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## Sensitivity of the capital structure of oil and gas companies to environmental and pandemic factors

**Abstract.** Experts state that the market size of the worldwide oil and gas exploration and production industry has diminished by 2.2% per year on average from 2016 to 2021. The results of this study will show how companies can use the hidden potential of the balance sheet to stabilize or even to improve their financial performance after a pandemic accompanied by green economy trends. The purpose of this study is to identify optimal capital structure based on the analysis of a relationship between capital structure and the company's performance of the five top energy sector companies listed on the New York Stock Exchange during the last five years. The analysis was implemented based on correlation coefficient and regression analysis between performance measurement indicators (ROE, ROA) and capital structure (leverage ratio). Except for this main indicator, the research will also examine the relationship between age, profitability, and capital structure. This study provides recommendations to increase the efficiency of a company's performance through its capital structure under current green economy trends and a pandemic for company managers as well as investors.

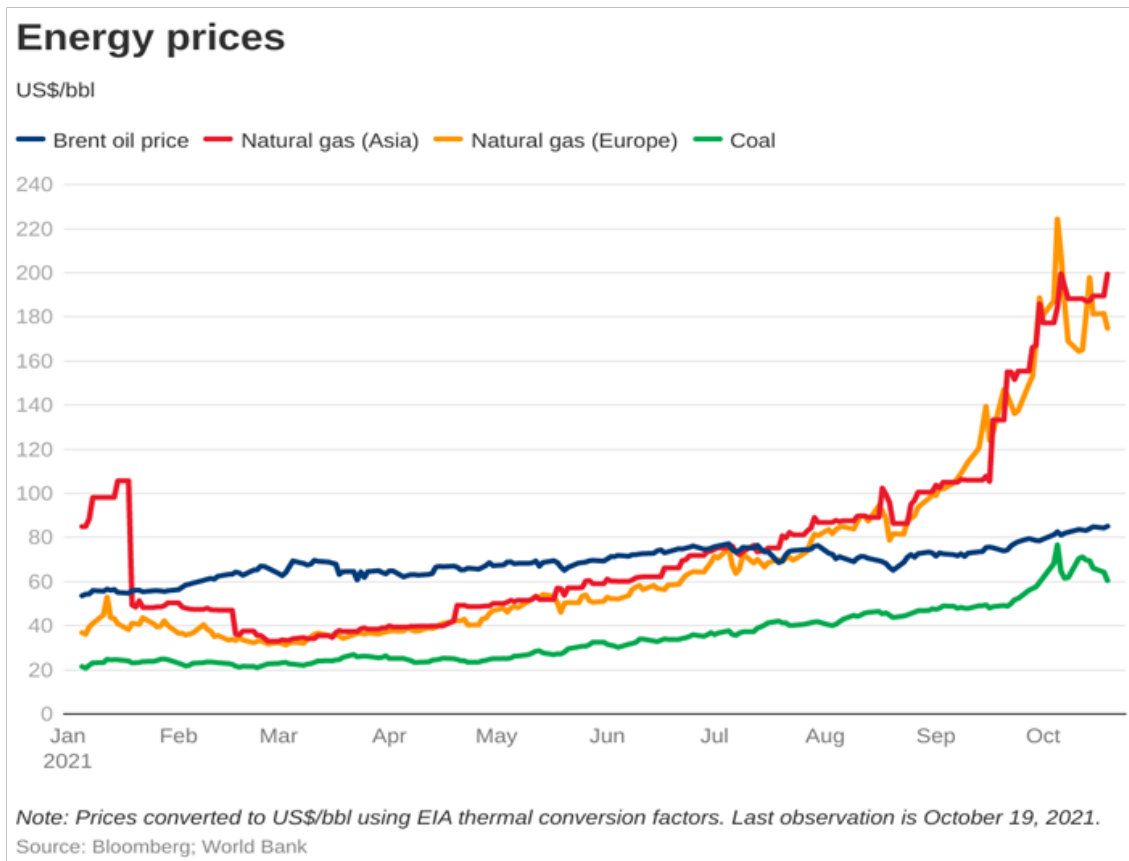
**Keywords:** Capital structure, company performance, return on equity, return on assets, green economy, energy industry.

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### Introduction

The capital structure is one of the main elements that affect business performance of an enterprise. There are many examples when excessive leverage in the capital structure lead

to bankruptcy, for example, Lehman Brothers Holdings, Inc. [1] In case of Lehman Brothers Holdings, the management team of the company calculated capital adequacy by dividing assets by shareholder's equity and represented it as the leverage ratio. The ratio was constant until



**Figure 1** - Energy prices for Q1, Q2 and Q3 of 2021

2006 when the company implemented a high-leverage, high-risk business model as all other large investment banks. This strategy allowed them to grow and increase profit with limited capital. Rating agencies required Lehman and other investment banks to deleverage their capital structure and to do so they had only two ways – to sell assets or to increase the equity of the company. Lehman chose to sell assets in January 2008 because it had already raised capital at that time but this deleveraging strategy didn't work. Investment banks couldn't sell assets at desirable prices because of the slowing market and the company didn't want to sell them at a discount and experience losses. That example of Lehman Brothers Holdings illustrates how the company experienced problems because of the wrong and inefficient capital management strategy that they used.

