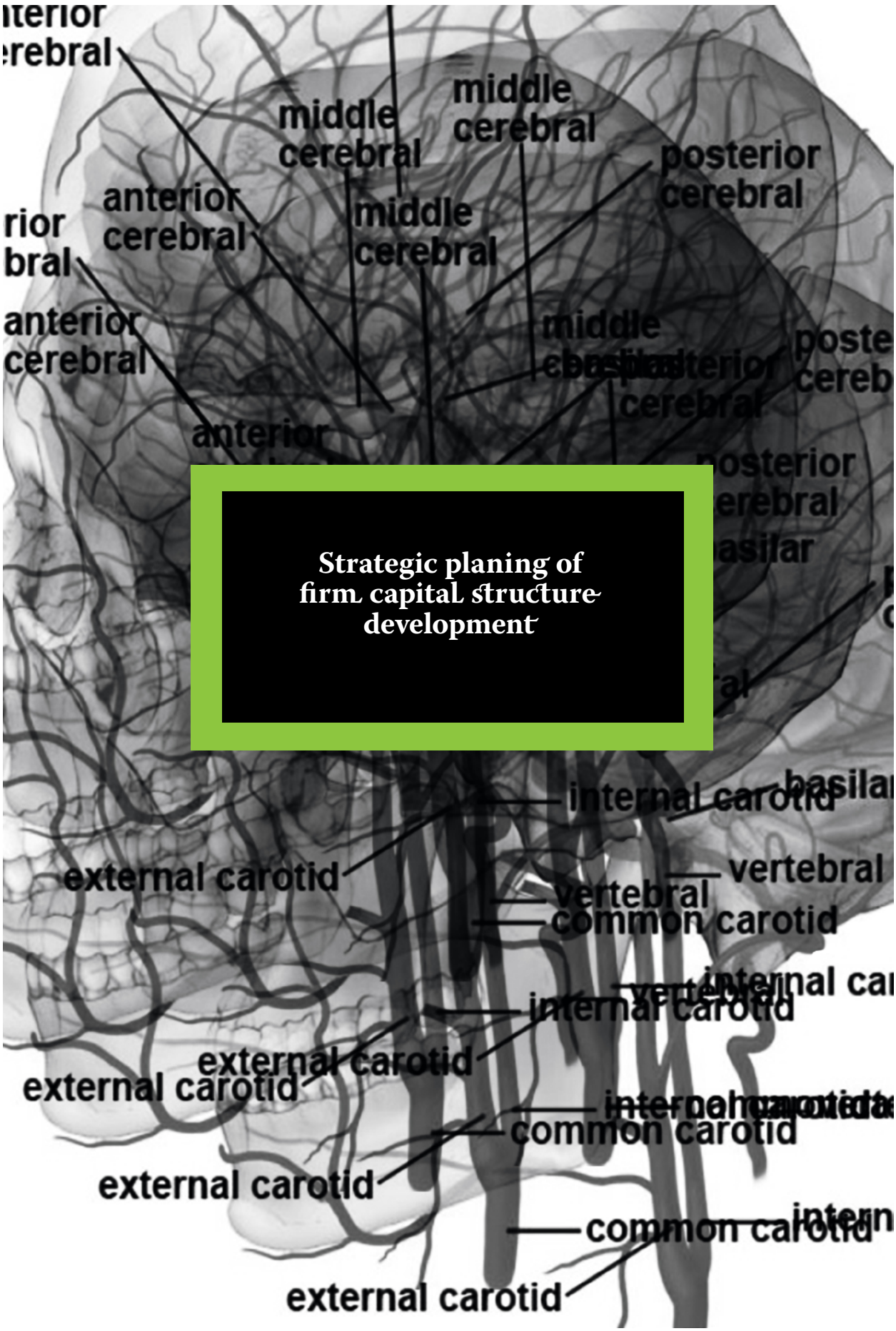

Strategic planing of firm capital structure development

Strategic planing of firm capital structure development

Planificación estratégica del desarrollo de la estructura de capital de la empresa.

