



ARE NON-OPERATING PROFITS RELATED TO DIVIDEND POLICY OF COMPANIES IN THE BRAZILIAN ELECTRICITY SECTOR?

ESTARIAM OS LUCROS NÃO OPERACIONAIS RELACIONADOS À POLÍTICA DE DIVIDENDOS DAS EMPRESAS DO SETOR ELÉTRICO BRASILEIRO?

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ABSTRACT

The aim of this work is seek a correlation between non-operating profits and the dividend distribution policy by companies in the Brazilian electricity sector through their respective payouts. Methodology: Data analysis was performed using Student's t test and ordinary least squares test. Conclusions: The electricity sector stood out from other sectors for having lower non-operating profit, higher yield and lower annual appreciation than other sectors, with no difference in payout. The intra-sector analysis demonstrated an inverse relationship between non-operating profit and payout as well as non-operating profit and yield. Companies in the electricity sector with high non-operating profits are related to lower valuation, yield and payout, and this factor may be a poor prognostic metric for the asset.

Keywords: corporate finance; Brazilian electrical system; dividends.

RESUMO

O objetivo deste trabalho é buscar correlação entre lucros não operacionais e a política de distribuição de dividendos pelas empresas do setor elétrico brasileiro por meio de seus respectivos payouts. Metodologia: A análise dos dados foi feita por meio do teste t de *Student* e do teste de mínimos quadrados ordinários. Conclusões: O setor elétrico destacou-se dos demais setores por ter lucro não operacional menor, *yield* maior e



valorização anual menor que os demais setores, sem haver diferença no *payout*. A análise intrasetorial demonstrou uma relação inversa entre lucro não operacional e *payout* bem como lucro não operacional e *yield*. Empresas do setor elétrico com altos lucros não-operacionais estão relacionadas com baixas valorização, *yield* e *payout*, podendo ser este fator uma métrica de mau prognóstico do ativo.

Palavras-chave: finanças corporativas; sistema elétrico brasileiro; dividendos.

1 INTRODUCTION

Companies in the Brazilian electricity sector, unlike other sectors, have their own characteristics that place them in a separate group, even different from conventional economic theory (SILVA, 2019a). As they are public utility companies (“utilites”), they operate from public concessions (hence also the term “cessionaires”). Regardless of the way in which it operates, which ranges from electricity generation, through transmission and distribution, its service is subject to regulatory agencies that, in addition to overseeing the quality of service provision, define the pricing of the tariffs charged (SILVA, 2019a).

Studies on the distribution of dividends to shareholders in the Brazilian electricity sector are justified as this is an extremely complex sector and classified as one of the largest payers of dividends (SILVA, 2019b and SILVA; KIRCH, 2019). According to Rodrigues (2016), this form of dividend distribution represented 20.49% of the dividend distributions that took place between 2007 and 2014 among publicly-held companies belonging to the electricity sector in Brazil.

Gross profit is the overall profit a company makes. It is determined based on the values generated by a business. In short, it is the difference between total revenue and variable costs. In this case, fixed costs such as rent and security are not deducted (INVESTIDORSARDINHA, 2021). The non-operating result is a portion of a company's profit or loss, which is distinct from the capital acquired through the company's main activities (STATUSINVEST, 2021).



The aim of this study is seek correlation between non-operating profits and the dividend distribution policy by companies in the Brazilian electricity sector through their respective payouts. This work is divided as follows: this introduction, followed by the theoretical framework (part 2), where the literature on the subject is reviewed and the working hypotheses are formulated. In section 3, the methodology used is explained, both for the formation of the sample and for the analysis of the data. The results are discussed in section 4, where the hypotheses will be tested. The work ends in section 5, where the conclusions are resumed.

2 THEORETICAL REFERENCE

The dividend policy comprises, on the part of business managers, the decision to pay dividends to shareholders or retain the profits generated internally in the period. It is one of the most important decisions in managerial work and should seek to maximize investor wealth (AGRAWAL; JAYARAMAN, 1994). A characteristic of companies in the electricity sector is that they pay high dividends (BRIGHMAN et al, 2001), in some cases with a payout greater than 100%, a fact that is also present in companies in the electricity sector in Brazil (RODRIGUES et al, 2016). High profitability, associated with low earnings volatility, according to Myers (1984), also ends up serving as a motivation for paying high dividends.

