

Финансовое моделирование структуры капитала компании в период крупномасштабных изменений стратегии компании на примере ПАО Сегежа Групп

Гусейнова Диана Гадировна, студентка 2-ого курса высшей школы экономики и бизнеса Российского экономического университета им. Г.В. Плеханова, г. Москвы, Российской Федерации

E-mail: Guseynova.diana.99@mail.ru

Осипенков Виктор Анатольевич, студент 2-ого курса высшей школы экономики и бизнеса Российского экономического университета им. Г.В. Плеханова, г. Москвы, Российской Федерации

E-mail: osipenckov@gmail.com

Аннотация

В период мировой экономической и политической нестабильности капитал и источники его финансирования влияют на стоимость компании и её кредитный рейтинг, которые нуждаются в увеличении экспортирующих компаний. В данной статье исследуется предположение, что для точного определения оптимальной структуры капитала нужно скорректировать значения мультипликаторов Interest Coverage и Net Debt/EBITDA с помощью модели, основанной на кредитных рейтингах. На примере деревообрабатывающей компании ПАО Сегежа Групп, представлена финансовая модель реструктуризации капитала с использованием разработанной методологии, а также приводятся рекомендации по достижению оптимального капитала.

Ключевые слова: оптимизация структуры капитала, оценка, кредитный рейтинг компании, индустрия деревообработки, финансовое моделирование.

Financial modelling of the company's capital structure during a period of major changes in the company's strategy, on the example of Segezha Group PJSC

Guseynova Diana Gadirovna, 2nd year student of the Higher school of economics and business of the Russian economic University. G. V. Plekhanova, Moscow, Russian Federation

E-mail: Guseynova.diana.99@mail.ru

Osipenkov Victor, 2nd year student of the Higher school of economics and business of the Russian economic University. G. V. Plekhanova, Moscow, Russian Federation

E-mail: Osipenckov@gmail.com

Abstract

In times of economic recession, capital and its sources, forming the credit rating and value of the company, being the main goal to be increased. This article discovers that in order to determine the optimal capital structure, the values of the Interest Coverage and Net Debt/EBITDA multiples should be adjusted using a model based on credit ratings. On the example of Segezha Group PJSC, we present a financial model for capital restructuring using the developed methodologies, and provide recommendations for achieving optimal capital.

Keywords: capital structure optimization, credit rating of the company, valuation, timber industry, financial modelling.

In the structure of macroeconomic relations, company finance occupies a special position, as it is the main producer of tangible and intangible goods that develop the financial resources of the country. The export values of the giant companies can have a significant impact on the growth of a country's GDP. This is why the financial health of these companies requires special attention in times of macroeconomic instability. The financial health of a company can be supported in many ways, and it is important to choose the right sources of finance to achieve these goals.

Often, in practice, capital and capital structure play a secondary role in assessing the financial health of a company, with business margins usually coming first. As a result, the role of capital is downplayed, even though it is the structure of capital that determines the stability of a company's financial health. Therefore, in times of major strategic changes, the main task of the company's management and financial analysts is to determine the optimal capital structure in order to improve the financial performance of the company, increase its value and improve its credit rating. A healthy capital structure will enable a company to differentiate itself in the global market, develop macro-economic trade links and increase the country's export value.

All of the above reveals the relevance of studying corporate capital management, as Russian exporting companies are now in dire need of assistance to improve their business strategies now.

The aim of this article is to examine the capital structure and methods for its optimisation based on cost of capital minimization and achieving the desired credit rating (in this case, A2/A), as well as to outline possible ways to reduce the cost of debt financing for the Group.

In order to accurately determine the optimal capital structure for Segezha Group PJSC, the values of the coverage multiples should be adjusted using a model based on credit ratings.

The object - sources of capital and their proportion in the capital structure of PJSC Segezha Group. The subject of this study is the capital structure optimization of, Segezha Group PJSC.

Segezha is one of the largest Russian vertically integrated holdings with a full cycle of logging and advanced wood processing. It specializes in the production of a wide range of high-margin products. The company is one of the largest forest users in the world. The total area of the leased forest fund is almost 16 million hectares, and the volume of estimated forest fall is 23.3 million cubic meters. 93% of the company's timber needs are covered by its own resources. Segezha is subsidiary of AFK System Group with 62.1% ownership interest, 25% of its shares are free float.

On July 10, 2022, the EU countries imposed sanctions against timber products. This fact significantly influenced operations of the company. Exports to Europe were almost completely stopped. In February 2023, Segezha had to sell factories in Europe because the company could not supply raw materials there. Below, we will see how the sanctions affected the company's business and financial results.

If we look at the holistic picture, it will be like presented in the Figure 1.

Figure 1. Segezha - Total investor return¹

¹ Composed by the author, based on the Segezha's IFRS Consolidated Financial Statements 2022

It can be seen that the company creates value mainly from revenue growth and investor expectations (share market premium), but destroys value from with deteriorating margin, issue of net debt and shares. Details will be described in the following text:

Profit composition.

Based on the annual report of Segezha for 2022, Income statement, revenue grew by 15% and exceeded 106.7 billion rubles, mostly due to geographic revenue composition change and double increase of sales in China.

Costs and commercial expenses increased by 40% to 102 billion. In the notes to the financial statements, it can be seen that this was due to an increase in the cost of employee benefits, services of suppliers and logisticians. Because of the sanctions, the company had to rebuild export chains, which led to an additional 8 billion costs.

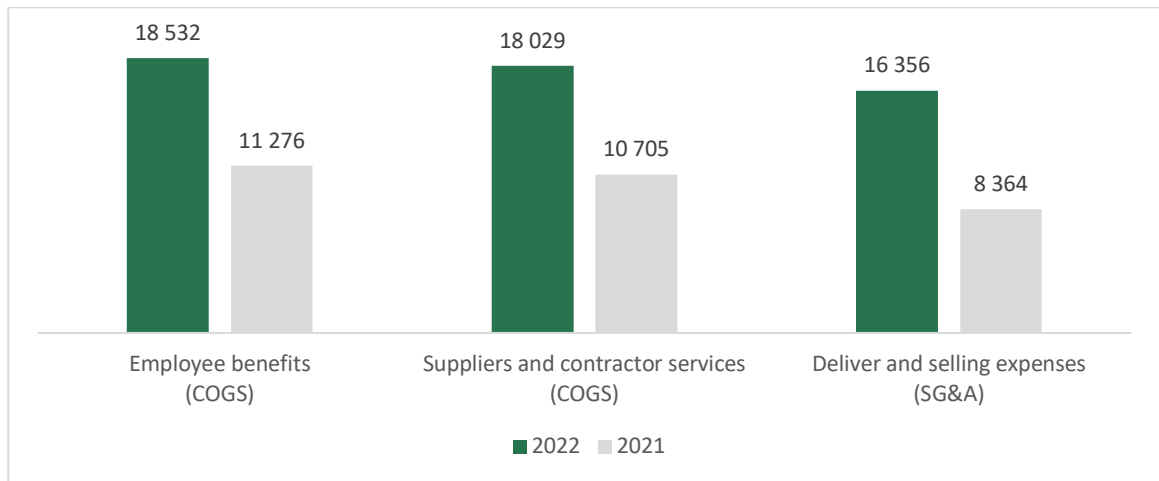


Figure 2 – COGS and SG&A expenses of Segezha Group²

Another negative fact is the growth of interest expenses, 3 times for 11.6 billion rubles. The key driver is increase of total debt on the balance sheet almost twice.