The main goal of the company's management is to maximize shareholders' wealth by using optimal combination of financial resources and

their efficient use. There are a lot of studies organized to examine the relationship between capital structure and profitability of a company. All studies devoted to this topic showed different results like there is NO (weak or strong) correlation between performance and capital structure.

The energy industry consists of three segments: electricity, gas, and oil.

Energy is what the world needs in increasing quantities to improve living standards and to support the economic and social development of the country and the world as a whole. Global energy demand is expected to increase by 25% from 2014 to 2024 based on Deloitte experts' oil and gas industry outlook analysis [2]. This industry provides electricity, heating, fuel for all types of vehicles, and much more, which, causes a great demand for oil and gas around the world. Oil and gas are some of the most important raw materials we have. They are important not only for production but also for the labor market

because tens of thousands of people work in this industry. According to the research of IBISWorld firm total revenues for the oil and gas industry is \$ 2.1 trillion in 2021[3], while the Ministry of National Economy of Kazakhstan projecting that 2.8% of economic growth will be from the energy sector, mostly from oil and gas production revenue that consists 35% of GDP and 75% of total export. [4]

The energy industry was already experiencing a hard time before the pandemic by starting to rely on capital from cash flow instead of debt and equity financing of a business [2]. The main reason for this was growing trends related to renewable sources of energy. Oil and gas companies are changing their strategies and business models considering green economy trends to improve financial health.

COVID-19 lockdowns and restrictions affected demand for oil and gas causing demand-side shock. The price of oil declined, the production decreased and it's expected to be so till the end of 2021 [5]. The graph below represents that upward trend for all types of energy prices in 2021.

The global oil demand plummets by 25% as a result of COVID-19. America's oil and gas companies laid off 14% of their permanent workforce, jeopardizing the industry's status as trusted employers in 2020. [6] Global energy demand is expected to rise by 4.6% by the end of 2021, it will offset the 4% drop that took place in 2020 and increases demand by 0.5% compared to 2019. [7] 70% of the demand is allocated mainly to developing countries, where it is expected to be 3.4% more of the 2019 level. [7] All this unrest in the global market affected the company's activities, reducing their profitability over the past year and the coming period is expected that the oil demand will increase, but on average will remain below the average level before the pandemic by 4-7% [5].

There was already pressure from green energy alternative sources before the pandemic that put companies in a difficult situation. The demand for renewable energy will increase by 65% from 2018 to 2030 [7]. These volatilities in the economy caused concerns of worldwide investors about the company's potential to meet its obligations and raise its profitability. There is also a growing

number of investors who are looking for eco-friendly investment opportunities to satisfy their personal and social interests. There is a sharpening interest in green investments among investors according to International Renewable Energy Agency's research [7]. The strategy of switching to the green economy of Kazakhstan is 3% by 2020, 10% by 2030, and 50% by 2050 share of renewables in the energy production sector [8].

One of the most challenging questions that companies face was and will be decisions about capital structure. There are various opinions related to its efficient use and its impact on the company's performance among researchers. The literature review was conducted based on studies that were published in scientific journals such as Scopus and so on, and the research presented below is the one that deeply describes the relationship between capital structure and profitability.

Nabil Ahmed Mareai Senan (KSA), Anwar Ahmad (India), Suhaib Anagreh (UAE), Mosab I. Tabash (UAE), and Eissa A. Al-Homaidi (Yemen) conducted a study (Investment Management and Financial Innovations, Volume 18, Issue 2, 2021) that identified the factors that influence the financial performance, liquidity, and leverage of Indian public companies [9]. They reasoned the conclusion based on the analysis of data of 1,333 public Indian companies listed on the Bombay Stock Exchange.

The uniqueness of this study is that the authors justified the research methods, based on the analysis and synthesis of more than 20 studies that were made by other authors. The authors of the study identified and classified the variables that affect the performance, liquidity, and leverage of a company and their correlation with each other. The dependent indicator – financial leverage was calculated by financial leverage, while independent variables are measured by liquidity and financial performance. The first group is firm liquidity calculated by current ratio and quick ratio. The financial performance ratios are measured by five indicators, such as return on assets and return on equity. The conclusion drawn from this study will be used to argue the factors that were chosen to conduct this study.

## Methodology

The research will be based on the analysis of the top five oil and gas companies listed on the New York Stock Exchange. The list of the companies is presented below.

Companies to be analyzed:

- Total SE (NYSE: TOT)
- Eni (NYSE: E)
- Exxon Mobil (NYSE: XOM)
- Royal Dutch Shell (NYSE:RDS)
- BP (NYSE: BP)

All companies selected for this study have the largest market capitalization, the highest amount of profit and are accepted as the best companies that provide the largest share of oil and gas. The company's data was analyzed over five years from 2016 to 2020. We chose non-financial public companies of the oil and gas industry. All data presented below were taken from financial statements, mainly from income statements and balance sheets for the last five years. Materials will be analyzed by taking into account the notes given in the reports related to indicators that will be used in the study.