ABSTRACT

They modeled firm capital structure in the article within a strategic planning system focused on its value growth. Within the framework of strategic planning, the authors proposed the ways to quantify various financial indicators that form a firm value. The authors justify the thesis that when a firm value growth is planned, not only the valuation of capital is important, but also the development of a strategic financial model that ensures the achievement of a firm capitalization planned value. In order to approbate the proposed approach of a company value strategic planning, the structure of PJSC "Tatneft" capital was modeled according to the financial statements for the period from 2007 to 2016. Completed application developments allowed to supplement the theoretical model with a practical content. The obtained results indicate the maximum value of PJSC "Tatneft" achievement at the level of the borrowed funds in the range of 15-16% within the company capital structure. Based on the applied modeling results, the authors made the following conclusions. First, the decision to optimize the capital structure should be the part of the developed strategic planning system, which takes into account the company position in the market, perspective investments, expected free cash flow, and the distribution policy of net profit. Secondly, long-term firm management plans for credit resource attraction must be accompanied by financial difficulty risk assessments, the forecast of profit and the amount of free cash flow.

KEYWORDS: strategic planning, capital structure, weighted average cost of capital, firm value, free cash flow

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RESUMEN

Ellos modelaron la estructura de capital firme en el artículo dentro de un sistema de planificación estratégica centrado en el crecimiento de su valor. En el marco de la planificación estratégica, los autores propusieron formas de cuantificar varios indicadores financieros que forman un valor firme. Los autores justifican la tesis de que cuando se planifica un crecimiento del valor de la empresa, no solo la valoración del capital es importante, sino también el desarrollo de un modelo financiero estratégico que garantice el logro de un valor planificado de capitalización de la empresa. Con el fin de aprobar el enfoque propuesto de una planificación estratégica de valor de la empresa, la estructura del capital PJSC "Tatneft" se modeló de acuerdo con los estados financieros para el período de 2007 a 2016. Los desarrollos de aplicaciones completadas permitieron complementar el modelo teórico con un contenido práctico . Los resultados obtenidos indican el valor máximo de PJSC "Tatneft" en el nivel de los fondos prestados en el rango de 15-16% dentro de la estructura de capital de la empresa. Sobre la base de los resultados del modelado aplicado, los autores llegaron a las siguientes conclusiones. Primero, la decisión de optimizar la estructura de capital debe ser parte del sistema de planificación estratégica desarrollado, que toma en cuenta la posición de la empresa en el mercado, las inversiones en perspectiva, el flujo de efectivo libre esperado y la política de distribución de la ganancia neta. En segundo lugar, los planes de gestión de la empresa a largo plazo para la atracción de recursos de crédito deben ir acompañados de evaluaciones de riesgo de dificultad financiera, la previsión de ganancias y la cantidad de flujo de efectivo libre.

PALABRAS CLAVE: planificación estratégica, estructura de capital, costo promedio ponderado del capital, valor de la empresa, flujo de efectivo libre

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INTRODUCTION

At present, when they develop the administrative contour of strategic planning for domestic firm development, more attention is paid to financial problems, which is conditioned by the current trends of Russian financial market development. The strategic attitude towards a steady growth of the company market capitalization is determined by the owners as a long-term investment priority and a universal criterion of own capital and market activity increase. The optimization of attraction costs, the use and the servicing of the company capital becomes a key determinant of the company value growth. With this approach, the strategic planning of the company value growth includes not only the valuation of capital, but also the development of the financial model that forms the conditions and the methods to achieve the capitalization planned by the owners. (Ravzieva and Safiullin, 2016). Therefore, the development of the company financial strategy is the basis for the firm development strategic planning, implemented through functional strategies.

METHODS

In the practice of a firm financial management and the theory of corporate finance, the firm capital structure is traditionally represented by the ratio of borrowed and equity capital or by financial leverage. The firm capital structure is a special term introduced into financial management to denote the combination of borrowed and own financing sources, which is a key determinant of a firm valuation (Hamilton, 2012).

