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THE ROLE OF INTANGIBLE ASSETS IN VALUE CREATION: CASE OF RUSSIAN COMPANIES

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Abstract: The paper is devoted to the question of the role of intangible assets in value creation of companies in the economy of the XXI century. The main research objective is to define the impact of fundamental value of both tangible and intangible assets on the market value of companies. Evaluation of intangible assets is based on residual operating income (REOI) model. In the focus of the research there is a sample of Russian companies. The model was tested on the whole sample of the companies, and then separately on each of five industries: mechanical engineering, extractive industry, power engineering, communication services, and metallurgy.

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Introduction

Logic of business in contemporary knowledge-based economy is forwarded by achieving results and long-term success by value-creation. One of the most important trends in the economy of XXI century is a shift from tangible to intangible value creation. The leading companies are trying to achieve not only the cost reduction but the value creation. Except reduction of tangible assets in value, another trend is that the production is mostly based on such intangible assets (IA) as knowledge, know-how, creativity and others. One of the main challenges for management now is to create and develop the conditions that will allow increasing the value of intangible assets and therefore the value of whole company. Also it is vital for a company to transform its intangible assets into tangible forms (income, market value, value added). Lev (2003) notes that in 2000 «net tangible and financial assets of Microsoft determined less than for 10% of its market value. The same figure of Cisco equals only 5%». The inclusion of the effects connected with intangible assets of a company into the measuring system of the activity results admits making them more efficient, and, therefore, opens the possibility of making executive compensation system more efficient as well.

Even though, a number of theoretical works stress on strategic importance and the role of intangible resources in a company's competitiveness, there is yet a lack of approaches that evaluate the mechanism by which these resources contribute to create value. This is because of the intangible nature of these assets. As a result more studies are needed for better understanding of the way these assets are clustered and their role in value creation of a company.

Evaluation of intangible assets

The intangible assets evaluation problem is immensely complicated and disputable. Apart from the specific character of the evaluated subject (its intangibility), the difficulty of the problem is connected with the fact that in this case the evaluation models not only give the numerical evaluation, but also in a certain way determine the essence of the evaluated subject.

A new approach for intangible asset valuation based on the residual operating income (REOI) model as a variant of fundamental value of equity model was developed by the author in (Volkov, Garanina, 2007). Residual operating income is a net operating income of a company after cost deduction on company's capital. In this case investments mean book value of net assets (*NA*) of a company. Consequently, we take here the value of net operating income for the income, i.e. the value of income before interest but after taxes (or earnings before interest - *EBI*) and the weighed average cost of capital (*WACC*) - k_w for the required return.

As mentioned above, the basis for valuation in this paper is the REOI model:

$$V_E^{REOI_j} = E_0^{BV} + \sum_{j=1}^{\infty} \frac{REOI_j}{(1+k_W)^j} = \left[NA_0^{BV} + \sum_{j=1}^{\infty} \frac{REOI_j}{(1+k_W)^j} \right] - D_0 , \quad (1)$$

where, V_E^{REOI} - the fundamental value of equity according to the REOI model; E_0^{BV}, NA_0^{BV}, D_0 - book value of equity, net assets and debt at the moment (respectively); $REOI_j$ - residual operating income in year *j*. REOI variant is EVA (economic added value); k_W - weighted average cost of capital (*WACC*).

The process of evaluation model development is described in (Volkov, Garanina, 2007). According to the main results of the paper, fundamental value of a company's assets can be divided into the fundamental value of tangible assets (V_T) and intangible assets (V_I):

$$V_T^{REOI} = NA^{BV} + \frac{NA^{BV} \times (RONA_{IAVG} - k_W)}{k_W} =$$
$$= NA^{BV} \times \left(1 + \frac{RONA_{IAVG} - k_W}{k_W}\right) = NA^{BV} \times \frac{RONA_{IAVG}}{k_W}, \quad (2)$$

$$V_I^{REOI} = \frac{REOI}{k_W} = NA_T^{BV} \times \frac{RONA - RONA_{IAVG}}{k_W}. \quad (3)$$

Where, $RONA_{IAVG}$ - industry average return on net assets, RONA - return on net assets of a company.

Drafting of the research models

Considering that the market-value of equity is market capitalization (Cap), and the market-value of dept (D) that is usually assumed as its book value, the market-value of a company's assets can be characterized as follows:

$$P_A^M = Cap + D \quad (4)$$

The developed model represents the influence of fundamental value of both tangible and intangible assets upon the market-value of assets of a company:

$$P_A^M = \lambda_0 + \lambda_1 \times V_T + \lambda_2 \times V_I + \varepsilon_1, \quad (5)$$

where λ_0, λ_1, λ_2 - coefficients of the regression equation; ε_1 - random error.