The decision and strategy about the company's financial structure will also be considered. As in every research, there will be dependent and independent variables.

**Table 1**

Measurement of variables used in research models

Variables	Variable Name	Measurement
ROE	Return on equity	Net income/ Stockholders' Equity
ROA	Return on asset	Net income/total asset
Capital structure	Capital structure	Debt / Total equity
Debt ratio	Current ratio	Total debt/ Total assets
Age	Age	Age
Net income	Net income	\$ million

As a firm's financial performance proxy factor, we took return on equity (ROE) and return on

assets (ROA) based on other empirical studies that we mentioned before in the literature review part that were conducted to analyze these indicators. The return on equity and return on assets was calculated for each company and year separately, and for further analysis, we used the average value for the industry that was calculated by using the Microsoft Excel tool. Capital structure is the main indicator that will be analyzed and it's measured as leverage ratio and debt ratio. The total debt to total assets ratio shows us the companies' capital structure so that we can see how much of the borrowed and own capital they used to finance their business. The debt ratio is also a company's capital structure indicator that will show us the amount of the total debt to total assets of all companies from 2016-2020 [10]. The study will also include an investigation of the relationship between companies' net income and their capital structure.

There is a statement about the positive correlation between leverage and the age of an enterprise (Kyereboah-Coleman,2009) [11]. Already established companies have greater chances to obtain external financing, while younger ones have to gain a reputation to do so. This statement raised questions about the relationship between a company's performance and age, a study organized by Noor Afza in 2011 showed that they have a negative correlation [12]. That's why we chose age as a variable that can influence both objects of the research. The later analysis will investigate if there is any kind of a correlation between age, capital structure, and profitability.

The research conclusion will derive from regression and coefficient of correlation analysis, which is a quantitative method of analysis and as the qualitative method of analysis, we made the literature review by studying various papers related to the relationship between performance and capital structure of a company.

## Discussion

The graph below shows the financial performance for the last five years of all companies.

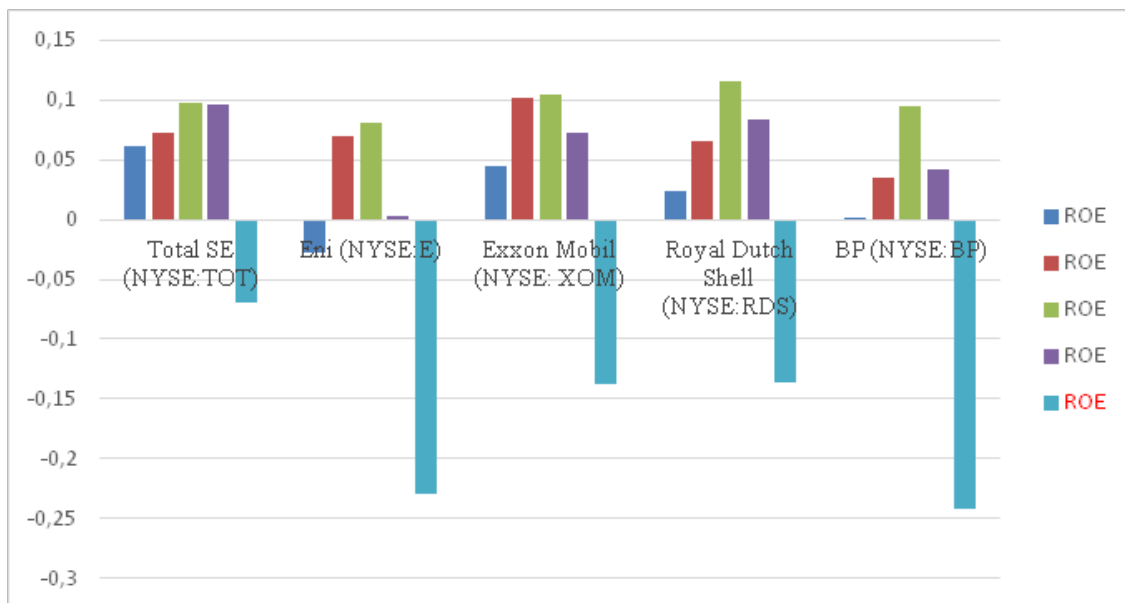


Figure 2 - Financial performance indicator (ROE) of companies for 2016-2020

All five companies experienced losses in 2020 because of the pandemic and the reasons that we mentioned before in the introduction part. Equity as well as net income decreased and showed negative results in all five companies. The average income of all companies had increased by 44% until the pandemic period, then net income dropped to negative -267% from the 2019 to 2020 pandemic period and equity decreased by 20% on average in each company. The most significant drop has happened in 2020: net income of the industry was negative in all companies (Total SE, Eni, Exxon Mobil, Royal Dutch Shell, and BP).

The following graph demonstrates how return on assets was changing over the last five years. The values that are presented below are from all companies and the average ROA of the industry was quite good until 2019.