During the planning of a company capitalization dynamics, depending on the ratio of borrowed and own financing sources, it is important to use a toolkit corresponding to the specific phase of the firm life cycle to assess the effectiveness of specific methods and the tools for its capital generation. The value of DER (Debt-to-Equity Ratio) is usually chosen as a quantitative measure of a firm capital structure, calculated as the ratio of the book value of the firm total liabilities to the book value of its net worth.

$$DER = \frac{Total\ Liabilities(TL)}{Total\ Shareholders'\ Equity(TE)}$$

The selection of an optimal combination of debt and equity can be performed by the iterative method of approximation to a target capital structure, at which the difference between the tax benefits of borrowed financing and the financial difficulties of a leverage company becomes the maximum one (Safiullin and Gataullina, 2015).

However, the search for this solution is complicated by the lack of a generally accepted methodology and the variety of financial instrument combinations with which the achievement of TCS is modeled. A number of methods is identified In the economic literature, that is used to search for TCS. One of the most used methods is the capital structure optimization method by the criterion of its value, the so-called capital cost method. The cost of capital is identified by a combination of its development sources (Lagarde, 2013). Actually the capital structure optimization process is based by this criterion on the possibility of WACC (Weighted Average Cost of Capital) reduction. The multivariate modeling of WACC, carried out within the framework of this method, is realized through various methods and conditions for credit resource attraction and own capital development.

One of the most used methods to estimate the cost of equity is based on the Gordon formula, which includes dividend yield and the annual growth rate of a share price (capital gain rate) (Khismatullin and Kharisova, 2014). Due to the absence of dividend payment, a number of Russian corporations use the method based on the concept of alternative value as the method of their share capital value estimation. Another way to estimate the cost of own financing sources is to assess return on equity (ROE). The calculation is made by the following formula (2):

ROE = (Net Income / Common Equity) * 100%, (2)

In accordance with this method, the value of equity is determined by the rate of return on invested capital required by the owners. Thus, the value of the reinvested profit can be compared with the estimated or alternative cost of its capitalization (Grechukhin et al, 2014).

The characteristics of emerging capital markets do not always allow the use of traditional methods for capital cost and the return on assets estimation, since emerging economies have specific risks associated with market inefficiency, limited opportunities for investment portfolio diversification and information asymmetry. In order to account for these risks, a large number of methods and models was developed to estimate the required return on equity.

One of such models, the so-called capital asset pricing model (CAPM), takes into account the systematic risk, which is measured by the β-coefficient, the total market yield and the "risk-free" interest rate. This model allows you to estimate the yields on marketable financial assets using β-coefficients, which are calculated on the basis of the linear regression model. This model is the most effective for national economies, where the stock market is large and diversified, and there is also long-term statistics on the yield of financial assets.

The total market yield is the rate of a specific market index return. For Russia, the total market yield is determined by RTS or MICEX index. During market risk premium evaluation, the historical values of security yields are used. A premium is calculated by the adjustment of the difference between the long-term actual yield of securities and the actual yield of "risk-free" securities using the coefficient β.

One of the basic axioms of corporate finance theory is the recognition of a lower credit cost as compared to the issuing costs and the costs of public offering of shares (floating costs). Significant floating costs do not allow the issuance of shares to many corporations experiencing financial difficulties. The attraction of credit resources becomes the only real source of development functioning for them, focused on the growth of a firm value (Fatykhova et al, 2017).

The estimation of borrowed source cost is also ambiguous. First of all, it is necessary to take into account the differences in paid and conditionally free financing sources. Accounts payable, is often considered a relatively free source of capital in Russia. The terms of short-term debt repayment are determined, for example, on wages. Therefore, from the perspective of capital cost management, such debt is inappropriate to be attributed to managed financing and the value of current liabilities of a company is determined as zero during WACC evaluation (Inglehart and Welzel, 2009).

The cost of a bank loan is determined by an effective interest rate on the basis of a credit rate established by a loan agreement. When an effective interest rate is estimated, on the one hand, it is necessary to take into account the increase of a credit rate established by a loan contract for the size of other operating costs of a firm (for example, an insurance premium amount, the cost of loan obtaining). On the other hand, it is necessary to reduce the credit rate for tax shield effect, which is determined by the current tax legislation and reduces the cost of borrowed capital to a tax equalizer (1 - T), where T is the income tax rate.

