

THE INDICATORS OF VALUE-ADDED, METHODS OF CALCULATION AND APPLICATION IN MANAGEMENT OF RUSSIAN COMPANIES

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Summary: 1. Method of Calculating Based on the Basis of Value Added; 2. Combination of Factors That Affect the EVA and SVA; 3. Information and the Method of Adjusting Operating Profit and Invested Capital in the Calculation of EVA and SVA. 4. The Example of Calculating EVA for Russian Company on the Basis of Financial Statements Prepared according to the National and International Standards

1. Method of Calculating Based on the Basis of Value Added

The financial and economic indicators used in the management of economic entities comprise criteria, characterizing property status of an organization, its profitability, financial stability, business activity and its value. The latter includes value added, in particular, economic value added (EVA), market value added (MVA), shareholder value added (SVA), cash value added (CVA) and cash flow return on investment (CFROI). The indicators of EVA, MVA and SVA are detailed below.

Economic Value Added (EVA) is the trademarked name for a specific approach to calculating economic profit developed by the consulting company of Stern Stewart & Co. in the 80's of XX century. In 1990 B. Stewart published his famous monograph «The quest for value: a guide for senior managers» [7, 13].

EVA provides for estimating the real economic profit at the required rate of return, which shareholders and lenders could receive by investing their capital in other assets with the same level of risk.

There are two basic ways to calculate the economic value added [7, pp. 178-179, 14]:

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$$1. \text{ EVA} = \text{Net operating profit after tax (NOPAT)} - \\ - \text{Weighted Average Cost of Capital (WACC)} * \\ * \text{ Invested Capital (CAPITAL employed)}$$

$$2. \text{ EVA} = [\text{rate of return on capital (ROI)}^1 - \\ - \text{Weighted average cost of capital (WACC)}] * \\ * \text{ Invested Capital (CAPITAL employed)}$$

While EVA allows estimating a rate of return from investments by its adjustment, the index of the Market value added (MVA) enables to estimate market capitalization of the company which is more significant for stock companies with the shares being quoted on exchange stocks. The market value of shares determines shareholders' welfare better than income. In general, the MVA characterizes the difference between capital market value increase achieved for the period and the capital invested in a company (increase of a company market value after deduction of investment expenses). Accordingly, expression for calculation MVA is as follows [7, 17, 21]:

$$\text{MVA} = \text{Market Value of Debt} + \text{Market Value of Equity}^1 - \text{Total Adjusted Capital}^2$$

Market value of debt is generally discounted in the process of MVA calculation, as it is not always possible to define the value. Bonds only can be quoted on stock exchanges. Other debt components (loans, debts) are defined as book costs. The following expression is used for determination of MVA in this case [7, 14, 17]:

$$\text{MVA} = \text{Market Value of Equity} - \text{Total Adjusted Capital.}$$

¹ I = NOPAT/ Capital employed.

¹ Market Value of Equity – market value of the issued ordinary shares.
² Total Adjusted Capital – size of net assets by balance estimation.

For the purpose of interpretation convenience instead of MVA absolute value the standardized MVA value is defined as the ratio of MVA for the period to the value of equity [22, 23]:

$$\text{Standardized MVA} = \text{Change in MVA for the Year} / \\ / \text{Adjusted Equity at Beginning of Year}$$

Thus, the estimation of increase or reduction of the company market value in percent is formed for period.

One of MVA disadvantages is the fact that the market capitalization is affected by many factors, and some of them are beyond the Company Management control. This indicator does not give a clear picture of when (in the current year or years ago) and how the cost was created. Therefore, orientation on MVA annual change is more correct [18].

The factor of the shareholder value added (SVA) is lighted up in the A. Rappaport research "Creating shareholder value: a guide for managers and investors", which reflects the results of activity of company "L. E. K. Consulting" founded by Mr. Rappaport in the 80s with the registered trademark SVA [19].