10. FINANCE INCOME AND EXPENSES, NET

	2022	2021
Interest expense on loans and borrowings	(9,353)	(2,765)
Interest expense on lease liabilities	(2,273)	(1,146)
Interest income	1,627	772
Income from cross-currency interest-rate swap transaction (Note 26)	2,553	380
Income from long-term payables discounting	339	-
Finance expenses, net	(7,107)	(2,759)

² Segezha // Annual results 2022

URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9ljw0qhdoy7k.pdf>

Reference date: 14.04.2023

Figure 3 – Finance expenses of Segezha Group³

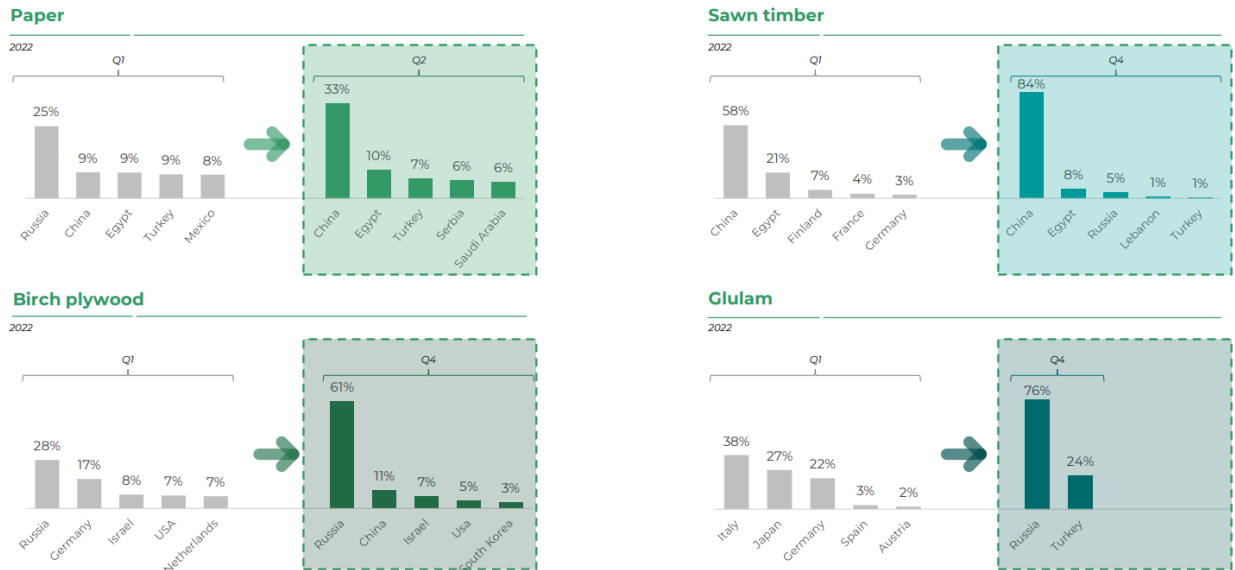
Despite of the sanction pressure, the company was able to report a net profit of 6 billion, which is 2.5 times lower than in 2021. Next, let's look in more detail because of what the company shows such unstable results.

Revenue streams

In terms of operating results, Segezha showed a decrease year-on-year in production and sales in almost all segments, with the exception of sawn timber, which showed growth, this is due to the consolidation of the assets of Novoeniseychesky Timber Chemical Plant and LLC Inter Forest Rus, which became part of the group at the end of 2021.

In general, 47.5% of revenue comes from forest resources and woodworking, 33% from paper and packaging, the remaining less than 20% of revenue comes from plywood, boards, house building and others.

The most important transformation of the past year occurred in the geography of sales. Due to sanctions, sales to Europe have been stopped. The main sales are in Russia, China, Turkey and Egypt. The share of exports in revenue is 72%.

Figure 4 – Revenue structure of Segezha Group by different groups of goods⁴

³ Segezha // Annual results 2022

URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9ljw0qhdoy7k.pdf>

Reference date: 14.04.2023

⁴ Segezha // Annual results 2022

URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9ljw0qhdoy7k.pdf>

Reference date: 14.04.2023

So, revenue for the year increased by 15%, to almost 107 billion. And as we saw above, the key factor was the rise in prices and the effect of the consolidation of the assets of the Novoeniseysk timber and chemical plant and LLC Inter Forest Rus. And since these assets are accounted for by forest resources and woodworking, therefore, this segment made the main contribution to revenue growth. We also note that RUB 9bn in revenue was pressured by ruble appreciation.

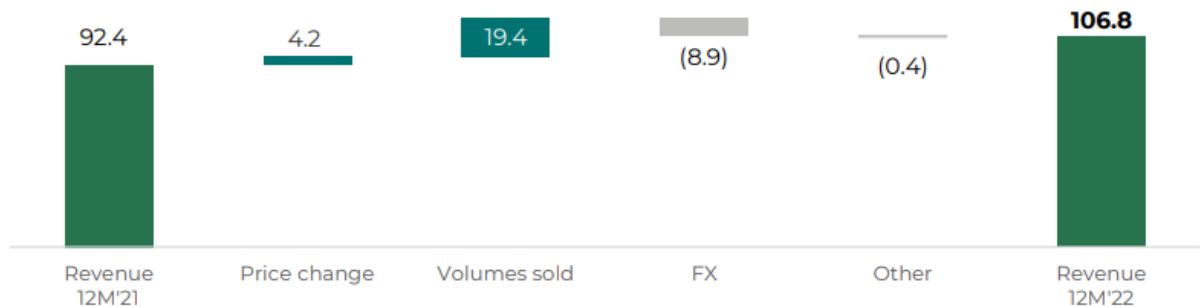


Figure 5 – Revenue bridge by factors of Segezha Group, RUB bn⁵

OIBDA

Now consider the dynamics of OIBDA. OIBDA is operating income before depreciation. And despite revenue growth, OIBDA was down 16% year-over-year. The main reasons are inflation, logistics and the high exchange rate of the ruble.

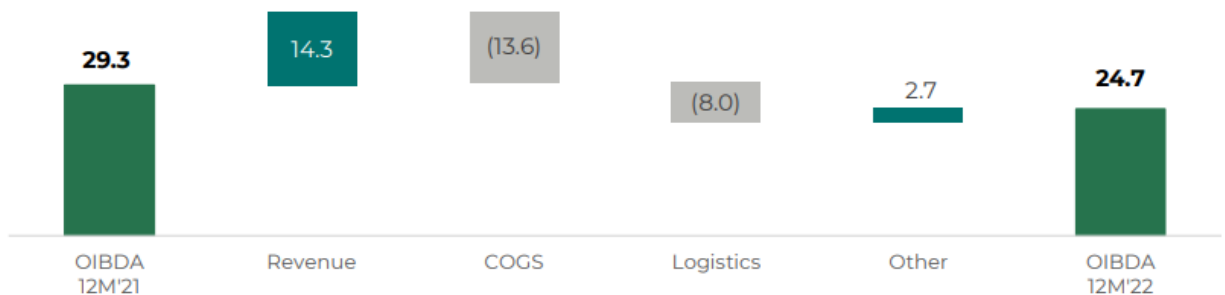


Figure 7. OIBDA structure of Segezha Group, RUB bn.

Source: composed by the author from the annual report Segezha Group⁶

⁵ Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

⁶ Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

Capital expenditures

In 2022, capital expenditures decreased by a third to 28.6 billion. Of these, 18.4 billion are payments for the purchase of LLC Inter Forest Rus.

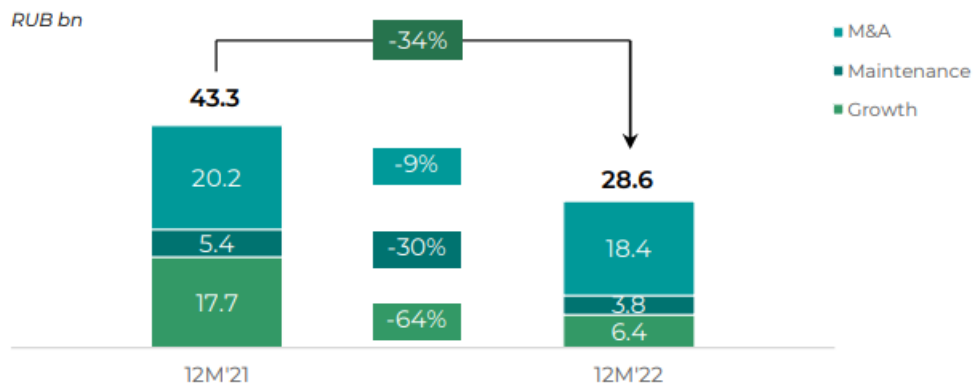


Figure 7. CAPEX dynamics of Segezha Group.⁷

Due to high macroeconomic uncertainty, investment programs have been adjusted. Capital expenditures on maintenance and production projects decreased by 56% to 10 billion, of which 6.4 billion went to development projects. The main ones are the modernization of the pulp and paper mill in Sokol and the Vyatka plywood plant.

