

## Article

# Fiscal Pressure as a Trigger of Financial Performance for the Energy Industry: An Empirical Investigation across a 16-Year Period

Larissa Batrancea <sup>1,\*</sup> , Mircea Iosif Rus <sup>2</sup>, Ema Speranta Masca <sup>3</sup> and Ioan Dan Morar <sup>4</sup><sup>1</sup> Faculty of Business, Babes-Bolyai University, 7 Horea Street, 400174 Cluj-Napoca, Romania<sup>2</sup> National Institute for Research and Development in Constructions, Urbanism and Sustainable Spatial Development “URBAN INCERC”, 117 Calea Floresti, 400524 Cluj-Napoca, Romania; mircearus2005@yahoo.com<sup>3</sup> Faculty of Economics and Law, “George Emil Palade” University of Medicine, Pharmacy, Science and Technology of Targu Mures, 38 Gheorghe Marinescu Street, 540566 Targu Mures, Romania; ema.masca@umfst.ro<sup>4</sup> Faculty of Economic Sciences, University of Oradea, 1 Universitatii Street, 410087 Oradea, Romania; imorar@uoradea.ro

\* Correspondence: larissa.batrancea@ubbcluj.ro

**Abstract:** Taxation exerts pressure on the economic activities of all companies, including economic entities that operate in the energy industry. This study examined the degree to which fiscal pressure influenced the financial performance of 88 publicly listed companies from the energy industry during a time frame of 16 years (2005Q1–2020Q3). By modelling financial data from the oil, gas and electricity sectors with panel data techniques, our results showed that fiscal pressure had a significant effect on the evolution of company financial performance measured by return on assets, return on equity and return on investment. The study revealed that fiscal pressure had a more positive impact on the financial performance of energy companies than a negative impact. This conclusion is important for overall taxation in the energy industry since corporate taxes, excise duties and mandatory labor contributions are basic resources for state budgets. Our empirical results imply important research directions on the prospect of analyzing company performance.

**Keywords:** fiscal pressure; financial performance; energy industry



**Citation:** Batrancea, L.; Rus, M.I.; Masca, E.S.; Morar, I.D. Fiscal Pressure as a Trigger of Financial Performance for the Energy Industry: An Empirical Investigation across a 16-Year Period. *Energies* **2021**, *14*, 3769. <https://doi.org/10.3390/en14133769>

Academic Editor: Sergio Ulgiati

Received: 25 April 2021

Accepted: 18 June 2021

Published: 23 June 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Taxation and the structure of tax systems have always constituted engaging research topics due to the multiple implications that tax levies have for the overall economic development of societies [1–4]. On the one hand, tax levies are necessary for they finance public goods systems (e.g., air quality, education, healthcare, infrastructure, national defense, social security), which reflect the status of societal wellbeing. On the other hand, taxes are levers used by authorities to monitor the economy through incentivizing certain economic activities while dampening others. In this context, public authorities have to always find the right balance between setting tax rate levels so they can amass a sufficient amount of tax revenues and stimulating companies to enter the market, create job opportunities, cater goods and services to a wide range of individual and corporate needs and contribute to state budgets.

As fiscal levers that are organically linked to the income generated on the market, taxes exert pressure on corporate and individual taxpayers' income for at least two reasons. First, with few exceptions, nearly all income sources are subject to taxation. Second, all taxes must be paid until certain deadlines that are set by public authorities. In the case of individual taxpayers, fiscal pressure can be perceived while taxpayers strive to generate income for securing personal wellbeing, the integrity of their wealth (house, car, financial assets) or for

meeting consumption needs. In the case of corporate taxpayers, fiscal pressure might be perceived even stronger because they: (1) bear tax levies associated with company activity (e.g., corporate income taxes; business rates; VAT/sales taxes paid for purchasing raw materials necessary in the manufacturing process; excise taxes; carbon taxes; capacity and renewable energy levies; severance taxes for extracting non-renewable natural resources within the energy sector; other environmental taxes) [5–7]; (2) bear tax levies associated with the labor force, depending on the country (e.g., mandatory contributions for social security, healthcare, unemployment, paid leave). Considering that fiscal pressure exerts a general influence on corporate economic activity and its labor force, we believe that scientific examinations regarding the impact of fiscal pressure on company financial performance are very telling. In the absence of tax levies (that ultimately mitigate overall corporate income), we deem that companies would make different business decisions. However, taxation is omnipresent and economic entities should not do otherwise but comply with their tax obligations and aim at generating the desired level of financial performance.

In the present business environment, a company's financial performance is a matter of interest for major stakeholders such as employees, shareholders, potential investors, banks and public authorities. Financial performance can be measured via numerous standard ratios [8] depending on the interest of the stakeholder. For the purpose of this study, we will measure financial performance with a particular focus on the profitability of company assets, equity and investments. At the end of the day, the level of financial performance may incentivize stakeholders to choose one company over the other when searching for a better job, financial gains, investment, borrowers and private partners concerning public goods.

The main aim of our study was to explore the strength of the relationship between fiscal pressure and financial performance on 88 publicly traded companies from the energy industry operating in the sectors of oil, gas and electricity. The phenomenon of fiscal pressure was measured with the variables fiscal pressure to expenses, fiscal pressure to equity, fiscal pressure to gross margin and fiscal pressure to sales. The phenomenon of financial performance was captured via benchmark indicators such as return on assets, return on equity and return on investment. Considering the targeted energy sectors, the second aim of the study was to identify similarities and differences between the oil, gas and energy companies included in our sample.

The novelty of our investigation is at least twofold. First, we used relevant financial indicators as proxies for fiscal pressure, which constitutes an original approach. Second, we explored the relationship between fiscal pressure and financial performance at the microeconomic level by including in our sample major players on the energy market from North and South America, Europe and Asia.

Our choice of the energy industry stems from the fact that its output is indispensable and supports the development of modern economies across the world. As emphasized in the literature [9], energy derived from oil, gas and electricity sources is essential for carrying out business operations (e.g., supply, manufacturing, distribution, sales) and daily human activities (e.g., household chores, mobility, ensuring of living standards) worldwide. In addition, the evolution of energy prices shapes the prices of goods and services supplied on the market, which are ultimately produced and traded using energy outputs.

We decided to investigate the relationship during the period 2005Q1–2020Q3 because the 16-year time span has witnessed numerous changes for the energy sector [10–13] and because companies may display “markedly different patterns of profitability over time” [14] (p. 1). Among the most notable shifts on the energy market would be the following: (a) upper-middle-income and high-income nations have been favoring oil as the primary source of energy, while low-income nations have been focusing on coal; (b) the large fluctuations of gas consumption patterns registered worldwide has called for the enactment of policies adapted to the specificity of each country; (c) increasing decentralization and competition among energy providers; (d) digitalization; (e) rising interest for electrification with the aim of mitigating carbon dioxide emissions; (f) growing interest for renewable energy sources and massive investments in green energy projects [15].

Our empirical results showed that fiscal pressure had a significant impact on the financial performance of energy companies. In other words, fiscal pressure indicators exerted a more positive impact on the financial performance of energy companies than a negative impact. Considering the role played by the energy industry for modern societies and markets, we deem that the contribution of our study to the existing literature is relevant because we linked fiscal pressure and financial performance in the case of a large sample of publicly traded energy companies. Moreover, the insights we offered based on the empirical results are important for overall taxation in the energy industry since corporate taxes, excise duties and mandatory labor contributions are basic resources of state budgets. Last but not least, our results imply important research directions on the prospect of analyzing company performance within the energy industry.