Total assets slightly increased by about 4% before COVID 2019 and declined to 5% by the end of 2020 on average. Return on assets had declined mainly because of net income reduction as it was with return on equity. This short analysis shows that even top energy sector companies experienced and continue to go through significant shrinkage in sales and their

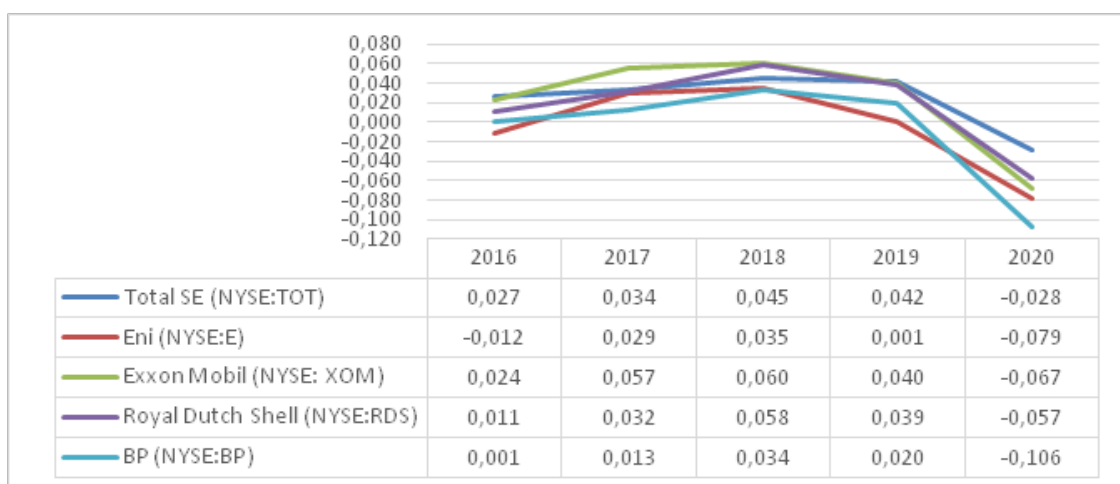


Figure 3 - Financial performance indicator (ROA) of companies for 2016-2020

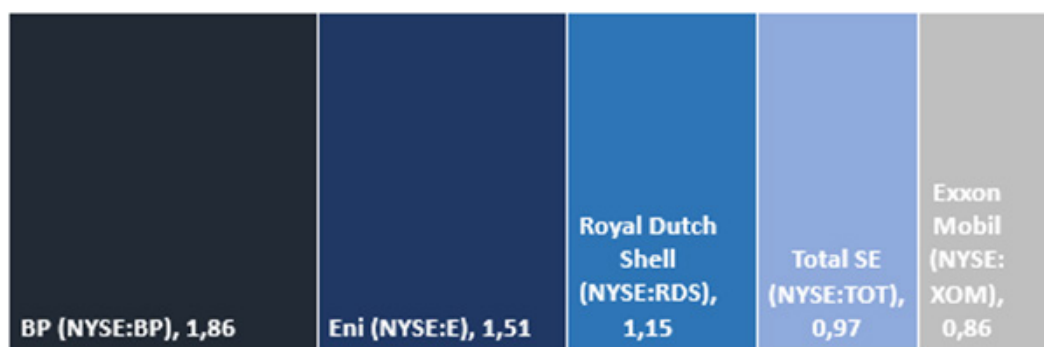


Figure 4 - Capital structure of top five oil and gas companies

performances last year and that they need to take actions to strengthen their financial positions under the influence of the current market situations. There is an expectation that the prices for renewable sources of energy will lower shortly causing competition and a decrease in demand for traditional ones [20]. That movement towards alternative products will lower the net income of the companies and affect their overall financial performance.

The calculation of the capital structure of companies was implemented by the formulas that were presented in Table 1 (Measurement of variables used in research models). The results that are presented in Figure 4 below are the average debt-to-equity ratio for the last five years from 2016 to 2020 for each company.

The capital structure analysis shows that two out of five companies (Total SE and ExxonMobil) finance their activity through equity and the rest (Eni, BP, and Royal Dutch Shell) use debt financing. The trend that we identified during capital structure analysis is that the amount of borrowed capital (long-term debt) in all the

companies decreased by 35% on average from 2016 to 2018 and almost doubled (94%) pre- and post-pandemic. This kind of change in capital structure might be negatively associated with a companies' performance as well. The presented above results are the average number for the five-year period that was calculated for each company. BP and Eni companies' major part of the capital structure consists of borrowed capital, which increased by 33% on average in each firm in 2020. All the five companies' leverage increased, and they used debt financing from 2019 to 2020. Total SE and ExxonMobil companies, that were relying on equity financing, their capital structure ratio was 1.4 and 1.09 respectively, because of the increase of long-term debt by 37% in Total SE and by 79% in ExxonMobil from 2018 to 2020.

## Results

$H_0$ : There is no direct relationship between capital structure and the company's performance indicators as return on equity and return on assets.