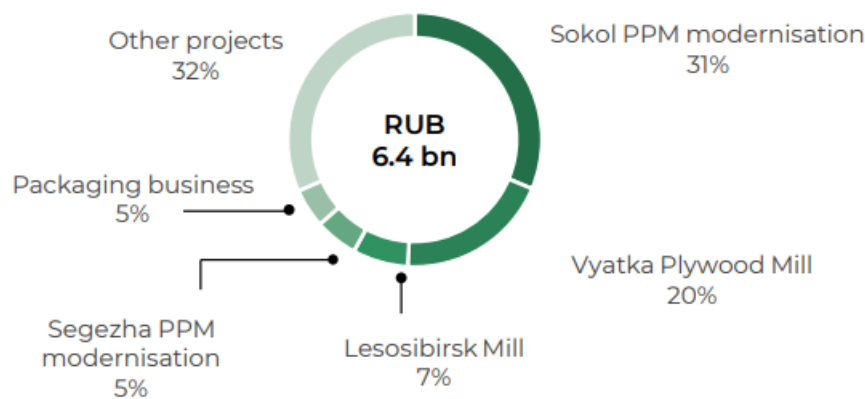


Figure 8. CAPEX structure of Segezha Group.⁸

According to Segezha's official statement, capital investments for 2023 will not exceed 10 billion rubles instead of the original 35 billion. The implementation of previously planned projects will be postponed to a later date.

⁷ Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

⁸ Composed by the author from the annual report Segezha Group Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

Cash flow and debt.

Due to large spending on acquisitions and changes in working capital, FCF for 2022 is negative. In general, net debt rose by 65% to 101 billion. The ratio of net debt to OIBDA is already more than 4.

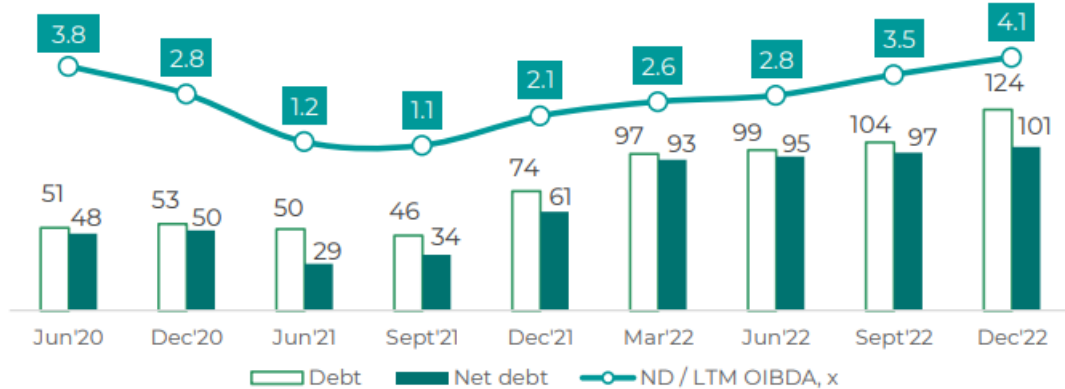


Figure 9. Debt level dynamics of Segezha Group.⁹

At the moment, a sharp increase in debt is associated with the transaction for 18 billion rubles, the cost of CAPEX for 10 billion rubles and the payment of dividends for 16 billion rubles. In general, in the next 2 years it will be necessary to repay or restructure 67 billion rubles. The weighted average rate on loans is 10%.

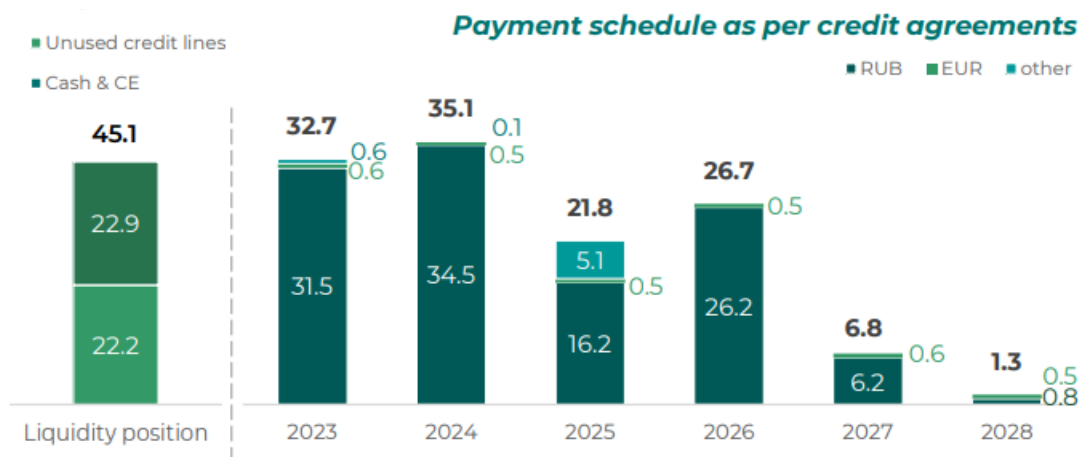


Figure 9. Debt level dynamics of Segezha Group.¹⁰

⁹ composed by the author from the annual report Segezha Group Segezha // Annual results 2022
URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoj7k.pdf>
Reference date: 14.04.2023

¹⁰ composed by the author from the annual report Segezha Group Segezha // Annual results 2022
URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoj7k.pdf>
Reference date: 14.04.2023

In general, the financial situation of Segezha Group does not look stable. The company itself claims that the level of debt is comfortable for them, but at the same time notes that with a high degree of uncertainty, external factors may have a negative impact on financial results

Despite the huge debt, Segezha will pay dividends, because its parent company, AFK Sistema, owns 62% of the shares and needs cash to cover its debts and build up investments.

To sum up all the information below:

1. Segezha is a large timber industry complex, the only one of its kind, traded on the MOEX.
2. 62% of the shares are owned by wide-industrial corporation AFK System.
3. EV/EBITDA 7,5, which is higher than average 6,22 in industry.
4. Capital expenditures in 2022 were high. Although Segezha will reduce the implementation of projects in 2023, the growth rate for net capital expenditures (capex less proceeds from disposals) will not become negative.
5. High leverage in 2022 will be supported by rising capital expenditures and lack of strong revenue growth going forward.

The whole analysis of the financial results, which has been carried out on the basis of the company's financial statements, certainly affects the company's sustainability in terms of solvency ratios and liquidity ratios (Figure 10).

<i>Solvency ratios</i>	<i>2022</i>	<i>2021</i>
<i>Interest Coverage</i>	<i>1,64</i>	<i>6,20</i>
<i>Debt to Assets</i>	<i>0,44</i>	<i>0,29</i>
<i>Debt to Equity</i>	<i>2,40</i>	<i>1,32</i>
<i>Liquidity Ratios</i>		
<i>Quick Assets Ratio</i>	<i>0,85</i>	<i>0,64</i>
<i>Current Ratio</i>	<i>0,92</i>	<i>0,71</i>
<i>Extra</i>		
<i>Cash to Debt</i>	<i>-0,21</i>	<i>-0,41</i>
<i>Debt/EBITDA (x)</i>	<i>5,02</i>	<i>2,52</i>

Figure 10. Coverage ratios of Segezha Group.¹¹

Segezha Group does not have enough assets to cover its liabilities, which is reflected in the company's liquidity ratios, however these numbers are not as far from 1. The high level of debt

¹¹ composed by the author from the annual report Segezha Group Segezha // Annual results 2022
URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9ljw0qhdoy7k.pdf>
Reference date: 14.04.2023

also affects the solvency ratios, especially in 2022. This determines potential need to reduce the debt level of the company or to find another way of capital structure financing.