The article has the following structure. Section 2 covers the literature review and presents empirical results on fiscal pressure matters. Section 3 details the variables of interest and company sample. Section 4 reports the research hypothesis and empirical results, while Section 5 comprises discussions regarding the main results, study limitations and avenues for future research.

## 2. Literature Review

The famous American businessman and CEO of the International Telephone & Telegraph Company (currently ITT), Harold Geneen, stated that “in business, words are words, explanations are explanations, promises are promises, but only performance is reality.” Performance is indeed an important metric for all stakeholders interested in the direction a particular company is headed. For this reason, the existing literature on the factors that influence financial performance is quite comprehensive [16–19], listing from the most anticipated factors to less obvious ones. The following paragraphs will provide a snapshot into the extant literature going from general factors of influence to studies particularly focused on the impact of fiscal pressure.

Michelon, Boesso and Kumar [20] conducted a study on 188 companies for the period 2005–2007 in order to investigate the impact of seven areas of corporate social responsibility on company performance, measured via the indicators earnings before interest, taxes, depreciation and amortization (EBITDA), market value, capital expenditures and intangibles. Corporate social responsibility (CSR) actions were centered around the following: community, corporate governance, diversity, employee relations, environment, human rights, product quality. The authors applied an interesting methodological approach: they balanced company performance when CSR areas were financed strategically in accordance with stakeholders’ options against the performance obtained when no financing strategy was implemented. According to their results, except for employee relations and environment, strategic investments in all the other five areas triggered significant increases in company performance.

Using data for the period 2006–2013 from companies listed on the Hong Kong Stock Exchange, authors Bazrafshan, Kandelousi and Hooy [21] focused on an important topic. The authors investigated the impact of corporate disclosure on company performance. According to their results, the relationship between the two phenomena is rather nonlinear: financial performance augments only until disclosure reaches an optimum level; any information provided beyond the optimum level generates a decrease in company performance.

Dierker, Kim and Park [22] explored the significance of choosing a specific fiscal year-end (December or calendar year; non-December) for the profitability of companies from the Asia-Pacific region during the period 1983–2014. In this context, with data retrieved from the New York Stock Exchange, Nasdaq and Amex, authors identified significant differences between companies favoring December fiscal-year ends and companies opting for non-December fiscal-year ends. Interestingly enough, considering that stock markets are sensitive to various types of information, results showed that companies with a calendar fiscal year generated higher market returns than their competitors from the same industry. Along the same lines, the authors emphasized that homogeneity of fiscal year-ends would

benefit stock markets by increasing transparency and facilitating comparisons among listed companies.

Capece, Di Pillo and Levialdi [23] examined the financial performance of 90 Italian companies operating in the energy industry during the period 2008–2010 under the impact of market liberalization. Authors captured company performance with the help of various indicators, among which: return on equity, return on investment, return on sales. Results revealed considerable differences between southern and northern companies. Namely, southern companies registered lower performance after liberalization amid the global financial crisis.

Schabek [24] examined the performance of renewable energy companies operating in 16 emerging markets across the period 2000–2017. With a particular focus on the type of renewable source and company legal form, his results showed that solar companies reported higher return on assets levels than wind companies. Moreover, private companies reported higher returns on equity levels than public ones.

Renowned international organizations such as the Organisation for Economic Cooperation and Development (OECD) or the International Monetary Fund (IMF) have tackled the issue of taxation in relation to energy use at regional and global levels [5,25] with the purpose of capping the pollution level through carbon-pricing policies. In addition, macroeconomic approaches connecting taxation and corporate or economic performance are reported in the literature. For instance, Khan, Nallareddy and Rouen [26] investigated the link between corporate performance growth and economic growth under the impact of the US tax regime. Results showed that, in the presence of high taxation, US companies invested a small portion of their financial profit into the national economy, thus triggering mitigation in economic growth. Leibfritz, Thornton and Bibbee [27] studied how taxation affected the economic performance of open OECD countries and concluded that labor markets registered the highest fiscal pressure.

Nevertheless, in terms of the impact of fiscal pressure on company financial performance at the microeconomic level, studies in the literature are almost nonexistent, although companies are direct beneficiaries and major users of energy output. To the best of our knowledge, this is the first study considering the relationship at the company level.

In the light of the abovementioned and the scarcity of available scientific resources focused on microeconomic investigations, an examination of the link between fiscal pressure and company financial performance seemed propitious.

### 3. Materials and Methods

In order to examine a possible relationship between fiscal pressure and company financial performance, we chose certain indicators that captured the two phenomena. For that matter, our set of outcome variables included the following:

- **Return on Assets (ROA)** captures the effectiveness of employing company assets in the operating activity. The variable is determined as the ratio of earnings after tax to total assets;
- **Return on Equity (ROE)** highlights the efficiency of the capital invested in a company by shareholders. It is determined as the ratio of earnings after tax to shareholders' equity. When ROE reaches high levels, it sends the signal that the company is financially stable against any fiscal pressure or market competition;
- **Return on Investment (ROI)** reveals the efficiency of investment activities within a company. The indicator is determined as a ratio of earnings after tax to the cost of investment. When ROI registers low values, it sends the signal that the company's investments are not efficient.

The set of predicting variables included the following indicators capturing fiscal pressure:

- **Fiscal Pressure to Expenses (RPE)** is determined by dividing the total taxes of a company by its total expenses;
- **Fiscal Pressure to Equity (RPEQ)** highlights the capacity of a company's equity to cover taxation expenses. It is determined as a ratio of total taxes to shareholders' equity;

- **Fiscal Pressure to Gross Margin (RPGM)** highlights how much of a company's own resources are allocated to cover taxation expenses. As the name of the variable suggests, it is determined by dividing total taxes to company gross margin;
- **Fiscal Pressure to Sales (RPS)** highlights the capacity of a company to cover taxation expenses based on its sales. It is determined as a ratio of total taxes to company turnover (i.e., total sales).

Our company sample included 88 economic entities operating in three sectors of the energy industry, as follows: 29 companies were from the oil sector, 29 companies from the gas sector and 30 companies from the electricity sector (see Appendix A). The same company sample was used in [9] and was compiled based on the following rationale: (1) all companies had to pertain to the energy sector and be publicly traded; (2) all companies had to register high market capitalization values (a descending order criterion was applied for company selection); (3) all companies had to feature complete financial data across the whole period. As a result, our sample comprised some of the most important energy companies operating on markets from North and South America, Europe and Asia, considering their top-tier market capitalization values.

For each company, the values of the seven fiscal pressure and financial performance indicators were retrieved from its balance sheet and income statement, which are publicly available since all companies are listed on the stock market. As previously mentioned, the analyzed time frame was 2005Q1–2020Q3.

We used the statistical software EViews version 9.0 as the workhorse for estimating econometric models via panel least squares with cross-section weights.

#### 4. Results

The following section will present different analyses conducted for companies from each energy sector considered (i.e., oil, gas, electricity) and for the overall company sample with the variables of interest: Return on Assets (ROA), Return on Equity (ROE), Return on Investment (ROI), Fiscal Pressure to Expenses (FPE), Fiscal Pressure to Equity (FPEQ), Fiscal Pressure to Gross Margin (FPGM) and Fiscal Pressure to Sales (FPS). For the purpose of this paper, we chose to apply a battery of analyses in order to thoroughly examine the distribution of our data, whether fiscal pressure indicators were uncorrelated and whether they established a causal relationship with financial performance, as hypothesized. Hence, following other studies in the literature [9,28,29], we used descriptive statistics, correlation analysis and panel data modelling.

