ОЦЕНКА СПОСОБОВ ФИНАНСИРОВАНИЯ НЕФТЕГАЗОВЫХ КОМПАНИЙ ВО ВРЕМЯ СНИЖЕНИЯ ЦЕН НА НЕФТЬ

OIL AND GAS COMPANIES CAPITAL SOURCING EVALUATION DURING LOW OIL PRICES

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Аннотация

Нефтегазовая промышленность характеризуется высокими неопределенностями, крупным объёмом требуемого капитала и прямой зависимостью от цен на сырье. В последние десятилетия индустрия пережила несколько кризисов, вызванных резким падением цен на нефть и газ. Если поначалу компании обладали достаточными ресурсами для продолжения деятельности, то с каждым последующим кризисом им становилось тяжелее поддерживать финансовые показатели на необходимом уровне, несмотря на продолжающуюся политику оптимизации и сокращения расходов. Наиболее важными задачами для компаний стали привлечение дополнительного финансирования с минимальными потерями и эффективного использования имеющихся ресурсов.

В статье описываются различные способы привлечения капитала для компаний, рассматриваются достоинства и недостатки каждого из них. На примере компании «Роснефть» была произведена оптимизация баланса компании с использованием способа средневзвешенной стоимости капитала.

Annotation

The oil and gas industry has a high level of uncertainties, big financing required, and directly dependent on hydrocarbon prices. Recently the industry had several crises caused by a sudden drop in oil and prices. At first, the companies had enough resources to continue operations and sustain the desired financial performance although cost reduction and optimization methods were put already in place. One of the main goals the companies have to achieve these days are to get additional financing sourcing at the minimum available price and effective use of current resources.

The article includes an overview of different ways to get additional financing as well as evaluating the pros and cons of each of them. In addition, Rosneft company capital structure optimization by using the weighted average cost of capital method is presented.

Ключевые слова: нефтегазовая промышленность, источники финансирования, структура капитала, средневзвешенная стоимость капитала

Keywords: oil and gas industry, financing sources, capital structure, WACC

INTRODUCTION

The oil and gas industry, as a result of its high requirement for capital and its growing complexity and risk, uses any available source of capital it can find. As the search for new oil has caused the industry to go further, deeper, and to more challenging parts of the world, the scope of projects in both scale and capital has continued to raise. The huge volumes of capital now essential, combined with the increasing political, technological, and business risk, have caused more changes in the financial structures of new projects.

Oil and gas companies must give shareholder value through the effective production of energy assets. There are several challenges for oil companies due to a high risk of operational setbacks (e.g., dry wells, unexpected production pauses, and drop in volumes), which may adversely impact a company’s ROI [7]. Oil and gas corporations must invest seriously in exploration to find new reserves because

current reserves deplete fast [3]. The developing cost of new wells to produce from the freshly discovered reserves remains to rise because the remaining oil and gas fields are more difficult to develop than in the past.

Therefore, the oil and gas business is capital intensive, and companies must generate adequate free cash flow from current income to sustain growth and prevent the life-cycle decline of current assets [6]. This means that companies must make choices and continually budget for new CAPEX to explore for new fields, develop them, and build infrastructure to evacuate the hydrocarbons.

It comes as no surprise that some companies will need to get additional financing to continue its growth and stable operations. It is essential to evaluate the current condition of the company, resources, and opportunities and then choose the best available financing option.

FINANCING SOURCING FOR THE OIL AND GAS INDUSTRY

Like most industries, oil and gas smaller companies are normally limited to their sources of capital, many of the smallest being private businesses with only bank loans available for debt financing. Larger firms, mainly the publicly traded ones, have access to almost every form of securitized debt or venture capital source that exists. When the demand for gasoline and diesel is strong and crude prices go up, oil and gas companies make more money [5]. However, when crude prices are rising, costs for inputs like rigs, tools, services, and people are also going up. The more diversified business the company has the easier for it to get by the oil prices drop. For example, In contrast to the small independent company, international oil companies such as Rosneft can fund their upstream sector from their diversified portfolio and can often wait until the prices go up again. During these cycles, the big companies can use the downstream and/or chemicals cash flows to sustain capital investment and keep their shareholders satisfied.