Table 2

Summary of correlation coefficients						
	ROA	ROE	Capital structure	Net income	Age	DR
ROA	1					
ROE	1	1				
Capital structure	-0,95	-0,95	1			
Net income	0,99	0,99	-0,94	1		
Age	0,43	0,44	-0,33	0,42	1	
DR	-0,8	-0,81	0,95	-0,79	-0,1	1

Based on our null hypothesis we come to an alternative one, that states a negative relationship between variables.

H<sub>1</sub>: There is a negative relationship between capital structure and the company's performance indicators as return on equity and return on assets.

Correlation coefficient analysis showed the following relationship between variables. The analysis was conducted based on the average amount of variables (ROE, ROA, Capital structure, Net income, Age, and Debt ratio) for the last five years 2016-2020.

According to the information presented in the table above we can oversee that there is a mainly negative relationship between variables. The main conclusion that we made based on this table is that capital structure and company's performance indicators (ROE, ROA) have a negative correlation. The company's performance and its capital structure are not related to the company's age, because the correlation coefficient in the first case is lower than 1, and in the second case it's negative -0.33. The debt ratio is negatively correlated to return on equity, return on assets, and net income, which strengthens our conclusion about the negative relationship between capital structure indicators and company performance indicators. Net income and age of the company are positively correlated, but it's

not that strong to say that age of an enterprise influence its performance. Later in this study, we will examine the relationship between variables based on regression analysis and will test the hypotheses listed above by accepting or rejecting one of them. Results will be represented through the analysis of several statistical values.

According to the regression analysis results, we reject the null hypothesis and accept an alternative that states a negative relationship between capital structure and a company's performance.

The regression analysis was built between dependent variables such as return on equity, return on assets, which are classified as company's performance indicators. As independent variables, we took debt ratio and leverage ratio that are classified as capital structure indicators. The results were quite similar in all three scenarios demonstrating negative coefficients, which means that the \$1 million increase in the independent variable (capital structure), namely the amount of borrowed capital will reduce the value of the dependent variable (ROE and ROA) by the amount of coefficient. The correlation coefficient analysis has also shown the opposite direction of connection between variables.

P-value is lower than 0.05 alpha value which is equal to 0.01 in all three regression models (ROE and Capital structure, ROA and Capital structure,

Table 3

## Regression analysis

Model summary				
Multiple R	0,958157			
R-squared	0,918065			
Adjusted R- squared	0,890753			
Standard error	0,034222			
	Coefficients	Standart error	t-stat	P-value
ROE	0,825455295	0,140107784	5,891573404	0,009760517
Capital structure	-0,636794396	0,109833914	-5,797793916	0,01020990
ROA	0,373107	0,068473	5,448975	0,01214
Capital structure	-0,28636	0,053678	-5,33485	0,012874
Net income	95503,04	17839,07	5,353588	0,01275
Capital structure	-72170,4	13984,48	-5,16074	0,01411

Net income, and Capital structure) that bring us to the following conclusion: based on the p-value analysis of our regression analysis model we reject the null hypothesis (there is no relationship between capital structure and profitability) and accept H1: Capital structure negatively correlated with company's performance with the confidence level of 95%. Another statistical indicator that will be calculated to examine relationships between variables is the T-statistics value. T-statistic value (5.432) is higher than t-critical values at the confidence level of 95% two-tailed test (2.776). We reject the null hypothesis and accept an alternative one based on t-value analysis as well as in the previous analysis. The average coefficient of determination R-squared of all the three regression models is 92%. It represents that our regression model fits observed data and explains 92% of it. The regression model was built with a 95% confidence level and standard error shows that left 5% of error that could happen in the analysis.

### Conclusion

This research examined the relationship between capital structure and company's performance indicators (ROE and ROA) of the top energy industry oil and gas companies listed at NYSE. (Total SE, Eni, Exxon Mobile, Royal Dutch Shell, and BP)

Net income of all the five companies decreased in 2020 mainly because of the pandemic that caused negative return on equity and return on assets value at the same time. In general, based on industry analysis we found out that there is a growing trend towards green alternatives of energy and reduction of emissions into the environment. All these disturbances put oil and gas companies in difficult situations reducing their profitability. So there is a big concern about the future and the companies' owners have to take action to handle troubles with a minimal level of losses. The capital structure and its impact on performance is one thing that should be examined to optimize the management strategy.

This study showed a decrease in the general indicators of the companies' financial stability, as well as a decrease in profit indicators that had a

negative impact on the companies' profitability. It isn't an easy task to maintain or to increase the efficiency of a company's performance, under the global pandemic and the growing trend towards green energy. Nowadays, companies are facing problems with the formation of a capital structure that will allow them to increase their profitability and be socially responsible at the same time.

Based on correlation coefficient analysis we investigated that return on equity and total debt to total equity ratios have a negative correlation -0.95 as well as with return on assets -0.95. Average debt ratios of all five companies for the last five years are also negatively correlated with ROE (-0.81) and ROA (-0.80). We've concluded that the age of the enterprise isn't associated with its capital structure and debt ratio, as it was presented in Noor Afza's study of the relationship between age and companies' performance in 2011. [12] The study of correlation of age variable and companies' performance indicators facilitates us to construct the following hypothesis: there is a positive correlation between age of a company and its profitability, that can be used for further analysis and other researches related to this topic. There is not strong but still positive (0.42) relation between the net income of energy companies and their age (average value of age is 61 years). Net income as return on equity and return on assets have a negative correlation with the average capital structure of the companies, which is equal to -0.94.