Despite the vast literature on dividend policies, most studies exclude regulated companies from their analyses. The explanation for excluding regulated firms is that regulators, directly or indirectly, dictate the amount of dividends firms can pay. Studies of regulated firms show that, on average, a regulated firm is less risky; it has a lower growth rate; it has much less insider holding and has fewer investment opportunities, but it pays a greater amount of dividends.

According to D'Souza et al (2015), in a regulated business environment, many of the traditional arguments used to explain dividend policies do not apply. Companies in the electricity sector, as they are included in the group of regulated companies, generally





distribute very generous dividends to their shareholders. Despite this, the dividend policy of regulated companies attracts little attention in the existing literature, as these companies are generally considered to be less risky, insulated from the discipline of production and capital markets and where regulators directly or indirectly affect the earnings of companies. companies and consequently their payouts.

Knowing and ascertaining a company's gross profit is the first step in reaching another important value in evaluating the profitability of the services or products offered: operating profit. This is one of the indicators that are part of the balance sheets, an accounting report that provides a summary of the results achieved over a period (SUNO, 2021). It is an important document for potential investors to review. Companies listed on the stock exchange, for example, publish the balance sheets every three months.

The statements published in accordance with the format approved by regulatory bodies, both from the governmental sphere and from the accounting class, present the items called Operating Profit and Non-Operating Results (PADOBEZE; BENEDICTO, 2003). The concept of operationality in the income statement is evidenced in two headings: 1. the concept of operational profit, which presents the result of the company's normal sales and service provision income, less the costs and expenses necessary to obtain these you prescribe; 2. non-operating results, which show the revenue from costs arising from activities not contained in the previous item, which are normally permanent assets deactivation activities, represented in the income statement by the revenue from the sale of permanent items and expenses write-offs of permanent assets.

Operating profit is profit derived exclusively from the company's operation and in the financial market. It is also known as EBIT (Earnings Before Interest and Taxes). To determine the company's operating profit, it is enough to discount the operating, commercial and administrative expenses (INVESTIDORSARDINHA, 2021). It is a way of measuring profit whose main objective is to establish a relationship between a company's revenue and its operating expenses and the return obtained through its core activity (MAISRETORNO, 2021).



The valuation of companies, according to Ikuno et al (2011), is necessary in face of various negotiation processes and can be carried out through different methods such as the Discounted Cash Flow, the Multiples Method, the Equity Value, among others. Ikuno et al (2011), studying the valuation reports of public offerings of shares published by the Brazilian Securities Commission in the period from 2005 to 2010, using a documentary and qualitative research with the application of a content analysis, observed that the treatment given to non-operating assets in most reports that adopt the Discounted Cash Flow and that contain the keyword “non-operating assets” considers such items in their assessment as adjustments after the calculation of the present value of the companies. However, some reports clearly stated that they did not consider such items in their assessment. The authors conclude that the discussion that permeates the literature regarding non-operating assets is reflected in practice.

Padoveze and Benedicto (2003) state that a permanent critical review by accountants on the classification of expenditure and revenue elements regarding the concept of operability is necessary. This review is of paramount importance, since the conclusions of the financial analyzes and investment performance evaluation, as well as the return on capital, can be biased by incorrect classifications, significantly harming decision-making models and the performance of managers responsible for such decisions.

Operating profit is the profit arising solely from operating a business. Operating profit cannot be confused with gross profit (RENOVAINVEST, 2021). In the latter, only variable expenses are discounted – which may be related to sales made or the purchase of raw material for production, for example (RENOVAINVEST, 2021). Operating profit is that produced solely and solely by the operation of the business, excluding any operating, administrative or commercial expenses. To get there, it is necessary to determine the gross profit and discount the operating expenses. Next, the operating revenues must be



added, which are those not linked to a core activity of the company (SUNO, 2021). The account, therefore, is this:

Operating profit = Gross Profit – Operating Expenses + Operating Revenue

Thus, non-operating profit, arising from activities not related to the company's scope, would be the result of the subtraction between gross profit and operating profit.

Non-operating income is the portion of an organization's income that is derived from activities unrelated to its main business operations. It may include such items as dividend income, investment profits or losses, as well as gains or losses incurred from foreign exchange and asset sales. Non-operating revenue is also called accessory or peripheral revenue (INVESTOPEDIA, 2022).