The financing requires the attraction of a significant amount of both own and borrowed funds, so a company has several options for capital sourcing:

1) Financing by company’s own funds

This type of financing has several advantages: - easy to access; - a constant source of funding, which depends on the effectiveness of the operation; - its share increase does not cause a change in the existing structure and cost of capital; - allows to get an additional loan without changing the ratio of own and borrowed funds; - does not cause additional risks of loss insolvency or creditworthiness; - does not lead to a change in ownership; - sets the steady pace of development.

But this source of financing is limited by the company's ability to generate income which may reduce its investment needs. In addition, own profit is the main source of financing for current activities, i.e. financing of current assets, paying dividends, and others.

2) Financing by issuing stocks

The conventional way for a publicly-traded firm to raise equity is to issue common stock at a price the market is willing to pay. The issue of stocks is an external source of long-term financing, which allows getting a sufficiently large amount of resources needed for financing large projects.

This way of attracting external sources of financing has the following advantages [2]: - The possibility to get a large amount of money at one time. - Own funds of the company, no maturity. - The amount of dividends and the payments policy is determined by the company itself. - A stable debt to equity ratio is sustained, which reduces financial risk.

There are several disadvantages too: - Relatively high costs of issuing and placing the new stocks. - In addition to other factors, market capitalization depends on the amount of dividends paid. - New investors have the right to vote, therefore, the control over the company may be lost. - The positions of shareholders in management are weakening. -Profit should be distributed among a larger number of participants.

That’s why this type of financing is recommended in the following cases:
- The level of profitability is too low, so debt source is not feasible due to low creditworthiness; - The company has a decreasing production level; - Debt to equity

ratio is too high; - The company has a high level of operational and financial dependence.

3) Financing by long-term bank loans

Historically, the primary source of borrowed money for all private firms and many publicly traded firms have been banks, with the interest rates on the debt based on the perceived risk of the borrower. The advantages of bank loans are [1]: - an opportunity to get a big amount of investments; - ensures the growth of financial potential for a significant expansion of assets; - the use of debt increase the financial leverage effect; - cheaper and faster compared to issuing stocks; - the possibility of debt restructuring in the repayment process.

Using a large share of long-term loans creates difficulties for the company using these loans: - The cost of bank loans is determined by the highly volatile financial markets; - Debt to equity ratio increased which worsens solvency or creditworthiness; - The cost of debt increases as its share in liabilities grows;

4) Financing by bonds issue

For larger, publicly traded firms, an alternative to bank debt is to issue bonds. Generally speaking, bond issues have several advantages for these firms. The first is that bonds usually carry more favorable financing terms than equivalent bank debt, largely because the risk is shared by a larger number of financial market investors. The second is that bond issues might provide a chance for the issuer to add on special features that could not be added on to bank debt. When borrowing money, firms have to make a variety of choices, including the maturity of the borrowing, whether the debt should have fixed interest payments or an interest rate tied to market rates, the nature of the security offered to those buying the bonds and how the debt will be repaid over time.

The bonds disadvantages are the following: The Company must pay interest payments and bond redemption at the specified period, regardless of the company's financial situation. Also, a large share of debt funds increases financial risk.

Bonds financing is preferable in case of: - Interest coupon rates are lower than interest on long-term loans; - Interest coupon rates are lower than ROI value from

the core activities; - The company's income is stable so the interest payments and bond redemption is possible; - Debt to equity ratio is low; - New stocks issue is not feasible; - The company’s market is stable;

5) Long-term leasing financing

It’s quite common for the oil companies to use leasing to upgrade and improve the equipment, creating their own leasing companies.

Benefits of leasing for lessee: - Leasing involves 100% financing and does not require a quick return of the debt, it is paid after the production starts on the rented equipment; - Leasing helps a lessee who does not have enough financial resources to start a large project; - It is possible to get the leased asset by the residual value at the end of the contract; - Leasing payments are included in operational costs, which reduces taxes; - Leasing does not increase debt in the balance sheet, or debt to equity ratio;

Some disadvantages include: - In case of the leased equipment becomes outdated the lessee most likely will have to continue lease payments until the end of the contract; - In international multicurrency leasing deals, some currency risks present.

6) Production sharing agreement

The Production Sharing Agreement (PSA) is a specific form of financing for the development of oil and gas fields. PSA is a contract according to which the state provides the investor the right to explore, develop, and produce hydrocarbons. The investor carries out all types of work at his own expense and his own risk [2].

