad (1)$$

where FCFF = free cash flow to firm, NOPAT = net operating profit after tax, In = net investments, KPVH = corrected operating income, d = tax rate, T = revenues, EBITDA = earnings before interest, taxes, depreciation and amortization, A = amortization (depreciations).

4. THE CONCEPT OF REVENUES

As mentioned above, revenues reflect how successful the enterprise is in capitalizing its output on the relevant market, in this case in the metallurgical sector, and together with the efficiency of transformation of inputs into outputs they generate shareholder value. In this concept, revenues are seen as a business-economic quantity and, for the purpose of enterprise value assessment, as a significant enterprise value driver.

According to the references [9], "In the accounting, revenues are earnings of an accounting entity that affect the operating result based on the sale of outputs (products, goods, services, securities) or fixed assets...", while income is "...monetized equivalent of outputs provided..." From an accounting point of view, in the Czech Republic and for the purpose described, revenues can be defined as income generated from the sale of the output, i.e. from capitalizing the output on the relevant market, in particular in the form of the company's own outputs (products and services) and goods.

The concept of revenues (T) that has been discussed so far, does not include the income from the sale of fixed assets. This is so because in the income approach to the enterprise value assessment, the assets for sale are usually treated as non-operating assets that do not affect NOPAT, IC and - in case of DCF entity income-based method - FCFF. The value of non-operating assets is estimated separately and it is taken into account by being added to the company H_n . The reason is that revenues (T), as the enterprise income value driver, must arise from the so-called business core operation. Subsequently, it is possible to define the core business as the main entrepreneurial focus of the company. From the perspective of the core business, the company assets can be categorized into net operating assets and non-operating assets. As mentioned above, non-operating assets must not affect the FCFF estimation, i.e. the related income, costs and cash flow must not affect the enterprise value drivers.

5. METHODS OF ESTIMATING FUTURE DEVELOPMENT OF REVENUES

5.1. Forecasting Methods

Generally, forecasting methods can be categorized into two basic groups [10]:

- qualitative forecasting methods,
- quantitative forecasting methods.

Qualitative Forecasting Methods

The following methods are usually included in the qualitative forecasting methods: brainstorming, expert panel, Delphi, analogue method.

These methods are essentially based on the experience and reflections of experts who create forecasts in a formalized manner, using certain procedures (research or normative).

Quantitative Forecasting Methods

Future development of the monitored quantities is estimated mainly by using extrapolation techniques based on: time series analysis, correlation and regression time series analysis.

Time series analysis is typically performed through a so-called decomposition of time series into trend, seasonal, cyclical and residual components, based on an additive or multiplicative decomposition method. Time series decomposition method assumes that "the process generating the relevant time series is dependant only on time." Correlation and regression time series analysis is based on the analysis of interdependence of economic phenomena (correlation), seeking the form of mutual dependence of these phenomena (regression).

Future development of the monitored quantity can be estimated on the basis of extrapolation, i.e. extension of past values of the time series into the future using an appropriate analytical function (smoothing of time series). The smoothing of time series is performed using the method of least squares (MLS), which "is designed to approximate statistical data using an appropriate analytical function."

These methods can be perceived as basic approaches to the estimation of future development of revenues as part of the income-based enterprise value assessment.

5.2. Structural Analysis

For analysis of and flexible reaction to changes in production-consumption relations of production-consumption systems and for studying the conditions allowing to maintain economic balance, it is possible to rely on the existing set of general theoretical knowledge of mathematical modelling and analysis of production-consumption relations, usually denominated as structural analysis.

Structural analysis results in structural models (balance models), showing - under different conditions - both endogenous and exogenous production-consumption relations of any production-consumption system. They allow the customer/market requirements to be relatively quickly and accurately reflected in the required production volumes of individual company divisions, in material and energy demands on suppliers, in the demand for workforce and resources for their remuneration, in the overall structure of costs of production and in the company's gross or net income. [11], [12]

6. SENSITIVITY ANALYSIS

As part of individual scenarios - estimates of future development - the assessor is able, if necessary, to use a sensitivity analysis to examine how the enterprise value drivers respond to isolated, simulated changes in a risk factor within a particular scenario, allowing the assessor to obtain valuable feedback regarding the significance of individual risk factors for a given scenario.

The sensitivity analysis examines how the monitored quantity responds to changes in input parameters. Using a so-called one-way analysis, the quantity sensitivity to changes in a single parameter is analyzed, while other parameters maintain their original values. The contemplated changes of the input parameter may be based on pessimistic and optimistic estimates of parameter values or there are simulated deviations from the originally planned values expressed as a percentage. The result of the sensitivity analysis indicates which input parameters may be considered as less important or significant, depending on how the monitored quantity responds to changes in a particular input parameter. The disadvantage of the one-way analysis of sensitivity is the fact that it does not take into account the links between the input parameters. [13]

7. CONCLUSION

As mentioned above, authors perceive value drivers as certain business-economic indicators allowing to manage effectively the business performance and shareholder value. There are differences in the extent and depth to which authors deal with the value drivers but all authors undeniably agree that one of the most important enterprise value drivers is the growth of revenues which reflect how successful the company is in meeting the customer needs on the relevant market, in this case in the metallurgical sector, and together with the efficiency of the transformation of inputs into outputs they generate shareholder value.

In order to determine the enterprise value it is necessary to predict the development of revenues, which is a very complex process, particularly in the metallurgical sector. The field of mathematical modelling of economic phenomena and processes, which is gradually gaining a strong position in all sectors, can be of a significant contribution in this respect. Unfortunately, despite the undeniable significance of economic-mathematical methods and modelling techniques for quantitative support in management decisions, their practical use in Czech enterprises is still insufficient. The methods are often applied inappropriately and ineffectively, which inevitably leads to dissatisfaction with their application and subsequently to skepticism regarding their practical use. The main area of their application is the planning process, where they allow the algorithmization of balance calculations required for the creation of distribution, production and supply plans and flexible allocation of production steps.

In terms of its technological nature and due to its position in the production cycle, the metallurgical process generally creates some specific requirements for procedures and methodology of operational and strategic planning. This makes long-term planning more complicated, as market situation constantly changes in the current business environment, individual customer demands become more manifested and there is growing demand for production or provision of services according to client's individual requirements. As a result, businesses that strive for prosperity and long-term success in the market are forced to produce an increased number of differentiated products which leads to increased variability in production. At the same time, there are requirements for higher quality standards, reliability, speed and accuracy of deliveries. This is all subject to prices determined by the market.

It follows that in dealing with the issues related to the planning process in metallurgical enterprises, an opportunity presents itself to use atypical applications and permissible simplifications which could lead to wider use of regression and correlation analysis, sensitivity analysis as well as structural analysis in the metallurgical process.

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