In view of the above, regarding companies in the electricity sector in relation to other sectors, two hypotheses were formulated:

H0a: There is no difference in non-operating profits between companies in the electricity sector and other sectors.

H1a: There is a difference in non-operating profits between companies in the electricity sector and other sectors.

Also in light of the above, regarding companies in the electricity sector, two hypotheses were formulated:

H0b: Non-operating profits are not correlated with the payout of companies in the electricity sector.

H1b: Non-operating profits are related to the payout of companies in the electricity sector.

3 METHODOLOGY

Publicly traded companies listed on B3 were selected from the Yahoo Finance



website (YAHOO FINANÇAS, 2021). The time period covered was from January 2, 2017 to December 31, 2020. The data used to calculate the two main variables of the study were also extracted from this site: payout and non-operating gross profit. The payout was calculated from dividends paid in the current year divided by net earnings per share. Non-operating gross profit was obtained by subtracting the operating gross profit from the gross profit. In addition, data on stock price variation on the last day of each year were obtained. To calculate the yield, the payment of each dividend was divided by the share price on the day of payment. All payments during the year were summed up and recorded as yield for that respective year.

Within an intra-sector analysis of the electricity sector, the study variables were tested with companies in the electricity sector divided into two groups: the group with a non-operating profit/gross profit ratio above the 75th percentile and the group with this ratio below the percentile 25.

Data analysis was performed using Student's t test and ordinary least squares test using the Eviews software. For the electricity sector, a dummy variable was used (value 1, when belonging to the sector). Moreover, given the peculiarity of the financial sector, whose statements do not differentiate operating profit, they also gained a dummy variable (value 1, when belonging to the sector). The level of statistical significance was set at 0.1.

4 RESULTS

4.1 INTERSECTORIAL ANALYSIS

Table 1 shows, through mean and standard error, the ratio between non-operating profit and gross profit (LNO/LB), payout, yield and annual share price variation of publicly traded companies listed on B3 excluding the electricity sector. The total number of companies was 71, making a total of 248 company-years. Also in Table 1 are the same results, but without the financial sector, which has the LNO/LB peculiarity always equal to zero. Thus, in this new configuration, 62 companies remained, making a total of 212 company-years. Financial sector companies totaled 9 companies and 36 company-years



(Table 1). Data were collected from 18 companies in the electricity sector during the period covered, leading to a total of 71 companies/year.

Table 1 - Sample Description (expressed as Mean \pm standard error)

	Publicly traded companies not belonging to the electricity sector	Publicly traded companies not belonging to the electricity sector (excluding the financial sector)	Publicly traded companies belonging to the financial sector	Electric Sector Companies
NO Profit/Gross Profit	0.45 \pm 0.04	0.5 \pm 0.05	0 \pm 0	0.10 \pm 0.16
<i>Payout</i>	0.43 \pm 0.07	0.41 \pm 0.08	0.58 \pm 0.1	0.58 \pm 0.09
<i>yield</i>	0.026 \pm 0.002	0.024 \pm 0.002	0.05 \pm 0.006	0.06 \pm 0.01
Δ price	0.33 \pm 0.04	0.36 \pm 0.04	0.12 \pm 0.05	0.17 \pm 0.04

Abbreviations: NO Profit: gross non-operating profit; Δ price: annual price change.

4.2 ANALYSIS USING STUDENT'S T TEST

Table 5 shows the analysis of the variables between the electricity sector and the other sectors. There was a statistically significant difference in LNO/LB, yield and price variation, with a higher yield in the electricity sector and a lower LNO/LB in the electricity sector and price variation with less appreciation in the electricity sector. The payout, in turn, did not show statistically significant differences. Table 5 also shows the analysis excluding the financial sector, with the results remaining the same.

Table 2 - Analysis using Student's t test (p-value)

	Electricity Sector Companies <i>versus</i> other sectors	Electricity Sector Companies <i>versus</i> other sectors (excluding financial sector)
NO Profit/Gross Profit	0.005*	0.002*
<i>Payout</i>	0.36	0.33
<i>yield</i>	< 0.001*	< 0.001*
Δ price	0.07*	0.046*

Abbreviations: NO Profit: gross non-operating profit; Δ price: annual price variation; * statistical significance

4.3 LEAST SQUARES ANALYSIS

Table 3 shows the LNO/LB Least Square regression against the electricity sector. The results show that the non-operating profit in the electricity sector is statistically lower,



coinciding with the t-test results. When using the dummy for the financial sector, whose LNO/LB is zero, the finding that the electricity sector has a lower proportion of non-operating profit over gross profit than other non-financial sectors was maintained.