In Alfred Rappaport research SVA is determined as an increment between two indicators – the cost of shareholder equity after some operations and the cost of that capital before the operation. The following other interpretation is often provided: SVA is an increment between the adjusted equity estimated value (for example, by DCF method) and the adjusted (shareholders) equity balance value. Notwithstanding the substantial differences in these two approaches, the following is common between them – it is required to define the market value of equity for determination of SVA and well-known methods for company value estimation by way of cash flow discounting are used for that [14, 16]. The disadvantage of this model is complexity of calculations and difficulties associated with the cash flows forecasting.

The main assumption for SVA calculation according to A. Rappaport are [7, p. 185 - 189] the following:

- the forecast period is limited by the period of competitive advantages;

value, added by new investments is taken into account in the year when the investments were completed; initial investment capital is fixed at market estimation rate when calculating the business value.

is the following method for the shareholder value added index:

$$\begin{aligned}
 \text{SVA} &= \text{Change of the invested capital value,} \\
 &\quad \text{where the cost of invested capital} = \\
 &= \text{Accumulated present cash flow value} + \\
 &\quad + \text{Present depreciation value}
 \end{aligned}$$

ppaport distinguishes the followings factors, determining a shareholder value added [7, p. 188-189]: rates of revenue growth, profit generating activities, increase of investments in the fixed assets, investments in working capital, taxes rates cost of capital.

mbination of Factors That Affect the EVA and SVA

rs, determining SVA and EVA, are shown in fig. 1 and 2 [7, p. is obvoius that indicators of EVA and SVA are influenced by external and internal factors. At that, it is reasonable to distinguish between the micro- and macrolevel factors and consider them in or example, the following factors have influence on:

- of profit growth: market size, market share, turnover, purchasing power of buyers;
- it from operating activities: retail prices, the level of service, the rate, raw materials prices;
- ease in fixed assets investment: the substitution of equipment, equipment maintenance, the scope of operations;
- ease of investments in working capital: depreciation of equipment, accounts payable, accounts receivable, terms of delivery contracts, raw materials prices;
- rate: the effectiveness of tax structure;
- of capital: property rate, debt rate, securities productivity.

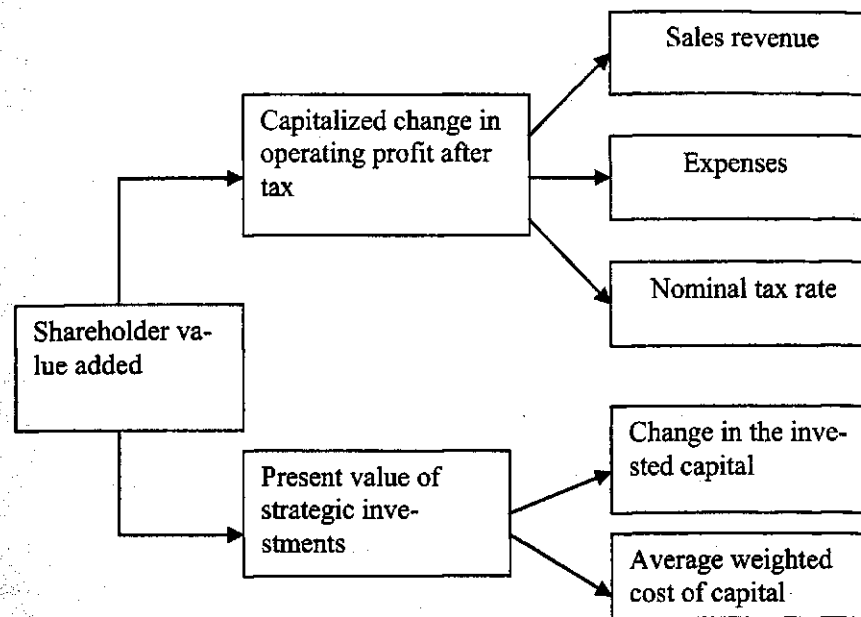


FIGURE 1. Major SVA forming factors

In addition to the above mentioned factors the balance estimation of total capital and net operating profit can influence the value added indicators, the estimation in turn, depends on the accounting treatment of assets and liabilities. The international accounting practice focuses on the additional disclosure of the assets market value and total value of liabilities. These requirements on disclosure of information are now included into the Russian national accounting standards (RAS) – Regulations for accounting "Accounting of Inventory" and "Fixed Assets Accounting" (PBU 5 and PBU 6), where the requirement to disclose the market value of assets in the in the accounting records is stated.