##### 4.1. Descriptive Statistics

The first analyses to be detailed are the descriptive statistics (see Tables 1–4).

**Table 1.** Descriptive statistics for oil companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
Mean	0.0349	0.0898	0.1303	0.3688	0.9196	1.2542	0.2943
Median	0.0411	0.1052	0.1064	0.2754	0.2868	0.4376	0.2324
Maximum	1.1781	4.9276	1.6635	7.2552	35.6649	24.1177	4.1195
Minimum	−0.6878	−2.9258	−0.9120	−2.1492	−1.3598	−1.4106	−1.3769
Std. dev.	0.1145	0.4015	0.2457	0.4819	2.7809	2.5141	0.3339
Skewness	0.4432	2.1703	0.9730	7.8821	7.6966	5.5094	4.6981
Kurtosis	31.1007	59.6695	13.0057	107.2933	75.8318	40.4130	56.7642
Jarque–Bera test	15,215.84 ***	62,182.68 ***	1991.444 ***	215,094.9 ***	106,903.1 ***	29,408.87 ***	57,591.56 ***
Observations	462	462	460	464	463	464	464

Note: \*\*\* indicates significance at the 1% level.



**Table 2.** Descriptive statistics for gas companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
Mean	0.0360	0.0709	0.1256	0.0966	0.1291	0.2628	0.0759
Median	0.0353	0.0951	0.1046	0.0829	0.1072	0.2362	0.0707
Maximum	0.3256	0.8398	2.5483	0.5232	1.0408	2.6704	0.3020
Minimum	−1.0329	−3.3793	−1.4292	−0.2343	−0.1319	−1.4322	−0.2073
Std. dev.	0.1000	0.2671	0.2539	0.0891	0.1556	0.2918	0.0595
Skewness	−2.9151	−5.6992	3.0739	1.7508	3.6054	2.0833	0.5249
Kurtosis	31.4272	66.3128	33.9811	8.4817	19.5711	19.2487	7.0256
Jarque–Bera test	16,210.40 ***	79,837.36 ***	19,079.47 ***	817.9810 ***	6314.202 ***	5440.004 ***	334.6165 ***
Observations	462	463	459	464	464	464	464

Note: \*\*\* indicates significance at the 1% level.

**Table 3.** Descriptive statistics for electricity companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
Mean	0.1145	0.2543	0.4305	0.2682	0.2497	0.4474	0.1479
Median	0.0283	0.0972	0.0891	0.1110	0.0891	0.1579	0.0865
Maximum	17.0400	32.4100	59.1300	7.2488	11.0196	11.8650	0.5704
Minimum	−2.9091	−3.2941	−4.3636	−0.1005	−0.5079	−0.2565	−0.1598
Std. dev.	1.1184	2.1317	3.7100	0.6450	0.6172	0.8437	0.1389
Skewness	14.4741	14.4348	12.1932	7.6216	11.6726	6.9473	1.2118
Kurtosis	220.0705	217.0302	165.1639	70.0098	195.3905	78.3583	3.3238
Jarque–Bera test	957,153.7 ***	932,847.4 ***	527,752.1 ***	94,453.34 ***	75,1182.5 ***	117,438.6 ***	119.5688 ***
Observations	479	480	471	480	480	480	480

Note: \*\*\* indicates significance at the 1% level.

**Table 4.** Descriptive statistics of all energy companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
Mean	0.0624	0.1398	0.2305	0.2448	0.4304	0.6526	0.1724
Median	0.0316	0.0976	0.0948	0.1216	0.1203	0.2655	0.1013
Maximum	17.0400	32.4100	59.1300	7.2552	35.6649	24.1177	4.1195
Minimum	−2.9091	−3.3793	−4.3636	−2.1492	−1.3598	−1.4322	−1.3769
Std. dev.	0.6599	1.2781	2.1724	0.4829	1.6730	1.5919	0.2293
Skewness	24.2341	23.0859	20.8107	9.0865	12.5941	8.3908	5.9315
Kurtosis	625.8288	580.6014	482.3778	114.7421	205.1669	96.0584	95.3250
Jarque–Bera test	22,814,232 ***	19,655,668 ***	13,409,762 ***	751,903.8 ***	2,433,282.0 ***	524,567.1 ***	508,324.9 ***
Observations	1403	1405	1390	1408	1407	1408	1408

Note: \*\*\* indicates significance at the 1% level.

Table 1 displays central tendency measures for the dependent and independent variables, which correspond to the subsample of oil companies. According to the standard deviation, the largest volatility values were registered by FPEQ and FPGM, while the smallest volatility was registered by ROA. Moreover, the skewness and kurtosis values show that all variables were right-skewed and had leptokurtic distributions. The Jarque–Bera test, which was significant for all variables at the 1% level, indicated that variables were non-normally distributed.

Table 2 comprises descriptive statistics for our seven variables of interest, computed for the subsample of gas companies. Based on the standard deviation, it can be noticed that the largest volatility values were registered by FPGM and ROE, while the smallest volatility was registered by FPS. Skewness values indicated that five variables were skewed to the right, and two variables were skewed to the left. Moreover, since all kurtosis values were above 3, it could be stated that all variables had a leptokurtic distribution. In addition, all variables were non-normally distributed, as shown by the Jarque–Bera test ( $p < 0.001$ ).

In Table 3, one can find displayed the values of the descriptive statistics for the subsample of electricity companies. In this subsample, the variables ROI and ROE recorded the largest volatility, while FPS had the smallest volatility across the period of analysis. All variables of interest were right-skewed and displayed a leptokurtic distribution. Furthermore, the values of the Jarque–Bera test showed that variables were non-normally distributed at the 1% level.

Last but not least, Table 4 displays some descriptive statistics for the overall company sample. According to the standard deviation, the largest volatilities were registered by ROI and FPEQ, and the smallest volatility was registered by FPS. All variables were skewed to the right and had leptokurtic distributions. In addition, the Jarque–Bera test indicated that all variables were non-normally distributed at the 1% level.

Table 5 comprises the average values of the performance indicators computed based on values from Tables 1–4.

**Table 5.** The average performance values of energy companies.

Indicators	Oil Companies	Gas Companies	Electricity Companies	Overall Sample
ROA	3.49%	3.59%	11.45%	6.24%
ROE	8.98%	7.09%	25.42%	13.97%
ROI	13.02%	12.56%	43.05%	23.04%

As can be seen, electricity companies registered the highest average values for all performance indicators. They were followed by oil companies, which reported the second-highest results in terms of return on equity and return on investment. The primacy of electricity companies is rather expected given the increase in worldwide electricity consumption and the relatively constant prices in this sector. The financial performance of oil companies can be explained by the ongoing fluctuation of oil prices and the policies of oil-exporting countries. Moreover, the average financial performance of gas companies was lower because of the perpetual rise in consumption levels and gas prices during the analyzed period.

#### 4.2. Correlation Analyses

The role of correlation analyses is fundamental before running an econometric estimation. Correlations might signal potential biases in the results should the connection between two predictors exceed a certain threshold. For this reason, we conducted pairwise Pearson correlations, as indicated in the following. Similar to the previous analyses, correlations will be computed for all company subsamples and for the entire sample (see Tables 6–9).