Statistical information

The test of the model was held on the sample of Russian companies-emitters, which sell their stocks within the Russian Trade System (RTS). Financial intermediaries (banks and financial institutes) were not included into the sample in order to keep the data uniformity.

TABLE 1. GENERAL STATISTICAL CHARACTERISTICS OF THE RESEARCHED SAMPLE

Name of the variables/characteristic	Mean	Mediana	Standard deviation
Market-value of assets (million Rub)	81 558	17 862	167 988
Fundamental value of tangible assets (million Rub.)	62 091	19 841	123 426
Fundamental value of intangible assets (million Rub.)	5 619	– 605	80 202

TABLE 2. RESULTS OF STATISTICAL ANALYSIS OF THE MODEL (5)/ VT; VI

The characteristic	Sample as a whole	Mechanical engineering	Extractive industry	Power engineering	Communication services	Metallurgy
Coefficient before the first independent variable	1.0677 (18.80)	0.7662 (2.18)	0.9756 (7.53)	1.8104 (16.61)	1.0654 (8.35)	1.2531 (8.35)
Coefficient before the second independent variable	0.1610 (20.02)	0.6469 (0.57)	0.0150 (2.07)	0.0675 (2.09)	0.3142 (4.64)	0.1855 (2.96)
t-critic.	1.971	2.8073	2.0167	2.0017	2.0167	2.8073
F-stat.	55.49	1.44	13.15	76.27	26.48	16.57
Coefficients of determination						
R^2	0.850	0.327	0.675	0.950	0.828	0.847
R^2_{adj}	0.837	0.310	0.634	0.945	0.801	0.816

Note: * Tested at 5% significance level, ** t-statistics is shown in parentheses

The final sample includes 43 companies. Firstly, the model was tested on the whole sample of the companies, and then separately on each industry. The companies are divided into 5 aggregated industries: mechanical engineering (aircraft industry and automobile manufacturing), extractive industry (oil holdings and oil-and-gas companies), power engineering, communication services and metallurgy (non-ferrous and ferrous metallurgy). General statistical characteristics are represented in Table 1.

Information of the publicly available nonconsolidated financial accountancy of the companies from 2001 till 2006 was used for analysis. The general content of the sample is 258 firm-years (43 firms during 6 years).

The results of research

The test of the model brings the following results (Table 2).

According to the observation data for the years 2001 - 2006 the equation of the regression function for the regression model will be as follows:

$$P_A^M = 3971{,}695 + 1{,}0677 \times V_T + 0{,}1610 \times V_I \quad (6)$$

In this case the value of the coefficient of determination and adjusted coefficient of determination have high values (0,850 and 0,837 respectively), what says about the tight relationship between the analyzed variables. That means that in Russian conditions the market value of assets of companies for 85% depends on the fundamental value of its tangible and intangible assets.

As the test shows, null hypotheses can be rejected on both explanatory variables what means that the market value of assets of Russian companies depends on fundamental value of both types of assets.

After testing the two-factor model for companies in all the industries a very close relationship between the analyzed variables was found, except mechanical engineering industry. Coefficient of determination in all the cases is more than 0,675. Null hypothesis is rejected in all the industries, except mechanical engineering, that means that the market value of assets depends on the fundamental value of tangible and intangible assets in all the researched branches.

The main problem in realization of this kind of research on the Russian market is the shortage of statistical information. A bigger number of companies-emitters match the necessary parameters of sample, but their reporting is not publicly available. That is why further research in this field will be based on the accumulated statistical information.

Conclusion

The conditions of knowledge-based economy have led to increase of attention to intangible assets (e.g. Stewart, 1997). And a special area that attracts interest of academics and practitioners is the role of intangible assets in value creation of a company and the way it can be measured (e.g. Stewart, 1997; Sullivan, 2000; Sveiby, 2002).

The results obtained in the research generally match the expected ones. The tested econometric model has shown that even though intangible assets “matter” in Russian companies’ value creation, their role is not as significant as the role of tangible assets. We can make a conclusion that on the Russian market the influence of fundamental value of tangible assets on the market value of a company’s assets surpasses the influence of fundamental value of intangible assets upon the same parameter.

Using the balance-sheet methodology, firm value can be viewed as the sum of values of tangible and intangible assets. More precisely, valuation of a company’s tangible assets to access the fair market value needs to be adjusted by the value of intangible assets. Intangibles are now of greater importance than those already in place in terms of a company’s value creation. Due to the strategic relevance of intangible assets management for a company’s competitiveness, understanding the way these assets are converted into value is vital. In particular this understanding should help managers to be able to make better decisions with regard to intangible assets allocation and their management.

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