Before starting to develop an optimization strategy for the Group, we would like to highlight some necessary terms. Capital structure is a combination of the debt and equity a company uses to finance its working capital, short- and long-term operations and growth. For publicly traded companies, stock is the most utilized form of equity. Capital's nature can be exemplified with the figure below:

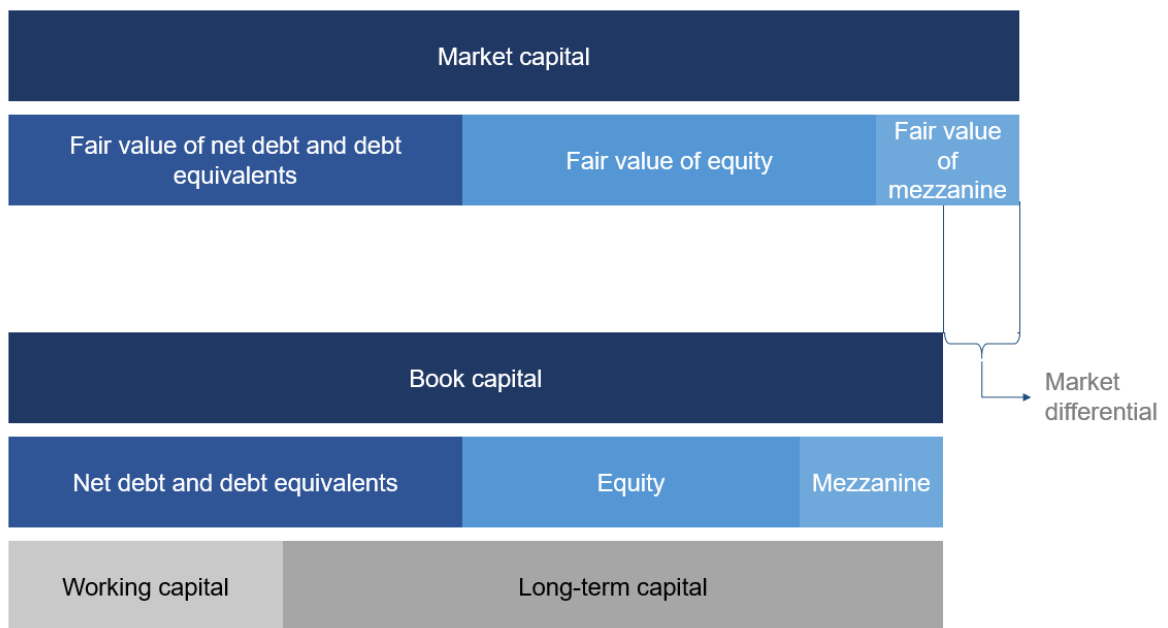


Figure 11. Capital structure of the company¹²

The term “optimal capital structure” can be understood in diverse ways. For most practical applications it stands for the structure which approximates the desired credit rating. A more theoretical, but still widely used understanding, is that structure which maximizes intrinsic value of the company or minimizes its cost of capital¹³. There can be other strategic interpretations of the term, for example a structure which will lead a potential hostile acquirer avoid purchasing stock majority or which allows consolidating of share portfolio in one or several shareholders through a series of aggressive share buyback, like McDonalds’ does.

In the current article, we applied intrinsic value and credit rating approaches to define the optimal capital structure of Segezha.

¹² Schweser, K. Schwesernotes Level 1 CFA Book 3: Corporate issuers and equity investments. – USA: Kaplan, Inc, 2022 – 69

¹³ Aswath Damodaran., 2010, Applied Corporate Finance, 3rd edition, 450-501.

Segezha does not have concrete growth goals in its published strategy, but we can see 16.5% four-year revenue CAGR from its financial statements. This allows us to make an assumption in the current article that the Group plans to grow at the level of 16.5% per year. The practice of raising capital is based on blended financing, so the group will need additional loans to pay off existing debts and pay capex in the future. Since there is a clear correlation (Picture 1), we can make a second assumption on that approximate growth rate of the debt portfolio is expected at the same level as revenue growth, or 16.5% per year.

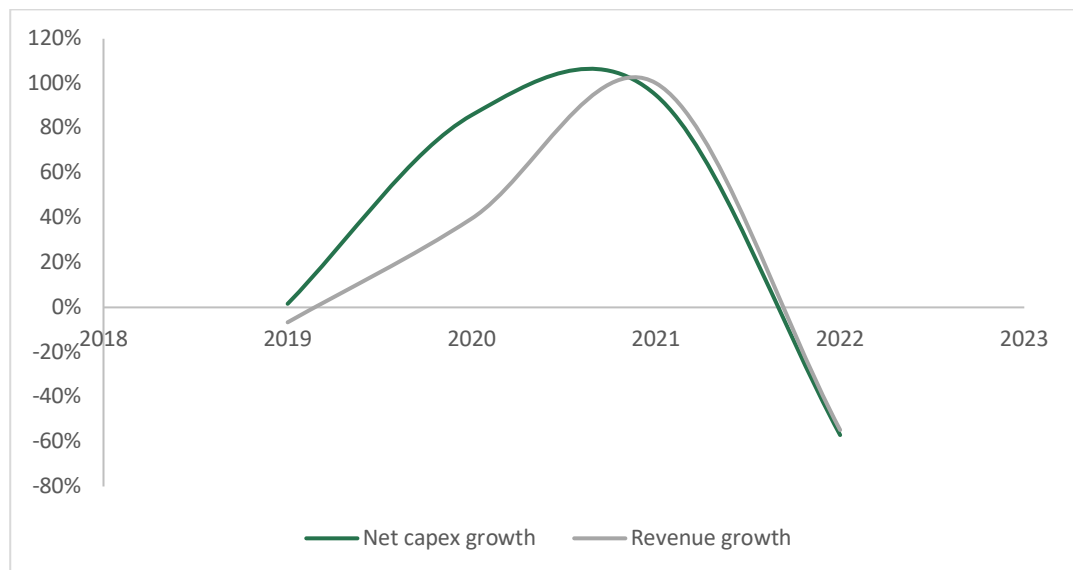


Figure 11. Correlation between Net Capex growth and Revenue Growth

To ensure such growth, the Group must have a credit rating of at least A2/A. This conclusion is our assumption for sake of simplicity. In real terms, treasury function in Segezha should be able to assess this target rating. The group can achieve it with a ratio of debt to invested capital 40% in the baseline scenario, 67% in the optimistic scenario and 26% in the pessimistic scenario. Baseline scenario assumes EBIT of ₺30b and EBITDA of ₺33b, pessimistic – ₺20b EBIT and ₺22b EBITDA, optimistic scenario – ₺49b EBIT and ₺56b EBITDA. We used two methods to match the desired credit grade to the ratios: through interest coverage (Figure 12) through net debt to EBITDA (Figure 13).

Another approach to determine the optimal capital structure is that which maximizes total business value, or, particularly, intrinsic value by minimizing the cost of capital.

For our calculations, we used the following formula to estimate Segezha's intrinsic value:

$$\text{Intrinsic value} = \text{invested capital} + \frac{\text{invested capital} \times (\text{ROIC} - \text{WACC})}{\text{WACC} - \text{long term growth}} \quad 15$$

Cost of capital equals WACC, in which cost of debt (COD) was calculated as sum of risk-free rate and credit spread applicable to a particular credit rating and cost of equity (COE) was calculated using a standard CAPM model (refer to appendix).