The cost of borrowed financing sources is formed through the issue of bonds, can be estimated on the basis of the coupon interest rate on the bond that forms the amount of periodic coupon payments. If a bond is sold at a discount, the value of the bonded loan includes the amount of discount and coupon rates.

The first option: the evaluation is carried out according to the formula (3):

$$\text{Cost of Debt (bonds)} = G * (1 - T) / (1 - F), \quad (3)$$

where Cost of Debt (bonds) - the cost of capital attracted by bond issue, %;

G - coupon interest rate on the bond, in %;

T - income tax rate, in fractions;

F - the share of emission costs in the total volume of emissions, expressed in fractions.

The second variant of cost calculation will be made according to the following formula:

Cost of Debt (bonds) = O * (1 - T) * 100 / ((N - O) x (1 - F)), (4)

O - the average annual discount amount on a bond;

N - the nominal value of the bond to be redeemed.

Thus, the fundamental difference between the sources of capital development lies in the different values of own and borrowed capital cost. The smaller cost of borrowed capital, as compared with its own, is guaranteed by the "tax shield", which is fixed in the tax legislation. The action of the latter is to exclude the costs of loan servicing from the tax base on income tax. Using borrowed capital, a business owner can raise ROE through the effect of financial leverage (Degree of Financial Leverage, DFL).

Knowing the mechanism of DFL impact on ROE and the level of financial risk creates the necessary prerequisites for target value planning of the company capital cost and structure. DFL assessment method, used in the traditional theory of capital structure, is aimed at WACC reduction and ROE level increase by revealing the relationship between the interest rates for a loan and the net profit of a firm. Thus, in the traditional theory of capital structure, the rationalization of capital structure occurs through the optimization of DFL.

A more advanced method is the TCS assessment method, also based on WACC minimization principle, by the inclusion of financial difficulty probability in WACC calculation arising from the risk of borrowed capital attraction (Kirschin, 2016). In order to identify the TCS of a firm that maximizes its cost, different values of the DFL leverage are regarded.

According to this method, a firm cost is calculated by the following formula (5);

$$VL = \frac{EBIT \cdot (1 - T)}{WACC}$$

where Vl (Value leverage firm) is the value of a financially dependent firm;

EBIT (Earnings Before Interest and Taxes) - operating profit.

The calculation of WACC is performed by the following formula (6) taking into account the risk of financial difficulties:

$$WACC = \frac{ROE_L \times (1 - D) + K \times (1 - T) \times D + p}{1 - p}$$

where D (Debt) - the share of borrowed capital in a company capital structure;

K – weighted average cost of borrowing, % per annum;

p – the probability of financial distress, %;

ROEl - the return on equity of a financially dependent firm, %, calculated by the formula

$$ROE_L = ROE_U + (ROE_U - K) \times {}^{d}\!/_{(1-d)} \times (1 - T)$$

(7).

where ROEu - the return on equity of a financially independent firm, %.

The probability of financial difficulties is calculated using the formula (8).

$$p = a \cdot d^{b}$$

a is the parameter that takes the values from 0 to 1 and fixes the degree of credit resource influence on the probability of financial difficulties.

b is the parameter that takes the values in the range from 2 to 10 and determines the growth rate of financial difficulty probability. The higher the b, the slower the probability of financial difficulties increases. The value of this parameter for Russian companies is determined expertly and, as a rule, is equal to 5 (Kirschin, 2016).

Thus, for each DER, the tabulated WACC values and firm value are calculated, and the best alternative is adopted. In order to optimize the process of alternative selection, according to the method of capital structure modeling based on the definition of WACC function extremum, an optimal debt value can be found by the formula (9) (Kirschin, 2016).

$$D = \left[\frac{ROE_u - ROE_u * (1 - T)}{a * b}\right]^{\frac{1}{b-1}}$$

RESULTS AND DISCUSSION

In order to approbate our proposed strategic value planning approach of a company, we will conduct the simulation of PJSC "Tatneft" capital structure. A corporation choice is stipulated by the following provisions: PJSC "Tatneft" is a high-yield, large, investment-active corporation whose shares have a sufficient history of quotation on the stock exchange, which provides a statistical basis for the chosen method application for the modeling of PJSC "Tatneft" value within the framework of a financial strategy and cash flow forecasting. In addition, the Development Strategy of PJSC "Tatneft" as a target one contains the goal to double the company value in USD by 2025 (The strategy of PJSC "Tatneft", 2017).