**Table 6.** The correlation matrix for oil companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
ROA	1						
ROE	0.640	1					
ROI	0.828	0.509	1				
FPE	0.279	0.177	0.237	1			
FPEQ	0.091	0.128	0.072	0.465	1		
FPGM	0.065	0.077	0.053	0.252	0.829	1	
FPS	0.349	0.248	0.320	0.847	0.530	0.339	1

**Table 7.** The correlation matrix for gas companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
ROA	1						
ROE	0.804	1					
ROI	0.667	0.496	1				
FPE	0.403	0.303	0.289	1			
FPEQ	0.270	0.245	0.179	0.244	1		
FPGM	0.174	0.140	0.096	0.235	0.764	1	
FPS	0.398	0.299	0.299	0.924	0.337	0.353	1

**Table 8.** The correlation matrix for electricity companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
ROA	1						
ROE	0.998	1					
ROI	0.538	0.539	1				
FPE	0.107	0.072	0.018	1			
FPEQ	0.003	−0.015	−0.016	0.187	1		
FPGM	−0.010	−0.019	−0.009	0.095	0.510	1	
FPS	0.052	0.036	−0.009	0.430	0.532	0.508	1

**Table 9.** The correlation matrix for energy companies.

	ROA	ROE	ROI	FPE	FPEQ	FPGM	FPS
ROA	1						
ROE	0.985	1					
ROI	0.545	0.536	1				
FPE	0.110	0.083	0.027	1			
FPEQ	0.006	0.017	−0.003	0.282	1		
FPGM	−0.001	0.005	−0.005	0.188	0.809	1	
FPS	0.048	0.054	0.012	0.563	0.541	0.423	1

The results showed that all pairwise correlations had values below 1 and were positive. The highest correlation was registered between FPE and FPS ( $r = 0.85$ ) and the lowest correlation between FPE and FPGM ( $r = 0.25$ ). Hence, correlation analysis revealed no multicollinearity biases for the estimated results.

In the case of gas companies (Table 7), with few exceptions, data showed no strong positive correlations between the independent variables. FPE and FPS yielded the highest correlation ( $r = 0.92$ ), while FPE and FPGM yielded the lowest correlation ( $r = 0.24$ ).

From the results displayed in Table 8, it can be concluded that the positive correlations determined for the subsample of electricity companies did not reach high values. Hence, the multicollinearity issue might not pose problems for the following empirical estimations. In this case, the highest correlation was set between FPEQ and FPS ( $r = 0.53$ ), while the smallest correlation was set between FPE and FPGM ( $r = 0.1$ ).

At the overall level, all correlations were positive, and they did not exceed the threshold of 1. Hence, multicollinearity was ruled out as a potential bias for the econometric estimations. The highest correlation was established between FPEQ and FPGM ( $r = 0.81$ ), while the lowest correlation was established between FPE and FPGM ( $r = 0.19$ ).

Table 10 offers the possibility of revealing certain similarities and differences in terms of correlations between independent and dependent variables. In the category of *similarities*, we noticed that the performance indicator ROA was positively linked with FPE, FPEQ and FPS for all company subsample. Second, both ROE and ROI shared positive correlations with all fiscal pressure predictors in the case of oil and gas companies.



**Table 10.** The synthesis of correlation analyses for subsamples and overall sample.

Companies	Independent Variables	ROA	ROE	ROI
Oil	FPE	+	+	+
	FPEQ	+	+	+
	FPGM	+	+	+
	FPS	+	+	+
Gas	FPE	+	+	+
	FPEQ	+	+	+
	FPGM	+	+	+
	FPS	+	+	+
Electricity	FPE	+	+	+
	FPEQ	+	—	—
	FPGM	—	—	—
	FPS	+	+	—
All companies	FPE	+	+	+
	FPEQ	+	+	—
	FPGM	—	+	—
	FPS	+	+	+

In the category of *differences*, while FPGM was positively correlated with all performance indicators for oil and gas companies, in the case of electricity companies these correlations turned negative. Moreover, the same electricity companies displayed negative correlations between FPEQ on one side and ROE and ROI on the other side.

Next, we conducted a panel data analysis in order to test the following research hypothesis:

**Hypothesis 1 (H1).** *There is a significant dependence between fiscal pressure and financial performance.*

The general equation of the econometric model was the following:

$$Y_{it} = w_0 + w_1Z_{1it} + w_2Z_{2it} + w_3Z_{3it} + w_4Z_{4it} + \delta_i + \varepsilon_{it}$$

Where:

- $w_0$  denotes the intercept;
- $w_i$  denotes the coefficient of the independent variable, with values from 1 to 4;
- $Z$  denotes the independent variables;
- $i$  denotes the company, with values from 1 to 88;
- $t$  denotes the time frame analyzed (2005Q1–2020Q3), with values from 1 to 16;
- $\delta_i$  denotes the fixed effects that control for time-invariant company-specific factors; such effects are considered to offset the omission of other factors influencing financial performance;
- $\varepsilon_{it}$  denotes the error term.

At the same time, the variance-covariance matrix of estimators was determined with the White cross-section method with the purpose of ruling out the issue of heteroscedasticity at the transversal level. In addition, we also estimated empirical results with and without time fixed effects. Hence, for each company subsample and for the overall sample, every econometric model will be discussed while accounting for the time fixed effects and without these effects.

In the case of model M11 and no time fixed effects (Table 11), our predictors explained 20.18% of the variance in ROA ( $F = 4.64$ ,  $p < 0.001$ ). The influences of the fiscal pressure indicators FPEQ, FPGM and FPS were highly significant. More exactly, when FPEQ increased by one unit, ROA would decrease by 0.02 units. Both FPGM and FPS had a positive impact: should they increase by one unit, ROA would follow the same trend with

0.01 and 0.23 units, respectively. After considering the time fixed effects, the portion of explained variance in ROA reached the level of 40.58% ( $F = 7.69$ ,  $p < 0.001$ ). In this case, only the influences of FPEQ and FPS remained significant: an increase of one unit in FPEQ would be followed by a decrease of 0.01 units in ROA, while an increase in FPS would generate a rise of 0.2 units in ROA.

**Table 11.** Econometric models for oil companies.

	<b>Model 11:</b> $ROA = w_0 + w_1FPE + w_2FPEQ + w_3FPGM + w_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 12:</b> $ROE = w_0 + w_1FPE + w_2FPEQ + w_3FPGM + w_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 13:</b> $ROI = w_0 + w_1FPE + w_2FPEQ + w_3FPGM + w_4FPS + \delta_i + \varepsilon_{it}$	
Constant	−0.0289 (−1.0904)	−0.0048 (−0.3311)	−0.0612 (−0.8927)	−0.0056 (−0.1364)	0.0003 (0.0063)	0.0572 *** (2.3538)
FPE	−0.0018 (−0.0365)	−0.0275 (−0.8253)	−0.0410 (−0.3314)	−0.1185 (−1.4060)	−0.0198 (−0.1597)	−0.0890 (−1.1206)
FPEQ	−0.0194 *** (−2.6878)	−0.0149 *** (−2.7757)	−0.0328 (−1.5412)	−0.0214 (−1.1486)	−0.0409 *** (−2.5026)	−0.0310 *** (−2.9540)
FPGM	0.0119 *** (2.3856)	0.0046 (1.0352)	0.0203 (1.2172)	0.0034 (0.2407)	0.0236 ** (1.9899)	0.0057 (0.5883)
FPS	0.2334 *** (4.0472)	0.1985 *** (4.5117)	0.5903 *** (5.7698)	0.5289 *** (5.5293)	0.5039 *** (3.5144)	0.4368 *** (4.4840)
White cross-section standard errors and covariance (d.f. corrected)	Yes	Yes	Yes	Yes	Yes	Yes
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cross-section effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.2572	0.4664	0.1612	0.2412	0.3069	0.5242
Adjusted R <sup>2</sup>	0.2018	0.4058	0.0986	0.1551	0.2549	0.4699
F-statistic	4.6417	7.6988	2.5767	2.8006	5.9078	9.6593
Observations	462	462	462	462	462	462

Note: Robust *t*-statistics are indicated in parentheses; \*\*, \*\*\* indicate statistical significance at the 5% and 1% levels. Prob. > F is the probability of not existing fixed effects. For all estimated models, the hypothesis of multicollinearity was investigated using the variance inflation factor (VIF). In all cases, the VIF values were lower than 4, thus indicating a low risk of multicollinearity. In addition, the White test rejected the null hypothesis of heteroscedasticity.