OPTIMAL CAPITAL STRUCTURE IV APPROACH

Optimal debt (market) 163%
Optimal debt (book) 35%

Current D/E	1,3
Current debt, %	57%
Current Segezha value	546 973
Achievable value at debt 35%	651 389

Damodaran							
Market D/C	Book D/C	Book debt/equity	Debt, mBR	Credit rating	Spread	Pre-tax COD	After-tax cost debt
0%	0%	0%	0	Aaa	0,63%	2,44%	1,95%
23%	7%	8%	16 311	Aaa	0,63%	2,44%	1,95%
49%	14%	16%	35 277	Aaa	0,63%	2,44%	1,95%
80%	21%	27%	57 604	Aaa	0,63%	2,44%	1,95%
117%	28%	39%	84 272	Aa	0,63%	2,44%	1,95%
163%	35%	54%	116 684	Aa	1,09%	2,90%	2,32%
219%	42%	72%	156 920	Aa	1,78%	3,59%	2,87%
290%	49%	96%	208 201	A	2,08%	3,89%	3,11%
384%	56%	127%	275 799	Baa	3,56%	5,37%	4,30%
514%	63%	170%	368 974	Ba	5,50%	7,31%	5,85%
704%	70%	233%	505 631	Bb	6,00%	7,81%	6,25%
1010%	77%	335%	725 471	Bbb	6,50%	8,31%	6,65%
1585%	84%	525%	1 137 670	B	8,00%	9,81%	7,85%
3052%	91%	1011%	2 191 068	Caa-1	12,00%	13,81%	11,05%
5735%	95%	1900%	4 117 281	Ca	20,00%	21,81%	17,45%
14789%	98%	4900%	10 618 251	Ca	30,00%	31,81%	25,45%
29880%	99%	9900%	21 453 201	C	50,00%	51,81%	41,45%

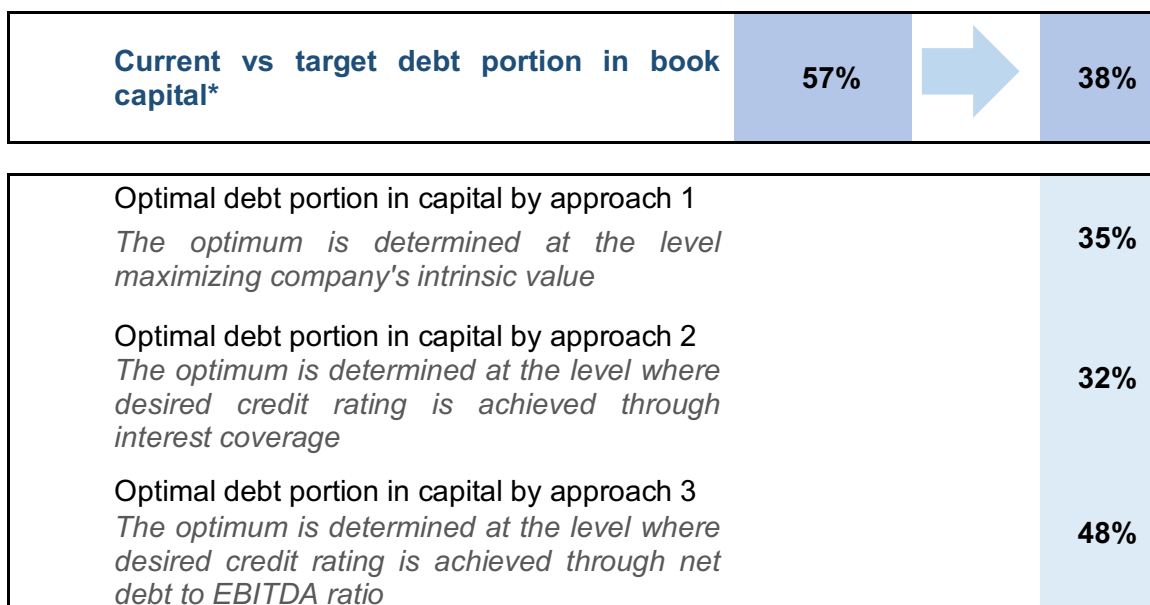
Figure 14. Optimal Capital Structure IV Approach

Source: modelled by the author based on financial statements of Segezha Group

Our modelling shows that the Group can achieve the highest intrinsic value of the business 676 billion rubles (20% higher than current value) with a ratio of debt to invested capital decreased from 57% to 35%.

¹⁵ Aswath Damodaran., 2010, Applied Corporate Finance, 3rd edition, 450-501.

On having applied two approaches to define the target capital structure, we have received the following outcomes:



* Debt to IC ratio is calculated based on book value of capital. Market values are supplementary calculated in worksheets

Figure 15. Optimal Capital Structure Based on 3 Approaches¹⁶

Source: modelled by the author based on financial statements of Segezha Group

We have also checked out potential restrictions to capital structure which can be set by AFK System – the major Segezha’s shareholder. Those restrictions included ND/EBITDA < 3 and interest coverage > 1. The both are assumptions and represent the four-year average of AFK System according to its IFRS financial statements. Neither of these two restrictions contradicts our previous recommendation to reduce debt portion to 38%.

We have also outlined recommendations on how Segezha can adjust the current capital structure.

1. Increase enterprise-wide profitability which suffered during 2022. It will provoke natural increase in retained earnings and equity, causing decrease of debt portion in capital.
2. Optimize working capital (for example, by reducing prepayments) and cash load in group investment planning.

¹⁶ Modelled by the author based on financial statements of Segezha Group
Segezha // Annual results 2022

URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>
Reference date: 14.04.2023

3. Reform the investment planning process, set clear resource limits in it, which can be seen from the cash flow modelling on the twelve-month horizon. This measure is aimed at retaining debt financing excessive attraction.

4. Increase own-fund and, if possible, subsidized project financing.

5. Raise and dilute project capital from those sources which will bring the capital structure closer to the optimal one (perpetual bonds, ordinary share issue, non-redeemable share issue, convertible bonds).

6. Systematically monitor key metrics on a monthly basis and proactively: D/E, debt/EBITDA, acid test, excess cash to debt, etc. If any of these indicators begin to deteriorate, commit certain managerial actions to normalize them.

At the recommended capital structure of 38%, Segezha has a spectrum of opportunities to reduce the cost of debt financing:

1. Implement a systematic and automated process of monthly lending covenant tracking (on arising solvency problems business unit heads will be acquainted)

2. Increase short-term portion in the debt portfolio

3. Secure the debts with financial assets and future cash inflows

4. Attract financial guarantees from an affiliate company within AFK System

5. Enhance GR functions to track opportunities for government subsidizing of interest

6. Conclude interest swaps as part of the debts attracted from the capital markets and financial institutions

7. Issue hybrid instruments with an option to purchase ordinary shares

8. Issue perpetual bonds with coupon deferral option

9. Attract debt funds from AFK-System's affiliates

We recommend Segezha to decrease the debt portion in its capital structure from 57% to 47% by increasing profitability, working capital efficiency, reforming investment planning processes and treasury practices. Contemporaneously, we recommend the Group to launch a number of initiatives to reduce cost of debt financing, among which implementation of covenant tracking system, swapping long-term debt for short-term and applying collateralizing and credit guarantee practices in bond attraction policies.

The financial situation of Segezha Group, a large timber industry complex, seems financially unstable due to rising inflation, logistics costs, weakening ruble, and lower product prices. The company claims that the level of debt is comfortable, but external factors may negatively impact financial results. The company's capitalization of 86 billion is less than its net

debt, and the EV/OIBD ratio is 7.5. The company's high leverage in 2022 will be supported by rising capital expenditures and a lack of strong revenue growth.