Let's build the financial model to estimate the value of PJSC "Tatneft", which allows us to formulate the financing strategy that maximizes the cost of this PJSC using the data from 2007 to 2016. Table 1 presents the capital structure of PJSC "Tatneft".

Table 1. Capital structure of PJSC "Tatneft", %. (See Annexes)

In order to evaluate the ROE of PJSC "Tatneft", let's use the Gordon formula according to the data in Table 2 and 3.

Table 2. Data for PJSC "Tatneft" equity cost estimation. (See Annexes)

Table 3. ROE dynamics of PJSC «Tatneft» (%). (See Annexes)

The cost of retained earnings and reserves is calculated using the CAPM model (Table 4).

Table 4. Required profitability of retained earnings and reserves (%). (See Annexes)

During the evaluation of the weighted average cost of borrowed funds by PJSC "Tatneft" they took into account the data on short-term and long-term loans and the loans in foreign currency and in rubles and the value of bonds issued. The final calculation of borrowed funds cost was carried out taking into account the adjustment for the tax shield effect (Table 5).

Table 5. The cost of PJSC "Tatneft" borrowed capital (%). (See Annexes)

The results of WACC and Vl assessment of PJSC "Tatneft" are presented on Figure 1 and 2, respectively.

Fig. 1. WACC of PJSC «Tatneft» (%). (See Annexes)

Fig. 2. The dynamics of PJSC "Tatneft" value, calculated on the basis of EBIT capitalization formula, adjusted for income tax, at the capitalization rate equal to WACC. (See Annexes)

The obtained results testify to the achievement of the firm maximum value at the level of borrowed fund share in the interval of 15-16 % within the company capital structure. The WACC trajectory shows a downward trend as the share of borrowed funds increases from 7.5% to 32%. The revealed discrepancy between the empirical results of modeling and the provisions of the traditional theory of capital structure confirms the provisions of the trade-off model. The obtained modeling results prove that with WACC decrease, the value of a firm will grow to such a level while the change of the financial leverage has a positive effect on the operating cash flow. If the receipt of the next loan is associated with an excess of an acceptable risk level, then the cash flow balance will decrease in terms of operating activity, and accordingly the free cash flow (FCF) in general and the firm cost will be under the pressure of financial difficulty increase.

In these circumstances, during a firm capital structure development, it should be remembered that the reduction of WACC is just a tool for the strategic planning of a company value growth, and not a plan target setting. The strategic goal of a company financial management is the long-term growth of the company value. It is necessary to model the development of capital structure from this point of view.

SUMMARY

Thus, the optimization of the capital structure is a continuous adaptation process to the changes in the macroeconomic environment, tax legislation, agency costs, the result of which is a target capital structure that maximizes the value of a firm. The decision to optimize the capital structure should be the part of the developed strategic planning system, which takes into account the company position in the market, the perspective investments, an expected FCF and the net profit distribution policy. The prospective plans for credit resource attraction should be accompanied by financial difficulty risk assessments, the forecast of profits and FCF value. It is necessary to assess the likelihood of cash deficit generated by business at specific stages of the strategic plan.

At each stage of strategic planning, the overall goal of a firm value growth remains unchanged. However, as the model calculations show, it is necessary to adjust the procedure of company value strategic planning in the following areas: the adoption of the next tactical decision should be made taking into account the current values of the financial indicators characterizing this stage of strategic planning; it is necessary to assess the current changes in terms of borrowed fund attraction and the required return on investment from owners and to adjust the company growth strategy for the next 3 - 5 years.

A special importance of the strategic planning financial component is determined by the target setting of firm value maximization. The capital cost at this stage of domestic market development becomes a strategic choice attribute of a company management, which is focused on the company investment attractiveness increase in the long term. Therefore, it is necessary to include in the financial management module of the firm the methods for financial strategy development and implementation, the core of which is the capital structure optimization.