For model M12 without time fixed effects, the portion of explained variance was 9.86%,  $F = 2.58$ ,  $p < 0.001$ , and the only predictor with a significant impact was FPS. Namely, when FPS augmented by one unit, the companies' financial performance measured via ROE rose by 0.59 units, which is a considerable change. In the presence of time fixed effects, the same FPS explained 15.51% of the variance in ROE: should FPS increase by one unit, ROE would augment by 0.53 units.

In the case of model M13 (without time fixed effects), 25.49% of the variance in ROI was explained by the three predictors FPEQ, FPGM and FPS,  $F = 5.91$ ,  $p < 0.001$ . The influence of FPEQ was negative, while the influence of the other two factors was positive. More exactly, a one-unit rise in FPEQ would trigger a 0.04-unit drop in financial performance. In addition, should FPGM and FPS increase by one unit, ROI would follow by 0.02 units and 0.5 units, respectively. In the presence of time effects, only the impact of FPEQ and FPS remained significant and explained 46.99% of the ROI variance ( $F = 9.66$ ,  $p < 0.001$ ). Again, the influence of FPS was stronger than the one of FPEQ.

The following paragraphs will detail the empirical results corresponding to the sub-sample of gas companies (Table 12). For model M21 (without fixed effects), the share of explained variance in ROA was 30.16% ( $F = 7.22$ ,  $p < 0.001$ ). The fiscal pressure

indicator that triggered significant changes in the company's financial performance was FPEQ: a one-unit increase in FPEQ would be matched by a 0.27-unit increase in ROA. After considering the time fixed effects, 37.59% of the variance in ROA was explained by our predictor ( $F = 6.91$ ,  $p < 0.001$ ). As in the previous case, the impact of FPEQ remained relevant, though to a lesser degree.

**Table 12.** Econometric models for gas companies.

	<b>Model 21:</b> $ROA = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 22:</b> $ROE = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 23:</b> $ROI = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$	
Constant	−0.0389 *** (−2.3851)	−0.0136 (−1.4206)	−0.0892 ** (−2.1221)	−0.0419 (−1.2983)	−0.0281 (−0.8823)	0.0280* (1.7196)
FPE	0.2602 (1.4963)	0.1874 (1.1028)	0.4760 (1.2110)	0.3126 (0.7990)	0.5114 (1.2299)	0.3294 (0.8099)
FPEQ	0.2733 *** (4.7280)	0.1369 *** (2.5175)	0.6890 *** (4.7390)	0.3870 ** (2.0916)	0.5304 *** (4.7993)	0.2424 ** (2.0666)
FPGM	−0.0781 (−1.5871)	−0.0724 (−1.5104)	−0.1821 * (−1.6108)	−0.1612 (−1.4096)	−0.1209 * (−1.7255)	−0.1092 * (−1.7696)
FPS	0.4620 (1.3826)	0.4325 (1.4589)	0.9652 (1.2468)	0.9906 (1.3498)	0.8880 (1.1793)	0.8311 (1.2459)
White cross-section standard errors and covariance (d.f. corrected)	Yes	Yes	Yes	Yes	Yes	Yes
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cross-section effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.3501	0.4395	0.2884	0.3623	0.2588	0.3367
Adjusted R <sup>2</sup>	0.3016	0.3759	0.2355	0.2901	0.2031	0.2608
F-statistic	7.2205	6.9080	5.4464	5.0165	4.6479	4.4388
Observations	462	462	463	463	459	459

Note: Robust *t*-statistics are indicated in parentheses; \*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels. Prob. > F is the probability of not existing fixed effects. For all estimated models, the hypothesis of multicollinearity was investigated using the variance inflation factor (VIF). In all cases, the VIF values were lower than 7, thus indicating a low risk of multicollinearity. In addition, the White test rejected the null hypothesis of heteroscedasticity.

Model M22 indicated that two of the fiscal pressure indicators caused changes in ROE, explaining about 23.55% of its variance in the absence of time fixed effects,  $F = 5.45$ ,  $p < 0.001$ . That is, should FPEQ and FPGM augment by one unit, ROE would considerably increase by 0.69 units and mitigate by 0.18 units, respectively. Once time fixed effects had been added into the model, the portion of explained variance rose to 29.01% ( $F = 5.02$ ,  $p < 0.001$ ). The only predictor that had a significant impact was FPEQ. When FPEQ augmented by one unit, ROE would follow the same direction with 0.39 units.

For model M23 (without time fixed effects), 20.31% of the variance in ROI was attributed to FPEQ and FPGM,  $F = 4.65$ ,  $p < 0.001$ . The influence of FPEQ was considerably stronger than the influence of FPGM. That is, a one-unit increase in FPEQ was followed by a 0.53-unit increase in ROI. In comparison, a one-unit increase in FPGM would yield a 0.12-unit decrease in ROI. In the presence of time fixed effects, the same fiscal pressure indicators remained significant and explained 26.08% of ROI variance. Again, the impact of FPEQ was stronger but to a lesser degree ( $F = 4.44$ ,  $p < 0.001$ ).

In the case of electricity companies (Table 13), model M31 (without time fixed effects) showed that 8.66% of the variance in ROA was explained by FPE, FPGM and FPS,  $F = 2.37$ ,  $p < 0.001$ . Out of the three factors, FPS had a much stronger impact than the other two. That is, a one-unit increase in FPE would trigger a 0.15-unit increase in ROA. If

FPGM increased by one unit, ROA would decrease by 0.04 units. At the same time, should FPS augment by one unit, ROA would decrease by 2.69 units. After the inclusion of time fixed effects, the portion of variance explained was 7.90% ( $F = 1.85$ ,  $p < 0.001$ ). As in the previous version of the model, the three fiscal pressure indicators remained significant, with FPS causing the most substantial change.

**Table 13.** Econometric models for electricity companies.

	<b>Model 31:</b> $ROA = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 32:</b> $ROE = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 33:</b> $ROI = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$	
Constant	0.4831 * (1.7246)	0.5077 ** (2.0201)	0.8788 (1.5863)	0.9018 ** (1.9512)	0.7493 (1.4582)	0.8496 ** (1.9520)
FPE	0.1549 *** (3.1560)	0.1849 ** (2.8330)	0.2155 *** (2.8099)	0.2797 *** (2.4923)	0.1041 (1.4866)	0.2658 *** (2.6332)
FPEQ	0.0139 (0.7233)	0.0042 (0.5594)	−0.0516 (−1.2424)	−0.0749 *** (−4.2971)	0.1565 * (1.7235)	0.0881 (1.2355)
FPGM	−0.0354 ** (−1.8999)	−0.0215 *** (−2.7837)	−0.0894 * (−1.6774)	−0.0540 *** (−2.4090)	−0.6764 (−1.5833)	−0.6390 (−1.5205)
FPS	−2.6882 * (−1.6129)	−2.9342 * (−1.6363)	−4.2563 (−1.3545)	−4.5957 (−1.3969)	−0.6075 (−0.2129)	−1.5910 (−0.5217)
White cross-section standard errors and covariance (d.f. corrected)	Yes	Yes	Yes	Yes	Yes	Yes
Prob. > F	0.0000	0.0008	0.0004	0.0009	0.0005	0.0007
Cross-section effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.1497	0.1715	0.1349	0.1696	0.1371	0.1754
Adjusted R <sup>2</sup>	0.0866	0.0790	0.0709	0.0771	0.0719	0.0816
F-statistic	2.3742	1.8538	2.1082	1.8336	2.1034	1.8696
Observations	479	479	480	480	471	471

Note: Robust *t*-statistics are indicated in parentheses; \*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels. Prob. > F is the probability of not existing fixed effects. For all estimated models, the hypothesis of multicollinearity was investigated using the variance inflation factor (VIF). In all cases, the VIF values were lower than 2, thus indicating a low risk of multicollinearity. In addition, the White test rejected the null hypothesis of heteroscedasticity.