The state compensates the costs of the investor with the extracted products. The investor provides financing for the entire scope of work, including liquidation costs at the end of operations. Special benefits are established for the company: a special taxation regime, several benefits and guarantees. The repayment of capital investments is carried out by establishing the share of compensation products.

7) Project finance

Project finance is the financing of a project arranged in such a way that lenders rely solely on the assets and cash flows of the project for interest and loan repayment

[4]. This is fundamentally different from corporate finance, where lenders rely on the cash flows and financial strength of the entire corporate entity for debt service. Project finance separates the project and its funding from the rest of the corporation. It is usually used for the financing of long-term capital projects, large in scale, long in life, and generally high, but manageable at risk.

Compared to debt financing, project finance has several advantages. First, the lender knows in advance the future cash flows from the project and can accurately calculate its creditworthiness, which will affect the terms of the loan. If the project is big and profitable, the borrower can receive the loan at a lower cost. With project financing, lenders do not have the right to assets of the company if they are not related to the specific project.

CAPITAL STRUCTURE OPTIMIZATION OF ROSNEFT COMPANY

The cost of capital is the weighted average of the costs of the different components of financing. By changing the weights of the different components, companies might be able to change their cost of capital. In the cost of capital approach, the costs of debt and equity are estimated at different debt ratios using these costs to compute the costs of capital and the mix of debt and equity that yields the lowest cost of capital for the firm is found. At this cost of capital, it is assumed that firm value is maximized.

Cost of Equity Calculation

The returns to a stockholder for Rosneft are computed day by day from 19th June 2015 to 19th June 2020. For the benchmark index, IMOEX was used because the RTC index is valued in US dollars, which considering the high volatility of Russian currency during the timeframe would give inaccurate values. Then the regression model was performed, which gave the following results:

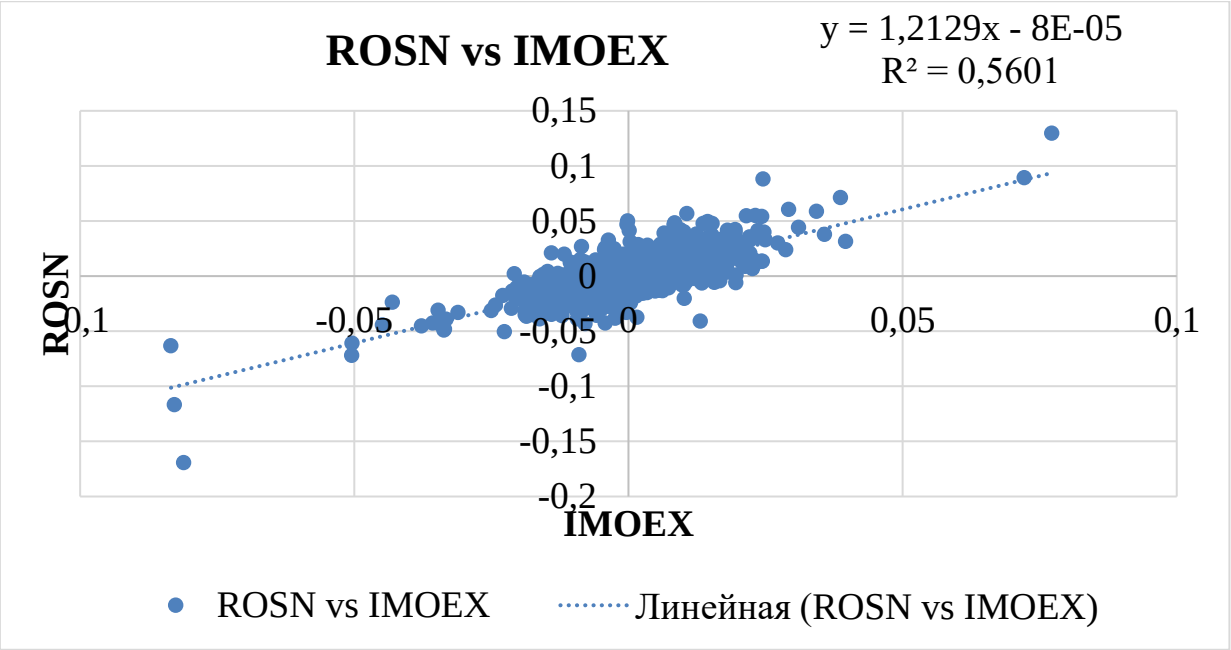

Figure 1. Rosneft versus IMOEX, 06.2015-06.2020[1]

These calculations gave the beta of Rosneft equal to 1.21, which means that the stock is fairly linear with index, although it is a little bit more volatile compared to IMOEX. It is worth mentioning that using a different period for the regression or different return intervals (weekly or monthly) for the same period can result in a different beta.