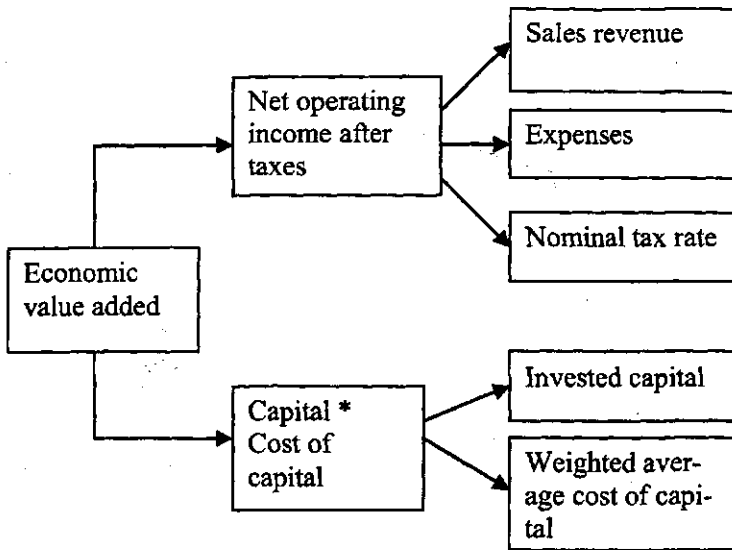


FIGURE 2. Major EVA forming factors

Information and Method of Adjusting Operating Profit and Invested Capital in the Calculation of EVA and SVA

The adjustment shall be made for eliminating the distortions due to accounting methods and some accounting principles in order to obtain objective characteristics of the net operating profit and total capital. For calculating the net operating profit (NOPAT) it is recommended to implement the following adjustments, contributing to obtaining the objective NOPAT value:

- Net operating profit after tax (NOPAT) =
- Operating profit after depreciation and amortization
- Interest payments for using loan sources
- Implied interest expense on operating leases
- Goodwill amortization
- Increase in bad debt reserve
- Increase in net capitalized research and development
- Hypothetical taxes or Cash operating taxes

The information required for calculation of the net operating profit is stated in Table 1 below.

Indicator	Information source:	
	IFRS	RAS
Operating profit after depreciation and amortization	Profit and Loss Account	Profit and Loss Account
Interest payments for using loan sources	Profit and Loss Account and consolidated statements	Accounting Policy, Profit and Loss Account (if percents are shown in a separate line), if they are accounted in the cost value, then an explanatory note will be required
Implied interest expense on operating leases	Profit and Loss Account and consolidated statements	An explanatory note
Goodwill amortization	Consolidated statements	Annex to Balance Sheet form № 5, an explanatory note
Increase in bad debt reserve		Report on capital structure, annex to Balance Sheet form № 5, an explanatory note
Increase in net capitalized research and development		Annex to Balance Sheet form №5 and an explanatory note
Taxes rates	Report on consolidated returns, an explanatory note	Report on the consolidated returns, the explanatory note

TABLE 1. Information required for calculation of the net operating profit

EVA and SVA values are significantly influenced by the amount and cost of invested capital. A number of adjustments is required to calculate the company invested capital. Some researchers assure that 5 to 6 adjustments are sufficient for full using of EVA concept in the company (www.evanomics.com). Others state that EVA calculation of is not easy

understand, as the required number of adjustments to be used in the company for EVA calculation (so that EVA reflects the actual business situation) should be more than 20 [13].

The adjustments for calculation of the capital employed include the following in the standard version:

- accounting for all intangible assets, capitalization of R&D, expenses on brand, building management team;
- consideration of all paid sources of finance and in some cases item "spontaneous financing" ;
- capitalization off –balance-sheet leasing and rent;
- recalculation of inventory based on LIFO method according to FIFO method;
- rediscount of doubtful investments from principle "successful efforts" to full costs (for example, capitalization of all expenses on drilling at oil and gas companies – both successful and unsuccessful).