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BIBLIOGRAPHY

Hamilton, P. G. (2012). How Capital Structure Affects Business Valuation. Clark Schaefer Hackett. [Electronic resource]. - URL: http://www.cshco.com/articles/how-capital-structure-affects-business-valuation/ (Reference date: 25.05.2017), free access

Ravzieva, D. I., Safiullin, A. R. (2016). Reasons and benefits of region manufacturing profile specialization. Source of the Document Journal of Economics and Economic Education Research, 17 (Special issue), pp. 27-35.

Safiullin, A. R., Gataullina, L. R. (2015). Improving the competitive positions of the territory based on the formation of Industrial Profile // Social Sciences and Interdisciplinary Behavior - Proceedings of the 4th International Congress on Interdisciplinary Behavior and Social Science, , pp. 71-78.

Lagarde, C. (2013). Toward a Second Ivoirien Miracle. International Monetary Fund. http://www.imf.org/external/np/speeches/2013/010713.htm

Fatykhova, D. R., Ostroumov, A. I., Ostroumova, O. F. (2017). Modernization of public administration in Russia: issues and judgments. Turkish Online Journal of Design, Art and Communication. pp. 766-771.

Grechukhin, A. A., Elpidinsky, A. A., Mingazov, R. R., Plohova, S. E. (2014). Calculation of distillation columns of petroleum distilleries: educational-methodical manual. Ministry of Education and Science of Russia, Kazan National Research Technological University - Kazan: KNRTU Publishing House, p. 99.

Khismatullin, B. R., Kharisova, F. I. (2014). Insurance as a Way for Reducing the Market Risks Level. World Applied Sciences Journal 31 (6).

Inglehart, R., Welzel, C. (2009). How Development Leads to Democracy. Foreign Affairs Mar. Vol. 88, Issue 2, pp. 33-48.

Kirschin, I. A. (2016). The method of firm capital structure optimization, taking into account the costs of financial difficulties. Financial Management. No. 2, pp .69-76.

The strategy of PJSC "Tatneft". (2017). [Electronic resource]. - URL: https://www.tatneft.ru/storage/block_editor/files/47a5c83c1a7419a012c840f64a77bd175f477aa7.pdf (Reference date: 20.05.2017), free access

ANNEXES

Table 1. Capital structure of PJSC "Tatneft", %

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Own funds	85,74%	85,40%	83,73%	79,07%	79,76%	70,85%	67,89%	84,27%	92,52%	87,05%
Borrowings	14,26%	14,60%	16,27%	20,93%	20,24%	29,15%	32,11%	15,73%	7,48%	12,95%

Table 2. Data for PJSC "Tatneft" equity cost estimation

Dividend income per share (RUB)										
	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Ordinary share	22,81	10,96	10,58	8,23	8,6	7,08	5,02	6,56	4,42	5,65
Preferred share	22,81	10,96	10,58	8,23	8,6	7,08	5,02	6,56	4,42	6,65
Weighted average market value of shares (RUB)										
Ordinary share [4]	352,98	285,72	222,95	208,42	191,06	165,53	144,13	107,10	128,95	125,72
Preferred share [5]	201,74	161,98	129,85	109,72	93,83	88,74	77,67	42,59	62,44	74,45
The annual rate of share price growth (capital gain rate, %)										
Ordinary share	23,54%	28,15 %	6,97%	9,09%	15,42 %	14,85 %	34,58 %	-16,95 %	2,57%	3,09 %
Preferred share	24,55%	24,74 %	18,35 %	16,93%	5,73%	14,26 %	82,34 %	-31,78 %	-16,13 %	-3,32 %
Cost of shareholder equity (%)										
Ordinary share	30,01%	31,99 %	11,72 %	13,04%	19,92 %	19,12 %	38,07 %	-10,82 %	6,00%	7,59 %
Preferred share	35,86%	31,51 %	26,50 %	24,44%	14,90 %	22,24 %	88,81 %	-16,38 %	-9,05%	5,62 %