Regression analysis summarizes t-statistic value, p-value, R-squared, and coefficients of variables. The null hypothesis that states that there is no correlation between capital structure and companies' performance was rejected and an alternative hypothesis was accepted. The independent values are net income and capital structure, while the dependent values are: Return on equity and Return on assets.

First regression analysis between return on equity and capital structure let us figure out that for every dollar increase in leverage of the company its return on equity decreases by 0.64 times. So, if a company increases the amount of borrowed capital (long-term debt) - its performance indicator as ROE falls. The same results were obtained from regression analysis



between ROA and capital structure: a dollar increase in leverage leads to 0.28 times decrease in return on assets.

Higher leverage decreases a company's profitability and may even lead to bankruptcy in the long run. We already mentioned in the methodology part during general data analysis that long-term debt went up by 94% from 2018 to 2020 on average. During this period, we observed a drop in profitability of all the five companies, which increased by 44% from 2017-2018, declined by 24% from 2018-2019, and decreased by 267% just in one year from 2019-2020 on average. So, we can state that the reduction that happened in the companies' performance in the oil and gas industry is related to the higher amount of leverage in the companies' capital structure.

The companies that rely on debt financing mainly take advantage of tax benefits and ownership. Under unstable conditions of the world economy and the growing need for financial resources to implement green business processes, the capital structure is a key element of a company to keep its stability.

The management of the companies should implement a capital structure optimization strategy to reduce the amount of borrowed capital and eliminate all the possible risks associated with debt financing. Especially Eni and BP have to optimize the capital structure because the

amount of borrowed capital is two times more than its Own capital.

Return on equity and return on assets are one of the main valuable indicators of companies' performance and low value will affect companies' overall picture. Companies with high leverage will struggle in fundraising procedures. Investors are not interested in companies that represent unstable capital structure and, what is more important, they are not interested in companies that are not profitable. The recommendation, that this study can provide investors, is to invest in companies with lower financial leverage and correspondingly lower risk of bankruptcy. The results of this research paper showed that companies with high leverage tend to be less profitable in general, so investing in them might be a risky decision.

There is another thing that investors are taking into consideration is the growing trend towards renewable sources of energy that is becoming the present and future of the energy industry. A shift towards green alternatives that took place in the market is something that is not under the companies' control and they have to deal with it to follow that market tendency and act in the best interest of the community. So that's why it's important to start from optimization of things that are under the companies control like capital structure.

## References

1. Wiggins Rosalind Z., Piontek T. and Metrick A.. The Lehman Brothers Bankruptcy: Overview // Journal of financial crises. – 2019. - Vol. 1. - P. 39-62.
2. 2022 renewable energy industry outlook. [Электрон. ресурс] – URL: <https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html> (дата обращения: 14.10.2021).
3. Global Oil & Gas Exploration & Production - Market Size 2005–2027. [Электрон. ресурс] – URL: <https://www.ibisworld.com/global/market-size/global-oil-gas-exploration-production/> (дата обращения: 14.10.2021).
4. Kazakhstan oil and gas tax guide. [Электрон. ресурс] – URL: [https://assets.ey.com/content/dam/ey-sites/ey-com/ru\\_kz/topics/oil-and-gas/ey-kazakhstan-oil-and-gas-tax-guide-2021.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/ru_kz/topics/oil-and-gas/ey-kazakhstan-oil-and-gas-tax-guide-2021.pdf) (дата обращения: 14.10.2021).
5. 2020 oil and gas industry outlook. [Электрон. ресурс] – URL: <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2020-oil-gas-midyear-outlook.pdf>. (дата обращения: 15.10.2021).
6. Nagle Peter and Kaltrina Temaj. Oil market developments—rising prices amid broader surge in energy prices // worldbank.org. [Электрон. ресурс] – URL: <https://blogs.worldbank.org/opendata/oil-market-developments-rising-prices-amid-broader-surge-energy-prices> (дата обращения: 15.10.2021).