According to Samylin A.I. opinion, the adjustment of operating profit and invested capital, as recommended by Stewart G. Bennett - the creator of this factor, should not be conducted for the Russian small-scale enterprises because they do not belong to the operations usual for small-scale companies [12]. However, it should be noted that, despite the fact that small-scale companies can refrain from calculating the deferred taxes according to PBU 18/02 "Accounting of income tax calculations" - it doesn't mean that such operations are not characteristic for the economic activities of small companies. For example, the discrepancies in the dates and order of depreciation for the purposes of book and tax accounting, in the order of the creation the provisions for doubtful debts, exceeding of level expenses and other operations which can lead to the formation of permanent and temporary differences when calculating the profit tax.

Also, the interest payments on loans and financial leasing shall not be regarded. Practice in Russia proves that small companies are actively involved in such transactions, as they don't have a surplus of owned financial resources for renewal (upgrade) of fixed assets and working capital. When bringing the loan for acquisition (construction) of fixed assets differences in tax and accounting may form immediately. It is related

to the procedure of interest on loan payment. For the accounting purposes, the interests for the loan paid in the period of objects creation, form the initial object value, i.e. capitalize, and for the tax accounting purposes they are taken into account as part of non-operating expenses in the same accounting period as they were charged.

In my opinion, with such approach the results of the indicators cannot be recognized as objective when performing a comparative analysis, as some companies have to adjust the operating profit and debt capital value, while the others do not. On the other hand, it is difficult or practically impossible for an external user to make such adjustments for small companies due to lack of information, the courses of which are stated in Table 1. To my mind this is the main reason for complexity of calculation and interpretation of results.

Many authors do not consider the composition of the invested capital in detail [10, 11, 12]. However, for the purposes of adjustment it is required to specify which components shall be considered as invested capital for the Russian companies. For example, Efimova O. V. considers the nominal value of ordinary and preferred shares, additional paid-in capital and value of donated assets as invested capital. The first component of invested capital is represented in the balance sheet of Russian enterprises by equity capital, the second - by additional capital. At that, additional capital takes an intermediate position between the invested and accumulated capital, according to economic principles. The elements of additional capital are partly included into the group of the invested capital (profit from fixed assets revaluation, emission profit and donated assets value), partly – into the accumulated capital as net profits spent on financing of capital investments [8]. The current practice of forming the accounting and reporting information on using profits to finance long-term investments in Russia came into conflict with the logic of formation and movement of items describing the value of accumulated capital.

The demonstrative example is considered below. According to the Federal Law "On Joint Stock Companies" and the Federal Law " Limited Liability Company" the entities have the right to determine themselves the directions and activities to be financed from the net profit. The source of financing of capital investments, associated with fixed assets procurement, may be either company own assets – retained profit, which is not

distributed for dividends or other non-capital purposes, charged depreciation on fixed assets or borrowed funds. Economic sense of account № 34 "Retained profit / "uncovered loss" consists in accumulating of profit not paid as dividends or retained profits as well as the profit remaining at disposal of joint-stock company based on the decisions of the shareholders, as an internal source of funding.

However, this leads to complication in understanding of accounting records. When making the capital investments (purchasing of assets) using the net profit, the current assets of the company (money in the current account) are gradually moving to being the non-current assets. At that, only the assets of balance sheet reflect acquisition of fixed assets in the accounting. Movement of capital investments financing sources is not reflected in the balance sheet. Thus, in spite of the fact that the company profit distributed by shareholders for purchasing of fixed assets, will be used actually (i.e. objects will be purchased), this fact will be in no way reflected in the liability side of balance sheet [15]. Information on the profit used for acquisition of fixed assets objects can be gained only from the explanatory note. Order of determining the profit value, directed during a year to financing of capital investments is not stated in the normative documents for accounting.