Payout was applied as a dependent variable, both for the electricity sector, LNO/LB and the financial sector. Except for the coefficients, there was no significant relationship between the variables, similar to what was shown in the t test. Stock price variation as a dependent variable, both for the electricity sector, LNO/LB and the financial sector. Except for the coefficients, there was only a significant relationship in the electricity sector, which valued less than the non-financial sectors.

Yield as a dependent variable, compared to the electricity sector, non-operating profit and the financial sector. However, the Durbin-Watson test, established at 1.31 and 1.34, is noteworthy, which shows autocorrelation. In this case, either a panel analysis should be done, or, as in this case, the results should be viewed with reservations. Basically, the results are similar to those performed with the t test, which showed that the yield of the electricity and financial sector is superior to that of other sectors. There are, however, no significant coefficients for LNO/LB.

In short, resuming all the above analyses, we show that the electricity sector has a non-operating profit lower than the other sectors; the payout had no difference between sectors; the yield was higher in the electricity sector and the appreciation in share prices in the electricity sector was lower than in the others. Thus, the null hypothesis H_{0A} is rejected.

It is important to highlight the approach of the financial sector, which was carried out in the LSM analysis. As it is a sector in which non-operating profit would be "zero", this condition allowed a separate analysis that demonstrated some peculiarities of the sector: a) like the other sectors, including the electricity sector, the payout did not show differences between the groups ; b) as in the electricity sector, the yield was higher than in the other sectors and c) unlike the electricity sector, the variation in share prices was not different from the other sectors, despite having been the sector with the greatest average loss of value.



Table 3 - Analysis through LSM

Dependent variable	Independent variable (coefficient)				
	C	ELET	LNO/LB	FIN	PAYOUT
LNO/LB	(0.45)***	(-0.35)***			
LNO/LB	(0.50)***	(-0.40)***		(-0.50)***	
PAYOUT	(0.43)***	(0.14)	(-0.01)		
PAYOUT	(0.42)***	(0.16)	(-0.004)	(0.16)	
DPRECO	(0.3)***	(-0.14)	(0.06)		
DPRECO	(0.33)***	(-0.17)*	(0.05)	(-0.22)	(0.02)
YIELD	(0.03)***	(0.03)***	(-0.0006)		
YIELD	(0.02)***	(0.03)***	(0.0004)	(0.025)***	

Abbreviations: LNO/LB: gross non-operating profit divided by gross profit; c: constant in the intercept; ELET: electrical sector; FIN: financial sector; DPRECO: annual share price variation. * = $p < 0.1$; ** = $p < 0.05$; *** = $p < 0.01$.

4.4 INTRASECTOR ANALYSIS OF THE ELECTRIC SECTOR

The analysis of the electricity sector, as described above in the methodology, defined two groups: the first, with LNO/LB values above the 75th percentile (fixed at 0.71) and the second group, with a percentile below 0.25 (fixed in 0.31). Table 4 shows the sample layout and the Student t test results. Through the test, it was found, in a statistically significant way, that the yield and payout are higher where the LNO/LB is lower. Share prices, on the other hand, show higher appreciation where the LNO/LB is higher, but without statistical significance.

Table 4 – Analysis of Electricity Sector Companies using Student's t test

	Percentile > 75	Percentile < 25	P value
	Mean \pm standard error	Mean \pm standard error	
NO Profit/Gross Profit	0.82 \pm 0.10	-0.94 \pm 0.64	0.03*
<i>Payout</i>	0.20 \pm 0.13	0.69 \pm 0.18	0.04*
<i>yield</i>	0.03 \pm 0.01	0.10 \pm 0.03	0.03*
Δ price	0.13 \pm 0.09	0.04 \pm 0.06	0.42

Abbreviations: NO Profit: gross non-operating profit; Δ price: annual price variation; * statistical significance.