7. World Energy Outlook 2021. [Электрон. ресурс] – URL: <https://iea.blob.core.windows.net/assets/88dec0c7-3a11-4d3b-99dc-8323ebfb388b/WorldEnergyOutlook2021.pdf> (дата обращения: 15.10.2021).
8. Renewable Energy Market in Kazakhstan: Potential, Challenges, and Prospects. [Электрон. ресурс] – URL: <https://www.pwc.com/kz/en/assets/pdf/esg-dashboard-eng.pdf> (дата обращения: 15.10.2021).
9. Senan Nabil, Ahmad A., Anagreh S., & Tabash M.A. An empirical analysis of financial leverage and financial performance: Empirical evidence from Indian listed firms // Scopus. - 2021. - Vol. 18. - P. 322-334.
10. Al-Qudah., Anas Ali. The Relationship between Capital Structure and Financial Performance in the Companies Listed in Abu Dhabi Securities Exchange: Evidences from United Arab Emirates // Scopus. - 2017. - Vol. 9. – P. 255-272.
11. Okoh Kevin, Ch. Chukwuemeka. An Examination of Organizational Age Effect on Debt to // International Journal of Academic Research in Business and Social Sciences. - May 24, 2019. - P. 542-554.
12. Kassim Aza Azlina Md., Zuaili Ishak. Board effectiveness and company performance: Assessing the mediating role of capital structure decisions // Scopus. - 2013. – Vol. 14. - P. 319-338.
13. ExxonMobil Annual Report (2016-2020). [Электрон. ресурс] – URL: <https://www.annualreports.com/Company/exxon-mobil-corporation> (дата обращения: 18.10.2021).
14. Eni Annual Report (2016-2020). [Электрон. ресурс] – URL: <https://www.eni.com/en-IT/investors/reports.html> (дата обращения: 18.10.2021).
15. Total Energies SE Annual Report (2016-2020). [Электрон. ресурс] – URL: <https://totalenergies.com/investors/publications-and-regulated-information/regulated-information/annual-financial-reports> (дата обращения: 18.10.2021).
16. BP Annual Report (2016-2020). [Электрон. ресурс] – URL: <https://www.bp.com/en/global/corporate/investors/results-and-reporting/annual-report.html> (дата обращения: 18.10.2021).
17. Royal Dutch Shell Annual Report (2016-2020). [Электрон. ресурс] – URL: <https://www.shell.com/about-us/annual-publications/annual-reports-download-centre.html> (дата обращения: 18.10.2021).
18. Nakhaei Maryam, Seyedeh Mahbobeh Jafari. Survey of the Relationship between Capital Structure and Free Cash Flow with Financial Performance of Companies Listed in Tehran Stock Exchange // Scopus. - 2015. – Vol. 8. – P. 217-229.
19. Energy industry and COVID-19 (coronavirus): strategising for the 'new normal'. [Электрон. ресурс] – URL: <https://www.pwc.com/gx/en/issues/crisis-solutions/covid-19/energy-utilities-resources-coronavirus.html> (дата обращения: 16.10.2021).
20. The big choices for oil and gas in navigating the energy transition. [Электрон. ресурс] – URL: <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-big-choices-for-oil-and-gas-in-navigating-the-energy-transition> (дата обращения: 16.10.2021).

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### Чувствительность структуры капитала нефтегазовых компаний к эко- и пандемо- факторам

**Аннотация.** Эксперты заявляют, что объем рынка мировой разведки и добычи нефтегазовой отрасли в период с 2016 по 2021 год сокращался в среднем на 2,2% каждый год. Результаты этого исследования покажут, как компании могут использовать скрытый финансовый потенциал для стабилизации и улучшения финансовых показателей в следствии пандемии, на фоне сопровождавшейся тенденциями «зеленой» экономики. Целью данного исследования является определение оптимальной структуры капитала на основе анализа взаимосвязи между структурой капитала и результатами деятельности пяти ведущих компаний энергетического сектора, котирующихся на Нью-Йоркской фондовой бирже в течение последних пяти лет. Анализ проводился на основе коэффициента корреляции и регрессионного анализа между показателями оценки эффективности (ROE, ROA) и структурой капитала (коэффициент левериджа). Помимо этого основного показателя, в исследовании также изучена взаимосвязь между размером компании, прибыльностью и структурой капитала. В этом исследовании представлены рекомен-

дации по повышению эффективности деятельности компании за счет структуры капитала в текущих условиях рынка для менеджеров компаний, и инвесторов.

**Ключевые слова:** структура капитала, результаты деятельности компании, рентабельность капитала, рентабельность активов, зеленая экономика, энергетика.

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### **Мұнай-газ компанияларының капитал құрылымының экологиялық және пандемиялық факторларға сезімталдығы**

**Аннотация.** Сарапшылардың айтуынша, 2016 жылдан 2021 жылға дейін әлемдік мұнай мен газды барлау және өндіру нарығының көлемі жыл сайын орта есеппен 2,2%-ға қысқарды. Бұл зерттеудің нәтижелері пандемия және жасыл экономика трендімен баланысты туындаған ауырпашылықтарды компаниялардың капитал құрылымын пайдаланып түсүлімдік көрсеткішін тұрақтандыру мен артыру жолдарын ұсынады. Бұл зерттеудің мақсаты капитал құрылымы мен Нью-Йорк қор биржасында листингтен өткен үздік бес энергетикалық компаниялардың соңғы бес жылдағы көрсеткіштері арасындағы байланысты талдау негізінде капиталдың оңтайлы құрылымын анықтау болып табылады. Талдау тиімділікті бағалау көрсеткіштері (ROE, ROA) мен капитал құрылымы (левередж коэффициенті) арасындағы корреляция коэффициенті мен регрессиялық талдау негізінде жүргізілді. Жұмыста негізгі көрсеткіштермен қатар жас, кірістілік және капитал құрылымы арасындағы байланыс та қарастылады. Зерттеудің нәтижелері негізінде компания менеджерлері мен инвесторларға ағымдағы нарық жағдайында капитал құрылымы арқылы компанияның жұмысын жақсарту бойынша ұсыныстар береді.