The next step in determining the cost of equity was to evaluate the risk-free rate for Russia. The ten-year Rubble-denominated Russian government bond rate was 6.89% on April 1st, 2020 according to the bank of Russia's historical data [8]. However, the local currency sovereign rating assigned to the Russian government in April 2020, by Moody's, was Baa3. The Damodaran's estimate of the default spread for Baa3-rated government bonds is 3.26%, which made the rubble risk free rate: 6.89% - 3.26% = 3.63%.

To calculate equity risk premium the average annual returns on IMOEX in five years' time period was calculated to be 13.18%. Subtracting risk free rate gave us the Equity risk premium for Russian market: 13.18% - 3.63% = 9.55%.

The then the estimated cost of equity for Rosneft was calculated to be 15.22%: 3.63 + 1.21 * 9.55 = 15.22%.

[1] Author's calculations based on Rosneft stock and IMOEX index historical data

Estimating the Costs of Debt

The cost of debt was calculated using two different approaches. Since Rosneft is a rated company, it is possible to estimate its pretax costs of debt based on its rating. On the other hand, synthetic ratings can be used for the calculations.

Rosneft is rated by two leading international rating agencies and by one largest Russian rating agency. The Company has Baa3 rating with "Stable" outlook from Moody's, BBB- "Stable" - from S&P and ruAAA "Stable" - from RAEX Rating Agency [9]. According to the Company's rating, it is possible to find out the default spread that goes with that value. Since there is no Baa3/BBB- available, Baa2/BBB was used instead. For Baa2/BBB the default spread for emerging market firms is equal to 1.56%.

Then the after-tax cost of debt was calculated for Rosneft to be 4.15%: (3.63 + 1.56) * (1 – 20%) = 4.15%.

Another way to calculate the cost of debt is to use synthetic ratings. In this case, we will play the role of a rating agency and assign a rating to a firm based on its financial ratios. The company reported 1,205 million rubles as operating income in 2019 and 227 million rubles in interest Expenses[2]. As a result, the interest coverage ratio was calculated to be 5.31 under these conditions. This ratio equals to A3/A- ratio, and default spread at 1.22%. Then after-tax cost of debt is: (3.63 + 1.22) * (1 – 20%) = 3.88%. The after-tax cost of debt using the synthetic ratings is lower than with the actual ratings, reflecting other risks that the rating agencies see in the company that is not captured in the interest coverage ratio.

Evidently, the next step is to forecast the costs of debt at different debt ratios. The interest coverage ratio was used to estimate the synthetic ratings at each debt ratio. Based on the company's financial report the EBIT was reported at 1305 billion rubles and interest expenses of 227 billion rubles, Rosneft has an interest coverage ratio of 5,31 corresponding to a rating of A-, which is a little bit better than the actual rating of BBB-.

[2] Rosneft 2019 annual report. Source: company official website. URL: https://www.rosneft.ru/upload/site1/document_cons_report/Rosneft_FS_12m2019_RUS.pdf

Implied Debt Ratio	Debt	Interest Expense	Interest Coverage Ratio	Bond Rating	Interest Rate on debt	Tax rate	After-tax cost of debt
0%	0	0	∞	AAA	4,26%	20,00%	3,41%
10%	702	30	40,29	AAA	4,26%		3,41%
20%	1404	60	20,14	AAA	4,26%		3,41%
30%	2106	90	13,43	AAA	4,26%		3,41%
40%	2808	124	9,73	AA	4,41%		3,53%
50%	3510	165	7,28	A	4,71%		3,77%
60%	4212	204	5,899	A-	4,85%		3,88%
70%	4914	238	5,05	A-	4,85%		3,88%
80%	5616	291	4,13	BBB	5,19%		4,15%
90%	6317	381	3,16	BB	6,03%		4,82%

Table 1. Calculations of cost of debt and debt ratios for Rosneft company[3]

To calculate the company's ratings at different debt levels, first, it is required to assess the amount of debt that Rosneft will need to issue to get to the specified debt ratio. The resulting default spread, based on the rating, and adding the default spread to the risk-free rate yields a pretax cost of borrowing. The results of calculations and iterations are presented in Table 1.