According to the model M32, which had no time fixed effects, the predictors FPE and FPGM explained 7.09% of the variance in ROE ( $F = 2.11$ ,  $p < 0.001$ ). In this case, the influence of FPE was much stronger than the influence of FPGM. That is, when FPE increased by one unit, ROE would augment by 0.22 units. Should FPGM increase by one unit, ROE would decrease by 0.09 units. After considering the time fixed effects, the explained portion of the variance in ROE rose to 7.7% ( $F = 1.83$ ,  $p < 0.001$ ). This time, the fiscal pressure indicators FPE, FPEQ and FPGM triggered substantial changes. Fiscal pressure to equity had the largest impact on company financial performance. Namely, a one-unit change in FPE would yield a 0.28-unit increase in ROE.

Model M33 showed that the predictor FPEQ explained about 7.19% of the changes in the financial performance measured via ROI ( $F = 2.10$ ,  $p < 0.001$ ). The only predictor identified to be generating significant influences was FPEQ: a one-unit increase in the predictor would be followed by a 0.16-unit increase in ROI. Moreover, in the presence of time fixed effects, the explained variance augmented to 8.16%, with  $F = 1.87$ ,  $p < 0.001$ . This time, FPE was the only predictor causing a considerable change in the company financial performance: should FPE increase by one unit, ROI would follow the same trend with 0.27 units.

Last but not least, we also considered it useful to investigate the relationship between fiscal pressure and the company's financial performance with the overall sample (Table 14). According to model M41 and no time fixed effects, 8.75% of the variance in ROA was explained by the predictor FPE,  $F = 2.48$ ,  $p < 0.001$ . For that matter, an increase of one unit in FPE would be followed by an increase of 0.07 units in ROA. After considering time fixed effects, the portion of explained variance rose to 9.22% ( $F = 2.34$ ,  $p < 0.001$ ). FPE remained again the only relevant predictor.

**Table 14.** Econometric models for the overall sample.

	<b>Model 41:</b> $ROA = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 42:</b> $ROE = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$		<b>Model 43:</b> $ROI = a_0 + a_1FPE + a_2FPEQ + a_3FPGM + a_4FPS + \delta_i + \varepsilon_{it}$	
Constant	0.0319 (0.9638)	0.0446 *** (2.7098)	0.0612 (0.8017)	0.0880 *** (2.4909)	0.2355 ** (2.2703)	0.2924 *** (2.7750)
FPE	0.0727 *** (3.1598)	0.0781 *** (3.9252)	0.0760 ** (2.1292)	0.0881 *** (2.9931)	0.0541 (0.2409)	0.0712 (0.3170)
FPEQ	−0.0083 (−0.8288)	−0.0067 (−0.7479)	−0.0202 (−0.7523)	−0.0166 (−0.7199)	0.0641 (0.7964)	0.0638 (0.7875)
FPGM	0.0003 (0.0425)	−0.0042 (−0.6765)	−0.0011 (−0.0559)	−0.0104 (−0.6129)	−0.1399 * (−1.6357)	−0.1543 * (−1.7932)
FPS	0.0962 (0.2876)	0.0271 (0.2964)	0.4090 ** (2.2272)	0.2604 (1.4038)	0.2651 (0.4763)	−0.0393 (−0.0694)
White cross-section standard errors and covariance (d.f. corrected)	Yes	Yes	Yes	Yes	Yes	Yes
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cross-section effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	No	Yes	No	Yes
R <sup>2</sup>	0.1467	0.1608	0.1343	0.1546	0.1336	0.1518
Adjusted R <sup>2</sup>	0.0875	0.0922	0.0743	0.0856	0.0729	0.0817
F-statistic	2.4773	2.3431	2.2381	2.2395	2.1998	2.1662
Observations	1403	1403	1405	1405	1390	1390

Note: Robust *t*-statistics are indicated in parentheses; \*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels. Prob. > F is the probability of not existing fixed effects. For all estimated models, the hypothesis of multicollinearity was investigated using the variance inflation factor (VIF). In all cases, the VIF values were lower than 2, thus indicating a low risk of multicollinearity. In addition, the White test rejected the null hypothesis of heteroscedasticity.

According to model M42, the fiscal pressure indicators FPE and FPS explained 7.43% of the variance in ROE,  $F = 2.24$ ,  $p < 0.001$ . That is, when FPE and FPS augmented by one unit, financial performance measured via ROE would increase as well with 0.08 units and 0.41 units, respectively. With time fixed effects, the model showed that only FPE explained 8.56% of the ROE variance,  $F = 2.24$ ,  $p < 0.001$ .

Model M43 (without time fixed effects) indicated that 7.29% of the variance in ROI was explained by FPGM,  $F = 2.20$ ,  $p < 0.001$ . Namely, ROI would decrease by 0.14 units after a one-unit increase in FPGM. Once time fixed effects were taken into account, the portion of explained variance rose to 8.17%,  $F = 2.17$ ,  $p < 0.001$ . The relevance of FPGM remained constant, triggering a 0.15-unit decrease with every additional unit of fiscal pressure.

## 5. Discussion and Conclusions

The present research study evaluated the effect of fiscal pressure on corporate financial performance using financial data from 88 publicly listed companies activating in different energy sectors (oil, gas, electricity). As time frame, we selected a period of 16 years from the first quarter of 2005 until the third quarter of 2020. The set of predicting variables

included four such indicators: fiscal pressure to expenses (FPE); fiscal pressure to equity (FPEQ); fiscal pressure to gross margin (FPGM); fiscal pressure to sales (FPS). The set of outcome variables measuring financial performance comprised the following indicators: return on assets (ROA); return on equity (ROE); return on investment (ROI).

We hypothesized that fiscal pressure would significantly impact companies' financial performance over the analyzed period. Our research hypothesis was tested with multiple econometric models built for every company subsample and for the overall sample.

Table 15 displays a coded synthesis of the relevant empirical results that we reported in the manuscript.