**Түйін сөздер:** капитал құрылымы, компанияның өнімділігі, меншікті капиталдың кірістілігі, активтердің кірістілігі, жасыл экономика, энергетика.

### **References**

1. Wiggins Rosalind Z., Thomas Piontek and Andrew Metrick. The Lehman Brothers Bankruptcy: Overview, *Journal of financial crises*, 1, 39-62 (2019).
2. 2022 renewable energy industry outlook. [Electronic resource] - Available at: <https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html> (Accessed: 14.10.2021).
3. Global Oil & Gas Exploration & Production - Market Size 2005–2027. [Electronic resource] – Available at: <https://www.ibisworld.com/global/market-size/global-oil-gas-exploration-production/> (Accessed: 14.10.2021).
4. Kazakhstan oil and gas tax guide. [Electronic resource] - Available at: [https://assets.ey.com/content/dam/ey-sites/ey-com/ru\\_kz/topics/oil-and-gas/ey-kazakhstan-oil-and-gas-tax-guide-2021.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/ru_kz/topics/oil-and-gas/ey-kazakhstan-oil-and-gas-tax-guide-2021.pdf) (Accessed: 14.10.2021).
5. 2020 oil and gas industry outlook. [Electronic resource] – Available at: <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2020-oil-gas-midyear-outlook.pdf>. (Accessed: 15.10.2021).
6. Nagle Peter and Kaltrina Temaj. Oil market developments— rising prices amid broader surge in energy prices // [worldbank.org](https://worldbank.org). [Electronic resource] – Available at: <https://blogs.worldbank.org/opendata/oil-market-developments-rising-prices-amid-broader-surge-energy-prices> (Accessed: 15.10.2021).
7. World Energy Outlook 2021. [Electronic resource] – Available at: <https://iea.blob.core.windows.net/assets/88dec0c7-3a11-4d3b-99dc-8323ebfb388b/WorldEnergyOutlook2021.pdf> (Accessed: 15.10.2021).
8. Renewable Energy Market in Kazakhstan: Potential, Challenges, and Prospects. [Electronic resource] – Available at: <https://www.pwc.com/kz/en/assets/pdf/esg-dashboard-eng.pdf> (Accessed: 15.10.2021).
9. Senan Nabil, Ahmad A., Anagreh S., & Tabash M.A. An empirical analysis of financial leverage and financial performance: Empirical evidence from Indian listed firms, *Scopus*, 18, 322-334 (2021).

10. Al-Qudah, Anas Ali. The Relationship between Capital Structure and Financial Performance in the Companies Listed in Abu Dhabi Securities Exchange: Evidences from United Arab Emirates, *Scopus*, 9, 255-272 (2014).
11. Okoh Kevin, Chris Chukwuemeka. An Examination of Organizational Age Effect on Debt to, *International Journal of Academic Research in Business and Social Sciences*, 4, 542-554 (2019).
12. Kassim Aza Azlina Md., Zuaili Ishak. Board effectiveness and company performance: Assessing the mediating role of capital structure decisions, *Scopus*, 14, 319-338 (2013).
13. ExxonMobil Annual Report (2016-2020). [Electronic resource] – Available at: <https://www.annualreports.com/Company/exxon-mobil-corporation> (Accessed: 18.10.2021).
14. Eni Annual Report (2016-2020). [Electronic resource] – Available at: <https://www.eni.com/en-IT/investors/reports.html> (Accessed: 18.10.2021).
15. Total Energies SE Annual Report (2016-2020). [Electronic resource] – Available at: <https://totalenergies.com/investors/publications-and-regulated-information/regulated-information/annual-financial-reports> (Accessed: 18.10.2021).
16. BP Annual Report (2016-2020). [Electronic resource] – Available at: <https://www.bp.com/en/global/corporate/investors/results-and-reporting/annual-report.html> (Accessed: 18.10.2021).
17. Royal Dutch Shell Annual Report (2016-2020). [Electronic resource] – Available at: <https://www.shell.com/about-us/annual-publications/annual-reports-download-centre.html> (Accessed: 18.10.2021).
18. Nakhaei Maryam, Seyedeh Mahbobeh Jafari. Survey of the Relationship between Capital Structure and Free Cash Flow with Financial Performance of Companies Listed in Tehran Stock Exchange, *Scopus*, 8, 217-229 (2015).
19. Energy industry and COVID-19 (coronavirus): strategising for the 'new normal'. [Electronic resource] – Available at: <https://www.pwc.com/gx/en/issues/crisis-solutions/covid-19/energy-utilities-resources-coronavirus.html> (Accessed: 16.10.2021).
20. The big choices for oil and gas in navigating the energy transition. [Electronic resource] – Available at: <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-big-choices-for-oil-and-gas-in-navigating-the-energy-transition> (Accessed: 16.10.2021).

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