According to the opinion of the article author, for the purposes of VA and SVA calculation it is required to revise the invested capital structure offered by O. V. Efimova. Group of the invested own capital shall include the articles through which the cash assets were obtained: emission income, donated assets value, as well as the capital directed financing of capital investments. All other components of additional capital apply to the accumulated capital. In this respect external user of reports again has difficulties related to obtaining of the required information as the additional capital is stated in balance sheet as one line.

As for the capital reserves, it is formed depending on the company level form either as stated in the law or according to the company preferences. However, in both cases the amount of capital reserves is formed from net profit, which is the accumulated capital.

However, the above composition of the invested capital for a calculation EVA and SVA cannot be considered complete as it doesn't take into account the borrowed capital.

Invested capital =
book value of common equity;
+ preferred stock or chartered capital value;
+ minority interest;
+ deferred income tax reserve;
+ additional capital as part of invested funds;
+ accumulated goodwill amortization;
+ interest-bearing short-term debt;
+ long-term debt;
+ capitalized lease obligations;
+ present value of non capitalized leases.

When defining the value of invested capital the user has a problem which is not less complicated, that is on assessing the cost of each element for the purposes of calculation of average weighted value. There is no common approach in the special literature to assessing the value of funding sources, own capital in particular. However, if the cost of capital is underestimated, then the created value added is high, if it is overpriced – the created value added is low. Obviously, the correct calculation of these values can become determinant when making the decisions within the framework of company management. It is necessary to realize that a Specialist shall not just calculate the indicators, but also he should correctly interpret the result and apply it in the process of management decisions making. In the author's opinion, in the process of calculation of the values of the above mentioned indicators there are quite many assumptions and faults, which prevent from using them as the unique criteria, characterizing the efficiency of company activity.

4. The Example of EVA Calculating for a Russian Company on the Basis of Financial Statements Prepared in Accordance With the National and International Standards.

The simplified version of EVA calculation by adjustment of operating profit and invested capital on the example of the Russian company is stated below. The example demonstrates the lack of comparability of the

Results and complications in interpretation of financial statements indices described above.

JSC (joint stock company) «Rostelecom» is the largest operator in Russia for the operators providing for the complete range of services of main network and connecting the networks of the Russian operators into single national network. The company is also the largest telecommunication service provider for state organizations and departments, radio and television companies, Internet service providers. The largest shareholder of «Rostelecom» is JSC «Svyazinvest» holding company, which owns 49% of ordinary (voting) shares of the Company. Thus, 49% of ordinary shares and 100% of preferred shares of «Rostelecom» are in free circulation. In 1998, the program was launched with ADR of the second level listed on the New York Stock Exchange (ticker ROS). The Company securities are traded on the largest Russian and foreign stock exchanges, including RTS, MICEX, New York, London and Frankfurt stock exchanges [20].

Based on the balance sheet, profit and loss account, the explanatory note as well as other statement forms of «Rostelecom» for 2007, presented on the official website of the company, we will make adjustments of operating profit and invested capital to prevent significant distortions of the resulting economic value added indicator (EVA).

Adjustment of profit before deduction of percents and taxes is stated in Table 2 below.

Transaction	Article	RAS		IFRS	
		value	Information source	value	Information source
	EBIT	12 832 ⁵	Profit and loss account	4 054	Report on financial results
+	Interest payments for using loan sources	-	Balance sheet	184	Article 16 of consolidated statements
+	Goodwill amortization	-	Balance sheet	271	Article 7 of consolidated statements
	Increase in bad debt reserve	850	Article 6.7 and article 7.3.2 of explanatory note	815	Article 11 of consolidated reporting, P&L statement
+	Long term increase in net capitalized research and development	-	Explanatory note	-	Consolidated statements
	Tax rates	3 170	Article 7.4 of explanatory note	1194	Article 19 of consolidated statements
-	Net operating profit after tax (NOPAT)	10 512		4130	

TABLE 2. Adjusted net operating profit after tax of «Rostelecom» JSC according to the Russian and international standards for 2007, mln.rub

Adjustment of the invested capital is stated in Table 3.