Some extra-goals, including using SPARK, Cbonds, and Model Risk for analysis were successfully done. While using SPARK, I discovered Segezha dominates the local woodworking industry and expanded my analysis to the global market. I identified liquidity problems based on Segezha's capital structure in SPARK. In Cbonds, we evaluated Segezha's debt to calculate WACC.

To find the optimal the capital structure, we developed three scenarios (optimistic, pessimistic, and median) using the Credit rating approach.

As the Group plans to grow at the level of 16.5% per year based on the four-year revenue CAGR, blended financing is required. It is obvious that the group will need additional loans to pay off existing debts and pay CAPEX in the future.

The company's high leverage in 2022 may require it to take measures to ensure its financial stability in the future. The recommended capital structure will help the company achieve its growth plans while minimizing the cost of capital and maximizing intrinsic value.

There were 3 methods used to optimize capital structure. In these methodologies, the optimum was determined at the level maximizing company's intrinsic value, at the level where desired credit rating is achieved through interest coverage and net debt to EBITDA ratio.

Based on the credit rating approaches, we have defined the optimal total optimal debt of Segezha on 3 scenarios: 23% for pessimistic, 34% for base, and 54% for optimistic.

Based on the IV approach, where the debt optimum is determined at the level maximizing company's intrinsic value, we have defined optimal debt portion in capital as 35%.

The mix of two approaches shows us, that the recommended capital structure for Segezha is to reduce the debt portion to 32%-48% of the current invested capital. This can be achieved by reducing debt or raising equity.

The most effective management practice to reduce the cost of debt would be to monitor monthly debt coverage ratios, build up a cache to the firm and build up short-term liabilities as opposed to long-term liabilities.

Bibliography

1. Федеральный закон от 13.07.2015 N 222-"О деятельности кредитных рейтинговых агентств в Российской Федерации, о внесении изменения в статью 76.1 Федерального закона "О Центральном банке Российской Федерации (Банке России)" и признании утратившими силу отдельных положений законодательных актов Российской Федерации".
2. Aswath Damodaran., 2010, Applied Corporate Finance, 3rd edition, 450-501.
3. Schweser, K. Schwesernotes Level 1 CFA Book 3: Corporate issuers and equity investments. – USA: Kaplan, Inc, 2022 – 69
4. Treasury Finance and Development Banking: A Guide to Credit, Debt, and Risk (Wiley Finance) Hardcover – 19 Nov. 2013.
5. Palepu, K. G., 1990, Consequences of Leveraged Buyouts, Journal of Financial Economics, v26, 247- 262.
6. See Kaplan, S.N.,1989, Campeau's Acquisition of Federated: Value Destroyed or Value Added, Journal of Financial Economics, v25, 191-212; Smith, A.J., 1990, Corporate Ownership Structure and Performance:
 7. The Case of Management Buyouts, Journal of Financial Economics, v27, 143-164.
 8. Denis, David J. and Diane K. Denis. Leveraged Recaps in The Curbing Of Corporate Overinvestment, Journal of Applied Corporate Finance, 1993, v6(1), 60-71
 9. World Bank // Central Bank Reserve Management Practices: Insights into Public Asset Management.
 10. URL: <https://openknowledge.worldbank.org/handle/10986/36442>. Reference date: 01.04.2023
 11. ЦБ РФ // Динамика курсов доллара США и евро к рублю и показатели биржевых торгов. URL: https://cbr.ru/hd_base/micex_doc/#highlight=евро. Reference date: 01.05.2023.
 12. Segezha // Annual results 2022. URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>. Reference date: 01.05.2023
 13. Segezha // Investment forum results. URL: <https://segezha-group.com/upload/iblock/a07/ir38rhahyrm1iftpuik9w0j77ryfbc7i.pdf>. Reference date: 01.05.2023

14. Segezha // Financial results Q4 2022. URL: <https://segezha-group.com/upload/iblock/91f/8kyfswii4mup39ti0n2cjd6ecn54losw.pdf>. Reference date: 01.05.2023
15. Segezha // Financial results 1H 2022. URL: <https://segezha-group.com/upload/iblock/d99/1hip59lhc09pvpipjq894p923n1v3st5.pdf>. Reference date: 01.05.2023
16. Segezha // Charter group information URL: <https://segezha-group.com> Reference date: 01.05.2023

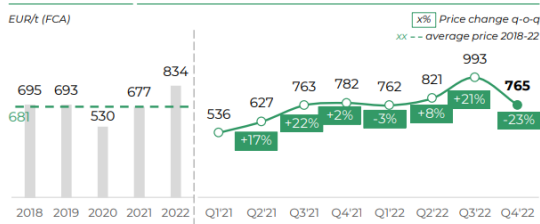
Appendices

Appendix 1.

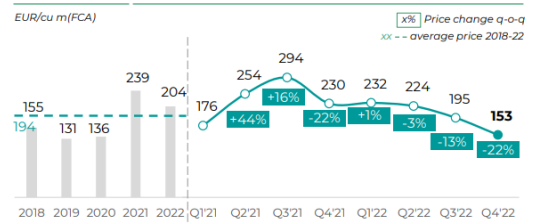
Price change in 2022¹⁷

The pricing environment was generally quite good during 2022. Prices in euros for key products other than paper were slightly lower than in 2021, but higher than in 2018-2020. And paper prices were 23% higher than in 2021. Of the negative points, a downward trend in prices can be noted. In the 4th quarter, they were lower than the average for the year and less than the prices of the same period in 2021. Also, for all products except paper, prices fell below the average for 5 years. (refer to appendix)

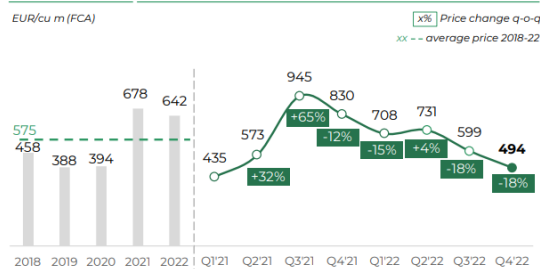
Paper



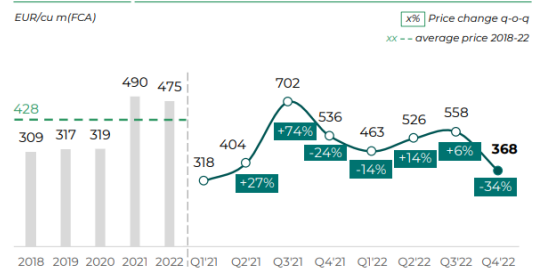
Sawn timber



Birch plywood



Glulam



¹⁷ Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

Appendix 2.
P&L IFRS¹⁸**SEGEZHA GROUP PJSC****CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
FOR THE YEAR ENDED 31 DECEMBER 2022
(in millions of Russian Rubles)**

	Notes	2022	2021
Revenue	4	106,766	92,442
Operating expenses:			
Cost of goods sold	7	(74,062)	(53,016)
Selling and administrative expenses	8	(28,216)	(20,000)
Gain on business acquisition	5	-	3,822
Other operating income/(expenses), net	9	5,623	(898)
Operating profit		10,111	22,350
Interest income	10	1,627	772
Interest expense	10	(11,626)	(3,911)
Other finance income	10, 27	2,892	380
Foreign exchange differences, net		4,467	760
Other (expenses)/income		(14)	1
Profit before tax		7,457	20,352
Income tax expense	11	(1,405)	(5,115)
Net profit for the reporting year		6,052	15,237
Other comprehensive income			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit pension obligations		-	73
Items that may be reclassified subsequently to profit or loss:			
Exchange differences on translation of foreign operations		147	67
Other comprehensive income		147	140
Total comprehensive income for the year		6,199	15,377
Net profit attributable to:			
Shareholders of Segezha Group PJSC		6,035	15,270
Non-controlling interests		17	(33)
		6,052	15,237
Total comprehensive income attributable to:			
Shareholders of Segezha Group PJSC		6,182	15,410
Non-controlling interests		17	(33)
		6,199	15,377
Earnings per share (in RUB)	20	0.38	1.06