**Table 15.** Synthesis of empirical results.

Dependent Variable	Companies	FPE		FPEQ		FPGM		FPS	
ROA	Oil	N/S	N/S	− ***	− ***	+ ***	N/S	+ ***	+ ***
	Gas	N/S	N/S	+ ***	+ ***	N/S	N/S	N/S	N/S
	Electricity	+ ***	+ **	N/S	N/S	− **	− ***	− *	− *
	All companies	+ ***	+ ***	N/S	N/S	N/S	N/S	N/S	N/S
ROE	Oil	N/S	N/S	N/S	N/S	N/S	N/S	+ ***	+ ***
	Gas	N/S	N/S	+ ***	+ **	− *	N/S	N/S	N/S
	Electricity	+ ***	+ ***	N/S	− ***	− *	− ***	N/S	N/S
	All companies	+ **	+ ***	N/S	N/S	N/S	N/S	+ **	N/S
ROI	Oil	N/S	N/S	− ***	− ***	+ **	N/S	+ ***	+ ***
	Gas	N/S	N/S	+ ***	+ **	− *	− *	N/S	N/S
	Electricity	N/S	+ ***	+ *	N/S	N/S	N/S	N/S	N/S
	All companies	N/S	N/S	N/S	N/S	− *	− *	N/S	N/S

Note: The symbols \*, \*\*, \*\*\* indicate statistical significance at the 10%, 5% and 1% levels. "N/S" denotes non-significant results. The "+" and "−" signs indicate the positive and negative relationships between financial performance (ROA, ROE, ROI) and fiscal pressure indicators (FPE, FPEQ, FPGM, FPS). For each outcome variable, the symbols displayed on the first column correspond to the econometric models without time fixed effects, while the symbols on the second column correspond to the econometric models with time fixed effects.

As expected, econometric estimations performed with the help of the statistical software package EViews version 9.0 supported our research hypothesis.

Results showed that fiscal pressure to expenses boosted financial performance only in the case of electricity companies. From an economic standpoint, this positive effect could be explained by steadily increasing levels of electricity prices on the energy market for both industry and household end-users and by rising values of overall electricity production.

In terms of fiscal pressure to equity, the predictor exerted a small negative influence on the profitability of assets and investment for oil companies. A possible explanation for this result could be the rising levels of excise duties on both oil extraction and oil distillation, along with increasing excises for oil delivery to industrial and domestic users. In the case of electricity companies, the link between fiscal pressure to equity and ROE was negative, while the link with ROI was positive. This fiscal pressure indicator established a strong positive link with all performance metrics of gas companies, which was the most notable result. From an economic perspective, this result could be explained by the relatively constant gas prices and increasing gas production following rising demand from the chemical industry that supplied fertilizers for agricultural use.

For oil companies, fiscal pressure to gross margin elicited a small positive impact on the return on assets and return on investment variables. Negative influences were registered for the subsamples of gas and electricity companies, as follows: in the case of the former, ROE and ROI decreased as fiscal pressure mounted; in the case of the latter, ROA and ROE decreased when fiscal pressure mounted. Last but not least, fiscal pressure



to sales had a strong positive impact on all financial performance metrics of oil companies and an even stronger negative influence on return on assets for electricity companies.

As shown by the results synthesis in Table 15, our study emphasized that fiscal pressure had more positive impact on the financial performance of energy companies than a negative impact. The rationale is straightforward. The price structure in the energy industry is designed in such a way that end-user prices include, besides the net energy value, the cost of transmission and distribution plus taxes (which are added last). The higher the taxes (and hence the fiscal pressure), the higher the end-user price and company revenue and, *ceteris paribus*, the higher company financial performance. This conclusion is important for overall taxation in the energy industry since corporate taxes, excise duties and mandatory labor contributions are basic resources for state budgets [30,31]. Nevertheless, we deem that an increase in tax rates above an optimal threshold might create difficulties in the voluntary tax compliance process of companies activating in this industry.

As with any other empirical study, our research endeavor entails certain limitations. In the first place, the sample comprised 88 companies pertaining to the three sectors and operating mainly in North and South America, Europe and Asia. Therefore, future studies might increase the number of companies in each sector until reaching a representative sample and test the strength of the proposed connection between fiscal pressure and financial performance. In the second place, researchers might explore the connection by using other indicators that measure either fiscal pressure or financial performance (e.g., return on invested capital, return on capital employed).

With regards to financial performance, the CEO of the BlackRock investment management corporation—Laurence Fink—once stated that in order “to prosper over time, every company must not only deliver financial performance but also show it makes a positive contribution to society.” We believe that energy companies fit this description given by Fink. Because economic activities and the general wellbeing of people across the globe are strictly dependent on energy supply, securing a long-term financial performance seems to be an achievable goal for these companies. At the same time, the contribution of companies operating in the energy sector can be regarded as positive from the perspective that the energy supplied facilitates living conditions, manufacturing processes, distribution of goods and services and the overall mobility of the labor force and merchandise. Nevertheless, with the increase in public awareness regarding the scarcity of natural resources, energy companies have started to develop various projects of alternative green sources of energy [32–35]. Thus, such important advancements in the energy sector might facilitate upcoming research on whether fiscal pressure drives the financial performance of green energy promoters.

**Author Contributions:** Conceptualization, L.B.; methodology, L.B.; software, M.I.R.; validation, E.S.M.; formal analysis, L.B.; resources, I.D.M.; data curation, M.I.R.; writing—original draft preparation, L.B.; writing—review and editing, M.I.R., E.S.M. and I.D.M.; visualization, M.I.R.; supervision, L.B.; project administration, L.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Abbreviations

This manuscript features the following abbreviations:

CEO	Chief executive officer
CSR	Corporate social responsibility
EBITDA	Earnings before interest, taxes, depreciation and amortization
FPE	Fiscal pressure to expenses
FPEQ	Fiscal pressure to equity
FPGM	Fiscal pressure to gross margin
FPS	Fiscal pressure to sales
IMF	International Monetary Fund
N/S	Non-significant
OECD	Organisation for Economic Cooperation and Development
Q1	First quarter of the fiscal year
Q3	Third quarter of the fiscal year
ROA	Return on assets
ROE	Return on equity
ROI	Return on investment
UN	United Nations
VIF	Variance inflation factor

## Appendix A

The 88-company sample included economic entities operating in the oil, gas and electricity sectors, as follows: (1) *oil sector*: Braskem SA, British Petroleum, Cabot Oil & Gas, Callon Petroleum, Cheniere Energy, Chevron, Cimarex Energy, CNX Resources, ConocoPhillips, Continental Resources, Denbury Resources, Devon Energy, Endbridge, Eni SpA, EOG Resources, Exxon Mobil Corporation, Genesis Energy, Global Partners, Lukoil, Murphy Oil, PDC Energy, Petroleo Brasileiro SA, Pioneer Natural Resources, Repsol SA, Royal Dutch Shell, Southwestern Energy, Suburban Propane Partners, Total SE, YPF SA; (2) *gas sector*: Archrock, Baker Hughes, Atmos Energy, Canadian Natural Resources, Dawson Geophysical, Enterprise Products Partners, Flotek Industries, Gazprom, Halliburton, Helix Energy Solutions, Imperial Oil, Linde PLC, National Fuel Gas, Newpark Resources, New Jersey Resources, Northwest Natural Gas, Oceaneering International, Occidental Petroleum, ONEOK, PGS, RPC Company, Schlumberger, Southwest Gas, Spire, Suncor Energy, Tetra Technologies, Transportadora de Gas del Sur, Ultrapar Participacoes SA, Williams Companies; (3) *electricity sector*: Ameren, American Electric Power, Consolidated Edison, Covanta Holding, CUI Global, DTE Energy, Duke Energy, Edison SpA, Enel SpA, Energias de Portugal, Engie Brasil Energia, E.ON SE, Equinor, Evergy, Eversource Energy, EVN AG, Hawaiian Electric Industries, Korea Electric Power Corporation, NextEra Energy, NorthWestern Corporation, Ormat Technologies, Pacific Gas and Electric Company, PPL Corporation, Public Service Enterprise Group, Southern Company, RWE AG, TC Energy, Texas Pacific Land, WEC Energy Group, Xcel Energy.