Unlevered Beta Calculations

The cost of equity for the company at different debt ratios can be computed using the unlevered beta of the firm and the debt equity ratio at each level of debt. The first step in this process is to compute the firm's current unlevered beta. The current market debt was reported to be 7 798 million rubles in 2019 financial report [10] and total equity was 5 152 million rubbles and a marginal tax rate on average was 20%. The historical value of levered beta for a given period of five years was calculated earlier using the regression model. Unlevered Beta was calculated to be at 0.547.

The weighted average cost of capital calculations

First, it is required to calculate levered beta at each debt level, and then we can compute the company's cost of capital. Tables 2 and 3 presents the results of WACC calculations.

[3] Author's calculations based on Rosneft 2019 annual report

Debt Ratio	D/E	Beta levered	Cost of Equity	Cost of Debt (After-tax)	Cost of capital
0	0	0,55	8,86%	0%	8,86%
0,1	0,11	0,60	9,32%	3,41%	8,73%
0,2	0,25	0,66	9,90%	3,41%	8,60%
0,3	0,43	0,73	10,65%	3,41%	8,48%
0,4	0,67	0,84	11,64%	3,53%	8,40%
0,5	1	0,99	13,04%	3,77%	8,40%
0,6	1,5	1,20	15,13%	3,88%	8,38%
0,7	**2,3**	**1,57**	**18,61%**	**3,88%**	**8,30%**
0,8	4	2,30	25,58%	4,15%	8,44%
0,9	9	4,49	46,49%	4,82%	8,99%

Table 2. Cost of equity, debt, and capital calculations for Rosneft company[4]

Debt Ratio	D/E	Beta	Cost of Equity	Cost of Debt (After-tax)	Cost of capital
0,76	3,17	1,93	22,10%	3,88%	8,2522%
0,77	3,35	2,01	22,86%	3,88%	8,2443%
0,78	**3,55**	**2,10**	**23,68%**	**3,88%**	**8,2363%**
0,79	3,76	2,19	24,59%	4,15%	8,4432%
0,8	4,00	2,30	25,58%	4,15%	8,4380%

Table 3. Cost of equity, debt, and capital calculations for Rosneft company[5]

As can be concluded from the results, the best combination of capital for the Rosneft company is to have Debt at 78% and Equity at 22%. Currently, the numbers are 60.2% and 39.8% respectively. The company can make this transition in several ways, for example, the Rosneft can increase its debt ratio by adding more loans from the banks or issuing new bonds at the market.

CONCLUSIONS

Recent oil prices drop forced the companies to evaluate all options for additional finance sourcing available since most of the companies reported lower financial results in the first quarter of 2020 compared to a year before. Before the oil price decline many companies were already experiencing challenges, with their capital deployed drilling deeper and further afield, and returns on projects compromised by budget overruns and schedule delays. Shareholders demanded a tempering of capital spending ambitions for the companies, preferring capital to be

[4] Author's calculations based on Rosneft 2019 annual report
[5] Author's calculations based on Rosneft 2019 annual report

returned to investors rather than reinvested for growth. Over the last five years, the sector's need for significant amounts of capital, the more innovative market place, along with the new, lower, commodity price environment has led to a dislocation in the industry, with value, cost, and production efficiencies in the spotlight.

One of the ways to use resources efficiently is to ensure that the capital structure is optimized. In the article capital structure optimization for Rosneft company was performed using the weighted average cost of capital model. As a result, it was found that the company still has room for improvement in terms of capital allocation. It was suggested that the company shall increase its debt ratio to have a better value for a company. However, it is worth to mention that in this approach, the effect of changing the capital structure, on firm value, is isolated, by assuming that the operating income won't change and only the cost of capital is variable. In practical terms, this requires making two assumptions. First, the debt ratio is decreased by raising new equity and retiring debt; conversely, the debt ratio is increased by borrowing money and buying back stock. Second, the pretax operating income is assumed to be unaffected by the firm's financing mix and, by extension, its bond rating. If the operating income changes with a firm's default risk, the basic analysis will not change, but minimizing the cost of capital may not be the optimal course of action, because the value of the firm is determined by both the cash flows and the cost of capital.

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