$$\text{EBIT} = \text{Profit (loss) before taxation} + \text{Interest expense} = 12\,594\,243 + 237\,736 = 12\,831\,979 \text{ thousand rubles.}$$

ction	Article	Value	Information source		Value
			RAS	IFRS	
	Ordinary shares balance value	1,822	Balance sheet and Explanatory note	Consolidated statements	1,822
+	Preferred shares	0,607			0,607
+	Minority interest			Consolidated Balance sheet	26
+	Deferred taxes	2 377,9	Balance sheet	Article 19	4119
+	LIFO Reserve	0	-		
+	Accumulated goodwill's amortization	0	-	Article 7 of Consolidated statements	271
+	Short-term debt for which interest is calculated	515,9	Balance sheet	Article 17 of Consolidated statements	1008
	Long-term loan capital	4 044,3		Consolidated Balance and article 18 of Consolidated statements	2757
	Capitalized leasing	0	-	Consolidated Balance sheet and article 16 of consolidated statements	396
	Present value of the capitalized leasing	0	-		108
	Original invested capital	6 940,529			8687,429

TABLE 3. Adjusted invested capital in 2007 mln. rub.

Now a simplified assessment of the invested capital value will be carried out. According to the report in Form 20-F² for 2007 [20], the weighted average cost of debt capital for the period is 8%.

The cost of equity capital, calculated using the model CAPM ($E(r_i) = r_f + \beta_i * (E(r_m) - r_f)$), amounted to 32,3%. At the same time the average return on GSO-FST (government short-term obligation - federal state bonds) at the Russian market at the end of 2007 [25], which amounted to approximately 6.01% was taken as a risk-free rate. Coefficient β is determined on the basis of "Rostelecom" shares prices and RTS index for the period from January, 1, 2000 to December 31, 2007 [24] and it amounted to 0,95. Average market profitability rate was calculated according to RTS index and amounted to approximately 33.69%. The WACC is $\approx 6,09\%$ ($2429 / (6\ 940\ 529) * 0,323 + 6\ 938\ 091 / (6\ 940\ 529) * 0,08 * (1 - 0,24)$) using the capital values stated in Table 3. EVA value will be defined on the basis of information calculated using the data as per the Russian accounting standards. The results are shown in Table № 4 (second column). Economic value added amounted to 10 089 mln. rub. if considering one period and at assumption that prognosis parameters for all scenarios are similar, therefore they are not evaluated.

Indicator	Reporting Period		
	RAS without taking additional capital into account	RAS with taking additional capital into account	IFRS
1	2	3	4
1. NORAT	10 512	10 512	4130
2. CAPITAL employed	6 941	14 960	8 687
3. WACC, %	6,09	20,14	6,98
4. Payment for capital	423	3 013	606
5. Economic value added	+10 089	+7 499	+3524

TABLE 4. Estimation of "Rostelekom" economic value added for 2007, mln. rub.

However, the additional capital, part of which has, as mentioned before, investment character, is not accounted in the adjustment of the invested capital. When we turn to "Rostelecom" statements prepared ac-

According to the Russian standards, it is obvious that the additional capital amounts to 8 020 318 thousand rubles. According to the explanatory note (article 6.11) this type of capital is created by paid-in capital, derived from sale of the company shares. Accordingly, this type of capital can be considered as an investment one, therefore, the economic value added value differs the one calculated above, which is clearly shown in Table 4 (column 3). The WACC under these conditions would be 20,14 % $(8022/(14960)*0,323 + 6938/(14960)*0,08*(1-0,24))$, and the economic value added is 7499 mln. rub. The fourth column of Table 4 contains the economic value added calculated on the basis of the adjusted data of the consolidated statements prepared in accordance with the requirements of international accounting standards. The average capital is at the following level $\approx 6,98\%$ $(299/(8687)*0,323 + 8388/(8687)*0,08*(1-0,24))$.

5. Conclusions

The information shown in Table 4 proves that the results of calculation of economic value added have different values, it is difficult to form decisive judgment on efficiency of management decisions and company activity. That is why it is required to study the shown indices in dynamics and together with other criteria, characterizing financial and operational activities of the company.

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