¹⁸ Segezha // Annual results 2022URL: <https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

7. COST OF GOODS SOLD

Below is the analysis of the cost goods sold for the years ended 31 December 2022 and 2021:

	2022	2021
Raw materials and supplies	25,178	26,605
Employee benefits, including social funds contributions	18,532	11,276
Supplier and contractor services	18,029	10,705
Depreciation and amortisation	13,579	6,178
Other expenses	1,061	671
Net change in inventories, finished goods and work in progress	(2,317)	(2,419)
Total cost of goods sold	74,062	53,016

8. SELLING AND ADMINISTRATIVE EXPENSES

Below is the analysis of selling and administrative expenses for the years ended 31 December 2022 and 2021:

	2022	2021
Finished goods transportation and other selling expenses	16,356	8,364
Employee benefits, including social funds contributions	7,591	7,508
Supplier and contractor services	1,904	1,612
Depreciation and amortisation	879	641
Raw materials and supplies	298	252
Taxes, other than income tax	119	159
(Decrease)/increase in allowance for expected credit losses, net	(61)	339
Other expenses	1,130	1,125
Total selling and administrative expenses	28,216	20,000

Appendix 3.

Highlights from financial performance¹⁹

Financial performance, RUB mln	12M 2022	12M 2021	yoy
Revenue	106,766	92,442	15%
OIBDA	24,662	29,252	(16%)
margin, %	23%	32%	(9 pp)
Net profit	6,052	15,237	(60%)
Capital expenditure	10,181	23,116	(56%)
M&A	18,390	20,161	(9%)
Free cash flow	(26,312)	(30,210)	13%
Net debt ¹	100,962	97,406 ¹	4%
Net debt ¹ /12M OIBDA, x	4.1	3.3	-

¹⁹ Segezha // Annual results 2022

URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>

Reference date: 14.04.2023

Appendix 4.

Input data used to decompose total investor return of Segezha²⁰**Profit and Loss**

Revenue	92442	106776
NOPLAT	29252	24662
Non-operating profit	760	4467

Balance Sheet

Cash and equivalents	12632	22879
(Debt and debt equivalents)	-95041	-147356
Invested capital last year	156331	216699
Non-operating assets/(liabilities)	-15098	783

Statement of changes in equity

Dividends and dividend equivalent	n/a	10337
No of shares boughtback/cancelled (m)	n/a	0
No of shares issued (m)	n/a	0,000858
Value of shares boughtback/cancelled	n/a	0
Value of shares issued	n/a	30000
NCI acquired	n/a	0
NCI sold	n/a	0

Other

Share price	11,09	4,58
Shares issued (m)	15690,00	15690,00
WACC, %	9%	9%
Other distributions to debtholders	n/a	0
Other contributions from shareholders	n/a	0
Value of spunoff unit	n/a	0
Long-term GDP growth rate	n/a	2%

²⁰ Composed by the author, based on the Segezha // Annual results 2022
URL:<https://segezha-group.com/upload/iblock/c82/wmqhg6k8h0eijly41e4d9lwj0qhdoy7k.pdf>
Reference date: 14.04.2023

Appendix 5.

Desired-rating approach to capital structure optimization²¹

OPTIMAL CAPITAL STRUCTURE CR APPROACH (INTEREST COVERAGE)

Optimal debt (market) 22%
Optimal debt (book) 32%

	pessimistic	as-is	optimistic
Interest expense		11 626	
Expected EBIT 2025	21 849	29 743	49 118
Cost of debt pre-tax		9%	
Current cover ratio		2,1	
Optimal debt (book)	23%	32%	52%
Target credit rating		A2/A	

As-is		Damodaran					
Credit rating	Interest coverage LB	Interest coverage UB	Interest coverage avg	Interest	Debt	Market D/C	Book D/C
Aaa/AAA	12,5	1000,0	20,0	1 487	16 630	9%	11%
Aa2/AA	9,5	12,5	11,0	2 704	30 236	15%	19%
A1/A+	7,5	9,5	8,5	3 499	39 129	18%	25%
A2/A	6,0	7,5	6,7	4 406	49 273	22%	32%
A3/A-	4,5	6,0	5,2	5 665	63 351	27%	41%
Baa2/BBB	4,0	4,5	4,2	6 998	78 257	31%	50%
Ba1/BB+	3,5	4,0	3,7	7 931	88 692	34%	57%
Ba2/BB	3,0	3,5	3,2	9 152	102 336	37%	65%
B1/B+	2,5	3,0	2,7	10 816	120 943	41%	77%
B2/B	2,0	2,5	2,2	13 219	147 819	46%	95%
B3/B-	1,5	2,0	1,7	16 996	190 053	52%	122%
Caa/CCC	1,3	1,5	1,4	21 631	241 886	58%	155%
Ca2/CC	0,8	1,2	1,0	29 018	324 482	65%	208%
C2/C	0,3	0,8	0,6	45 758	511 683	75%	327%
D2/D	-100000,0	0,3	-20,0	-1 487	n/a	n/a	n/a

Pessimistic		Damodaran					
Credit rating	Interest coverage LB	Interest coverage UB	Interest coverage avg	Interest	Debt	Market D/C	Book D/C
Aaa/AAA	12,5	1000,0	20,0	1 092	12 216	7%	8%
Aa2/AA	9,5	12,5	11,0	1 986	22 211	11%	14%
A1/A+	7,5	9,5	8,5	2 570	28 744	14%	18%
A2/A	6,0	7,5	6,7	3 237	36 196	17%	23%
A3/A-	4,5	6,0	5,2	4 162	46 537	21%	30%
Baa2/BBB	4,0	4,5	4,2	5 141	57 487	25%	37%
Ba1/BB+	3,5	4,0	3,7	5 826	65 152	27%	42%
Ba2/BB	3,0	3,5	3,2	6 723	75 176	30%	48%
B1/B+	2,5	3,0	2,7	7 945	88 844	34%	57%
B2/B	2,0	2,5	2,2	9 711	108 587	38%	69%
B3/B-	1,5	2,0	1,7	12 485	139 612	45%	89%
Caa/CCC	1,3	1,5	1,4	15 890	177 688	51%	114%
Ca2/CC	0,8	1,2	1,0	21 316	238 362	58%	152%
C2/C	0,3	0,8	0,6	33 614	375 879	68%	240%
D2/D	-100000,0	0,3	-20,0	-1 092	n/a	n/a	n/a

Optimistic		Damodaran					
Credit rating	Interest coverage LB	Interest coverage UB	Interest coverage avg	Interest	Debt	Market D/C	Book D/C
Aaa/AAA	12,5	1000,0	20,0	2 456	27 462	14%	18%
Aa2/AA	9,5	12,5	11,0	4 465	49 932	22%	32%
A1/A+	7,5	9,5	8,5	5 779	64 618	27%	41%
A2/A	6,0	7,5	6,7	7 277	81 370	32%	52%
A3/A-	4,5	6,0	5,2	9 356	104 619	38%	67%
Baa2/BBB	4,0	4,5	4,2	11 557	129 235	43%	83%
Ba1/BB+	3,5	4,0	3,7	13 098	146 467	46%	94%
Ba2/BB	3,0	3,5	3,2	15 113	169 000	49%	108%
B1/B+	2,5	3,0	2,7	17 861	199 727	53%	128%
B2/B	2,0	2,5	2,2	21 830	244 111	58%	156%
B3/B-	1,5	2,0	1,7	28 067	313 857	64%	201%
Caa/CCC	1,3	1,5	1,4	35 722	399 454	70%	256%
Ca2/CC	0,8	1,2	1,0	47 920	535 853	75%	343%
C2/C	0,3	0,8	0,6	75 566	845 000	83%	541%
D2/D	-100000,0	0,3	-20,0	-2 456	n/a	n/a	n/a