Table 3. ROE dynamics of PJSC «Tatneft» (%)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
ROE	16,79 %	15,59 %	16,92 %	15,14 %	17,61 %	16,77 %	13,61 %	19,16 %	15,30 %	21,52 %

Table 4. Required profitability of retained earnings and reserves (%)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
CAPM	23,38 %	15,97 %	17,06 %	15,03 %	19,29 %	16,94 %	14,86 %	22,11 %	32,47 %	33,82 %

Table 5. The cost of PJSC "Tatneft" borrowed capital (%)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Borrowed capital cost Taking into account tax shield effect	5,48%	2,42%	3,13%	4,40%	4,50%	7,94%	7,60%	13,10%	8,38%	1,76%

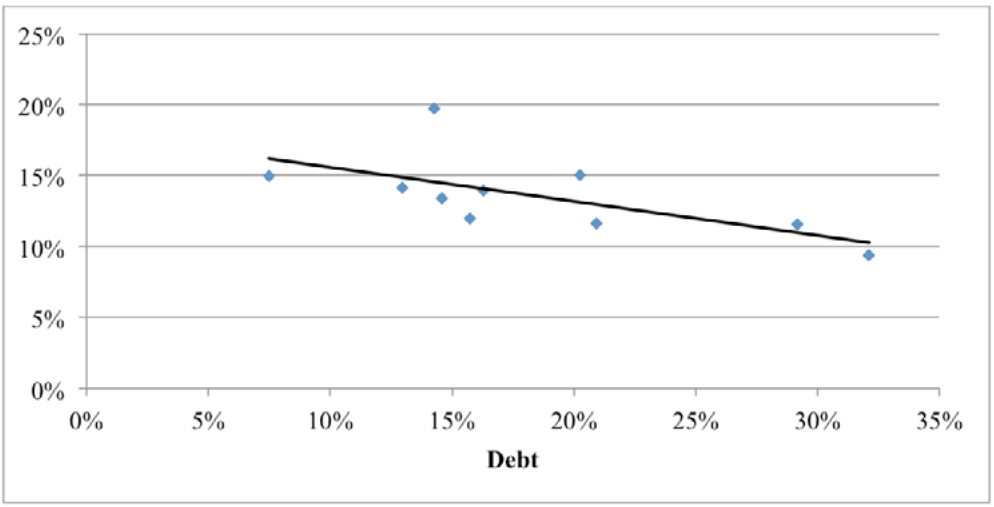

Fig. 1. WACC of PJSC «Tatneft» (%)

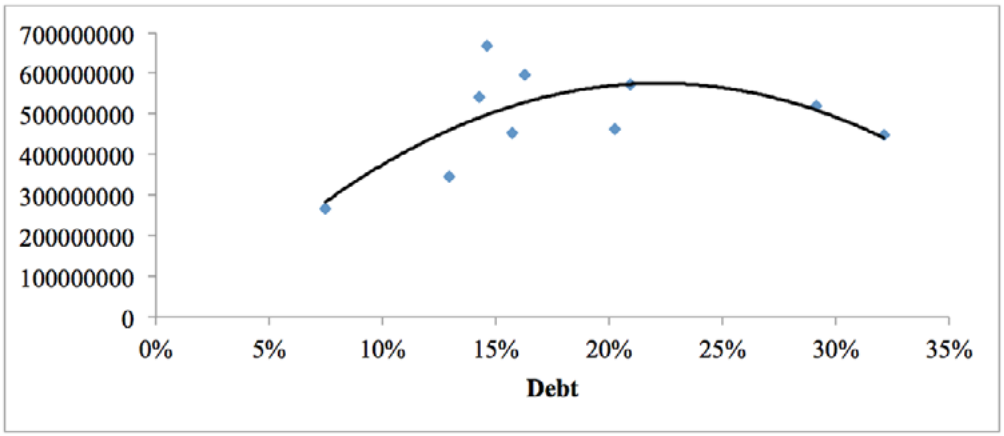

Fig. 2. The dynamics of PJSC "Tatneft" value, calculated on the basis of EBIT capitalization formula, adjusted for income tax, at the capitalization rate equal to WACC