4.5 LEAST SQUARES ANALYSIS OF THE ELECTRIC SECTOR

Table 5 shows the payout relationship with the electricity sector. Despite the low value of the Durbin-Watson test, discussed above, the results show that the payout is smaller where LNO/LB is larger, which is in agreement with the Student t test.

As for the yield in the electricity sector, despite the low value of the Durbin-Watson test, discussed above, the results show that the yield is higher where LNO/LB is lower, which is in agreement with Student's t-test. Also in table 5 is the relationship of the variation in the price of shares in the electricity sector in relation to the two groups. The results show that in both groups there is less appreciation of shares, and where the LNO/LB is higher, there was a devaluation, unlike the analysis using the Student's t test, which showed no statistically significant difference.

Table 5 - Analysis of the electricity sector through LSM

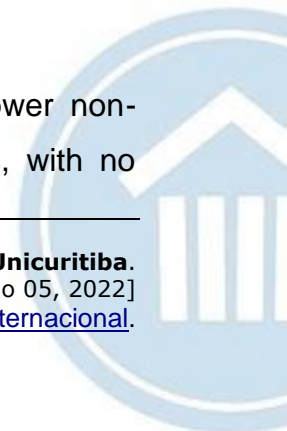
Dependent variable	Independent variable (coefficient)		
	C	NO25	NO75
PAYOUT	(0.71)***	(-0.13)	(-0.84)**
YIELD	(0.04)**	(0.03)*	(-0.01)
DPRECO	(0.32)***	(-0.22)**	(-0.39)**

Abbreviations: LNO/LB: gross non-operating profit divided by gross profit; c: constant in the intercept; NO25: LNO/LB group below the 25th percentile; NO75: LNO/LB group above the 75th percentile; DPRECO: annual share price variation. * = $p < 0.1$; ** = $p < 0.05$; *** = $p < 0.01$.

Resuming, the yield and payout are higher in the group with the lowest non-operating profit, rejecting the null hypothesis H_{0b} , while the valuation of shares in both groups is lower than that of shares between the 25-75th percentile, whereas in the group of higher non-operating profit occurred devaluation.

CONCLUSIONS

The electricity sector stood out from the other sectors for having lower non-operating profit, higher yield and lower appreciation than the other sectors, with no



difference in payout. Regarding yield, the results are in line with the literature (SILVA, 2019a; SILVA, 2019b; SILVA; KIRCH, 2019). The fact that there is no difference in payout between the electricity sector and other sectors demonstrates the homogeneity of dividend policies, even when companies in the financial sector, traditionally known for paying high dividends, were excluded. Since this difference was significant in yield, with companies in the electricity sector showing higher yields, even with the financial sector included in the group of other sectors, it is assumed that much of this phenomenon is in the fact of price variation, where the shares of the The electricity sector appreciated less than the other sectors, which could contribute to a high yield through a low price.

The intra-sector analysis, in turn, demonstrated an inverse relationship between non-operating profit and payout as well as non-operating profit and yield. In addition, companies in the electricity sector with high non-operating profits are related to low valuation, yield and payout, and this factor may be a poor prognostic metric for the asset.

This statement is reflected in the cross-sector analysis between non-operating profit and asset valuation, where no statistically significant relationship was demonstrated. However, the electricity sector showed a positive correlation between non-operating profit and valuation, evidenced mainly when the electricity sector was excluded from the sample. Paradoxically, the intra-sector analysis showed a negative correlation between non-operating profit and asset appreciation, where companies with higher non-operating profit had lower appreciation.

This finding shows how the electricity sector is different from other sectors, demanding for different strategies for investors desiring to obtain higher profits, such as considering high non-operating profit as a factor for lower yield and asset appreciation.

The separate analysis of the financial system proved to be useful, since this sector, by having “zero” non-operating profit, showed different characteristics both from the electricity sector and from other sectors, mainly in terms of yield. As for the payout, which did not show differences between the sectors, it demonstrates a certain homogeneity in the companies' dividend payment policy, where the difference was manifested in the yield,



which is a parameter that does not depend only on dividends, but also on the variation of stock price.

Among the perspectives for future research, there is an increase in the sample to be carried out with panel analysis, adopting more sophisticated econometric models. Furthermore, working with other sectors where dividend payments are not as evident, such as education and animal protein, is challenging.

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