## References

1. Batrancea, L.M.; Nichita, R.A.; Batrancea, I.; Moldovan, B.A. Tax compliance models: From economic to behavioral approaches. *Transylv. Rev. Adm. Sci.* **2012**, *8*, 13–26.
2. Batrancea, L.; Nichita, A.; Batrancea, I.; Gaban, L. The strenght of the relationship between shadow economy and corruption: Evidence from a worldwide country-sample. *Soc. Indic. Res.* **2018**, *138*, 1119–1143. [[CrossRef](#)]
3. Batrancea, L.; Nichita, A. Which is the best government? Colligating tax compliance and citizens 'insights regarding authorities' actions. *Transylv. Rev. Adm. Sci.* **2015**, *11*, 5–22.
4. Nichita, A.; Batrancea, L.; Pop, C.M.; Batrancea, I.; Morar, I.D.; Masca, E.; Roux-Cesar, A.M.; Forte, D.; Formigoni, H.; da Silva, A.A. We learn not for school but for life: Empirical evidence of the impact of tax literacy on tax compliance. *East. Eur. Econ.* **2019**, *57*, 397–429. [[CrossRef](#)]
5. OECD. *Taxing Energy Use 2019: Using Taxes for Climate Action*; OECD: Paris, France, 2019.
6. OECD. *Effective Carbon Rates 2018: Pricing Carbon Emissions through Taxes and Emission Trading*; OECD: Paris, France, 2018.
7. Ramseur, J.L.; Parker, L. *Carbon Tax and Greenhouse Gas Control: Options and Considerations for Congress*; Congressional Research Service: Washington, DC, USA, 2009.

8. La Rosa, N. *Analysing Financial Performance Using Integrated Ratio Analysis*; Routledge: Abingdon, UK, 2020.
9. Batrancea, L. An econometric approach regarding the impact of fiscal pressure on equilibrium: Evidence from electricity, gas and oil companies listed on the New York Stock Exchange. *Mathematics* **2021**, *9*, 630. [\[CrossRef\]](#)
10. Wei, Y.; Chung, K.H.K.; Cheong, T.S.; Chui, D.K.H. The evolution of the energy market and energy usage: An application of the distribution dynamics analysis. *Front. Energy Res.* **2020**. [\[CrossRef\]](#)
11. World Energy Council. *The World's Energy Agenda & Its Evolution: Issues Monitor 2019*; World Energy Council: London, UK, 2019.
12. Papadis, E.; Tsatsaronis, G. Challenges in the decarbonization of the energy sector. *Energy* **2020**, 118025. [\[CrossRef\]](#)
13. Batrancea, I.; Batrancea, L.; Nichita, A.; Gaban, L.; Masca, E.; Morar, I.-D.; Fatacean, G.; Moscviciu, A. An econometric approach on production, costs and profit in Romanian coal mining enterprises. *Econ. Res. Ekon. Istraz.* **2019**, *32*, 1019–1036. [\[CrossRef\]](#)
14. Capon, N.; Farley, J.U.; Hoenig, S. What determines corporate financial performance? In *Toward an Integrative Explanation of Corporate Financial Performance*; Capon, N., Farley, J.U., Hoenig, S., Eds.; Springer: Dordrecht, Germany, 1996; pp. 1–25.
15. REN21. *Renewables 2020 Global Status Report*; REN21 Secretariat: Paris, France, 2020.
16. Fight, A. Factors impacting financial performance. In *Cash Flow Forecasting: A Volume in Essential Capital Markets*; Fight, A., Ed.; Butterworth-Heinemann: Oxford, UK, 2006; pp. 41–75.
17. Edwards, D. *The Link between Company Environmental and Financial Performance*; Routledge: Abingdon, UK, 2015.
18. Shieh, H.-S.; Hu, J.-L.; Chang, Y.-C. An investigation of factors affecting financial performance of Taiwanese international tourist hotels. *J. Hosp. Financ. Manag.* **2018**, *26*, 25–35. [\[CrossRef\]](#)
19. Batchimeg, B. Financial performance determinants of organizations: The case of Mongolian companies. *J. Compet.* **2017**, *9*, 22–33. [\[CrossRef\]](#)
20. Michelon, M.; Boesso, G.; Kumar, K. Examining the link between strategic corporate social responsibility and company performance: An analysis of the best corporate citizens. *Corp. Soc. Responsib. Environ. Manag.* **2013**, *20*, 81–94. [\[CrossRef\]](#)
21. Bazrafshan, E.; Kandelousi, A.S.; Hooy, C.-W. The impact of earnings management on the extent of disclosure and true financial performance: Evidence from listed firms in Hong Kong. *Br. Acc. Rev.* **2016**, *48*, 206–219. [\[CrossRef\]](#)
22. Dierker, M.J.; Kim, T.; Park, S.H. The choice of fiscal year and the earnings-return relationship. *Asia Pac. J. Financ. Stud.* **2019**, *48*, 503–530. [\[CrossRef\]](#)
23. Capece, D.; Di Pillo, F.; Levialdi, N. The performance assessment of energy companies. *APCBEE Procedia* **2013**, *5*, 265–270. [\[CrossRef\]](#)
24. Schabek, T. The financial performance of sustainable power producers in emerging markets. *Renew. Energ.* **2020**, *160*, 1408–1419. [\[CrossRef\]](#)
25. Parry, I. Putting a price on pollution. *Financ. Develop.* **2019**, *56*, 16–19.
26. Khan, U.; Nallareddy, S.; Rouen, E. The role of taxes in the disconnect between corporate performance and economic growth. *Manag. Sci.* **2019**, *66*, 5427–5447. [\[CrossRef\]](#)
27. Leibfritz, W.; Thornton, J.; Bibbee, A. Taxation and economic performance. In *OECD Economics Department Working Papers No. 176*; OECD Publishing: Paris, France, 1997. [\[CrossRef\]](#)
28. Batrancea, I.; Batrancea, L.; Rathnaswamy, M.M.; Tulai, H.; Fatacean, G.; Rus, M.-I. Greening the financial system in USA, Canada and Brazil: A panel data analysis. *Mathematics* **2020**, *8*, 2217. [\[CrossRef\]](#)
29. Batrancea, L. The nexus between financial performance and equilibrium: Empirical evidence on publicly traded companies from the global financial crisis up to the COVID-19 pandemic. *J. Risk Financ. Manag.* **2021**, *14*, 218. [\[CrossRef\]](#)
30. Goulder, L.H. Energy taxes: Traditional efficiency effects and environmental implications. In *Tax Policy and the Economy*; Poterba, J.M., Ed.; MIT Press: Cambridge, MA, USA, 1993; Volume 8, pp. 105–158.
31. Bacon, R. Taxes and the government budget. In *Encyclopedia of Energy*; Cleveland, C.J., Ed.; Elsevier Science: Amsterdam, The Netherlands, 2004; Volume 1, pp. 13–25. [\[CrossRef\]](#)
32. Brożyna, J.; Strielkowski, W.; Fomina, A.; Nikitina, N. Renewable energy and EU 2020 target for energy efficiency in the Czech Republic and Slovakia. *Energies* **2020**, *13*, 965. [\[CrossRef\]](#)
33. Cramton, P. Electricity market design. *Oxford Rev. Econ. Policy* **2017**, *33*, 589–612. [\[CrossRef\]](#)
34. Ela, E.; Milligan, M.; Bloom, A.; Botterud, A.; Townsend, A.; Levin, T. Evolution of wholesale electricity market design with increasing levels of renewable generation. *Natl. Renew. Energ. Lab.* **2014**. [\[CrossRef\]](#)
35. OECD. International Energy Agency. In *OECD Green Growth Studies: Energy*; OECD: Paris, France, 2011.