OPTIMAL CAPITAL STRUCTURE CR APPROACH (NET DEBT TO EBITDA)

Optimal debt (market) 30%
Optimal debt (book) 48%

	pessimistic	as-is	optimistic
Current Debt to EBITDA		2,5	
Expected EBITDA 2025	19 969	32 662	55 630
Cost of debt pre-tax		63%	
Net debt target		12 945,3	
Optimal debt (book)	29%	48%	82%
Target credit rating		A2/A	

As-is		Forbes			
Credit rating	Net debt to EBITDA	Debt	Market D/C	Book D/C	
Aaa/AAA	0,6	19 597	10%	13%	
Aa2/AA	1,2	39 194	18%	25%	
A1/A+	1,9	62 058	26%	40%	
A2/A	2,3	75 123	30%	48%	
A3/A-	2,8	91 454	34%	58%	
Baa2/BBB	3,5	114 317	40%	73%	
Ba1/BB+	4,0	130 648	43%	84%	
Ba2/BB	4,6	150 245	46%	96%	
B1/B+	5,1	166 576	49%	107%	
B2/B	6,3	205 771	54%	132%	
B3/B-	7,2	235 166	57%	150%	
Caa/CCC	8,6	280 893	62%	180%	
Ca2/CC	10,1	329 886	65%	211%	
C2/C	12,9	421 340	71%	270%	
D2/D	15,4	n/a	n/a	n/a	

Pessimistic		Forbes			
Credit rating	Net debt to EBITDA	Debt	Market D/C	Book D/C	
Aaa/AAA	0,6	11 981	6%	8%	
Aa2/AA	1,2	23 963	12%	15%	
A1/A+	1,9	37 941	18%	24%	
A2/A	2,3	45 929	21%	29%	
A3/A-	2,8	55 913	24%	36%	
Baa2/BBB	3,5	69 891	29%	45%	
Ba1/BB+	4,0	79 876	31%	51%	
Ba2/BB	4,6	91 857	35%	59%	
B1/B+	5,1	101 842	37%	65%	
B2/B	6,3	125 804	42%	80%	
B3/B-	7,2	143 776	45%	92%	
Caa/CCC	8,6	171 733	50%	110%	
Ca2/CC	10,1	201 686	54%	129%	
C2/C	12,9	257 599	60%	165%	
D2/D	15,4	307 522	n/a	n/a	

Optimistic		Forbes			
Credit rating	Net debt to EBITDA	Debt	Market D/C	Book D/C	
Aaa/AAA	0,6	33 378	16%	21%	
Aa2/AA	1,2	66 756	28%	43%	
A1/A+	1,9	105 697	38%	68%	
A2/A	2,3	127 949	42%	82%	
A3/A-	2,8	155 764	47%	100%	
Baa2/BBB	3,5	194 705	53%	125%	
Ba1/BB+	4,0	222 520	56%	142%	
Ba2/BB	4,6	255 899	60%	164%	
B1/B+	5,1	283 714	62%	181%	
B2/B	6,3	350 470	67%	224%	
B3/B-	7,2	400 537	70%	256%	
Caa/CCC	8,6	478 419	73%	306%	
Ca2/CC	10,1	561 864	76%	359%	
C2/C	12,9	717 629	80%	459%	
D2/D	15,4	856 704	n/a	n/a	

²¹ Composed and calculated by the author

Appendix 6.

Intrinsic-value approach to capital structure optimization²²

Current D/E	1,3
Current debt, %	57%
Current Segezha value	546 973
Achievable value at debt 35%	651 389

Damodaran							
Market D/C	Book D/C	Book debt/equity	Debt, mBR	Credit rating	Spread	Pre-tax COD	After-tax cost debt
0%	0%	0%	0	Aaa	0,63%	2,44%	1,95%
23%	7%	8%	16 311	Aaa	0,63%	2,44%	1,95%
49%	14%	16%	35 277	Aaa	0,63%	2,44%	1,95%
80%	21%	27%	57 604	Aaa	0,63%	2,44%	1,95%
117%	28%	39%	84 272	Aa	0,63%	2,44%	1,95%
163%	35%	54%	116 684	Aa	1,09%	2,90%	2,32%
219%	42%	72%	156 920	Aa	1,78%	3,59%	2,87%
290%	49%	96%	208 201	A	2,08%	3,89%	3,11%
384%	56%	127%	275 799	Baa	3,56%	5,37%	4,30%
514%	63%	170%	368 974	Ba	5,50%	7,31%	5,85%
704%	70%	233%	505 631	Bb	6,00%	7,81%	6,25%
1010%	77%	335%	725 471	Bbb	6,50%	8,31%	6,65%
1585%	84%	525%	1 137 670	B	8,00%	9,81%	7,85%
3052%	91%	1011%	2 191 068	Caa-1	12,00%	13,81%	11,05%
5735%	95%	1900%	4 117 281	Ca	20,00%	21,81%	17,45%
14789%	98%	4900%	10 618 251	Ca	30,00%	31,81%	25,45%
29880%	99%	9900%	21 453 201	C	50,00%	51,81%	41,45%

Market D/C	Re-levered beta	COE	WACC	IV of Segezha
0%	54%	7%	7%	564 978
23%	57%	7%	7%	583 799
49%	61%	7%	7%	603 917
80%	65%	8%	6%	625 471
117%	71%	8%	6%	648 621
163%	77%	8%	6%	651 389
219%	85%	9%	6%	633 257
290%	95%	10%	6%	627 570
384%	109%	11%	7%	546 973
514%	127%	12%	8%	450 661
704%	154%	14%	8%	420 406
1010%	198%	17%	9%	390 579
1585%	280%	22%	10%	330 312
3052%	489%	36%	13%	233 962
5735%	872%	62%	20%	147 742
14789%	2165%	148%	28%	99 991
29880%	4318%	292%	44%	61 362

²² Composed by the author

Appendix 7.

RUB WACC 2022²³

Cost of capital 2022

WACC	9%	
Cost/portion of Equity	9%	37%
Cost/portion of Debt (pre-tax)	11%	63%

Input indicator	Value	Comments	Output indicator	Value
Net debt, mBR	124477	ST & LT debt and debt equivalents less cash	CAPM, net	5,89%
MarCap, mBR	71797,436	gurufocus	Segezha levered beta	0,44
30Y US Bond YTM	3,80%	www.cnbc.com/quotes/US30Y	Unlevered beta	0,26
1Y YTM Segezha Bond 2022	9,06%	cbonds.com	Market risk premium	4,77%
8Y YTM Segezha Bond 2022	10,91%	cbonds.com		
Short-term net debt and debt equivalent	0	mBR		
Long-term net debt and debt equivalent	124477	mBR		
Marginal tax rate	20,00%	taken from IFRS financial statements		
LT GDP growth	2,40%	tradingeconomics.com		
IC, mBR	216699	excludes non-operating assets and liabilities		
NOPLAT, mBR	24662	excludes non-operating income and expense		
Company size risk	3%	Erasmus study		

YY	RFR	MOEX	MRP
2006	4,9%	32,9%	26,8%
2007	4,5%	43,7%	37,4%
2008	4,8%	-41,2%	-43,9%
2009	4,4%	82,7%	75,0%
2010	3,0%	1,1%	-1,9%
2011	4,7%	18,1%	12,9%
2012	4,4%	4,9%	0,5%
2013	3,0%	-2,7%	-5,5%
2014	3,1%	-4,4%	-7,3%
2015	3,9%	13,8%	9,5%
2016	2,6%	7,6%	4,9%
2017	3,0%	-12,5%	-15,0%
2018	3,0%	12,1%	8,8%
2019	2,8%	-14,3%	-16,7%
2020	2,9%	14,3%	11,1%
2021	2,1%	0,9%	-1,2%
2022	2,8%	-11,9%	-14,3%

²³ Composed by the author