

DO TRADING VOLUME AND VOLATILITY INFLUENCE DIVIDEND DISTRIBUTIONS? A STUDY OF COMPANIES IN THE ELECTRIC SECTOR IN BRAZIL AND THE USA

*O VOLUME DE NEGOCIAÇÃO E A VOLATILIDADE INFLUENCIAM A DISTRIBUIÇÃO DE DIVIDENDOS?
UM ESTUDO DE EMPRESAS DO SETOR ELÉTRICO NO BRASIL E NOS EUA*

Alexandre Rodrigues da Silva
Universidade Federal do Rio Grande do Sul
silvaalexandre763@yahoo.com

Aprovado em 12/2025

Resumo

O objetivo deste trabalho é buscar possíveis correlações entre o volume negociado de ações e sua volatilidade com a política de dividendos e variação de preços de ações em empresas do setor elétrico do Brasil e dos EUA. Metodologia: foram coletados dados de pagamentos de dividendos e de valores diários de ações de empresas do setor elétrico do Brasil e Estados, respectivamente negociados nas Bolsas de valores de São Paulo e New York. Foi compreendido o período de 01 de janeiro de 2000 até 31 de dezembro de 2022. Resultados: a variação do volume médio negociado e coeficiente de variação não tiveram correlação com variação de preços de ações e dividendos em nenhum dos países.

Palavras-chave: volume negociado; setor elétrico; política de dividendos

Abstract

The objective of this study is to seek possible correlations between the volume traded and its volatility with the dividend policy and variation in stock prices in companies in the electric sector in Brazil and the United States. Methodology: data on dividend payments and daily values of shares of companies in the electric sector in Brazil and the United States, respectively traded on the São Paulo and New York stock exchanges, were collected. The period covered was from January 1, 2000 to December 31, 2022. Results: the variation in the average volume traded and the coefficient of variation were not correlated with the variation in stock prices and dividends in either country.

Keywords: volume traded; electric sector; dividend policy.

INTRODUCTION

Stock trading volume is the number of shares of an issuer that are traded in the capital market every day at a price level agreed by the seller and the buyer of the shares. This stock trading volume is often used as a benchmark to study information and the impact of various events. Trading Volume is an indicator that shows the number of shares in the market that are traded or transacted in a certain period. If a stock is more frequently traded or traded in the market, it shows that the stock is the most active and in great demand by investors. Information in the market is needed by investors. Stock trading volume can be used as an indicator to see the condition of an exchange, the greater the trading volume, the more investors are interested in the stock, meaning that more shares are traded (KHAJAR, 2016). Changes in stock trading volume show stock activity on the stock exchange so that it can make investors decide to invest.

The dividend policy is high because dividends are less risky than the capital gains expected from

retained earnings investments. Investors are considered rational so they want to avoid risk which refers to the possibility of not getting a return on investment (KUMARASWAMY, 2017). Dividend policy is a decision whether the profits earned by the company will be distributed to shareholders as dividends or will be retained in the form of retained earnings to finance investment in the future (SARTONO, 2014).

The energy industry is a strategic sector that can support significant employment and foreign exchange absorption for the country. This is because the energy industry has the energy resources needed to carry out economic development. Energy sector companies definitely need large amounts of capital to be able to explore resources in order to carry out the company's operational activities (SURENJANI et al., 2023). Therefore, many companies enter the capital market with the aim of absorbing investment from investors so they can strengthen their financial position.

The objective of this paper is to seek possible correlations between the volume traded and its volatility with the dividend policy and variation in share prices of companies in the electric sector in Brazil and the United States. The article is divided as follows: this introduction, the theoretical framework, where the themes of dividend policy in the electric sector and volume traded are discussed in depth and the hypotheses to be tested are formulated. The methodology and results follow, where the statistical analysis of the data collected and its discussion are demonstrated. The article ends with the final considerations, where the results achieved and the prospects for future work are reviewed.

THEORETICAL FRAMEWORK

The phenomenon of stock price movements occurs because of the interaction of supply and demand. A high number of requests will encourage an increase in stock prices as well as a decrease in demand will result in a decrease in stock prices. Increased demand will encourage an increase in stock prices, as well as a decrease in demand will result in changes in stock prices over time. Stock prices that often go up or down are a risky endeavor (DASMAN; GUNAWAN, 2022).

Stock price volatility in financial markets is an important indicator that reflects the level of risk and uncertainty of stock price movements (PRIANA; MULIARTHA, 2017) and is used as a basis for formulating investment strategies by investors (SELIPIANA; BADJRA, 2018). High volatility indicates significant price fluctuations in a certain period of time, which can be caused by various factors (SUSANTO et al., 2021). Trading volume is one of the factors that can affect volatility because the higher the trading volume, the more likely it is that stock prices experience sharp changes due to rapid supply and demand movements (SIAWAN; LUKMAN, 2023). The information obtained by market players will result in volume and volatility having a positive relationship. If investors do not receive information regarding shares, investors will sell their shares and this will result in trading volume so that volatility will decrease. On the other hand, volatility will increase if many investors sell their shares, resulting in an increase in trading volume (WATI; PUSPITANINGTYAS, 2023). The second factor is leverage because the use of high debt by companies can increase financial risk, which in turn increases the sensitivity of stock prices to market changes (SIAWAN; LUKMAN, 2023). The third factor is the Dividend Payout Ratio, which is a company's dividend payment policy (ZAINUDIN et al., 2018). The combination of these factors

gives an idea of market dynamics and helps investors in making better investment decisions (DASMAN; GUNAWAN, 2022).

Previous research (SEPTYADI; BWARLELING, 2020), (MARINI; DEWI, 2019), (DEWI; PARAMITHA, 2017) (ZAINUDIN et al., 2018), (SUGATHADASA, 2018), (NURLELI; WIBISONO, 2021), (AHMAD et al., 2018), (NGUYEN et al., 2020), (KHAN, 2019), (SINGH; TANDON, 2019), (FIORENZA et al., 2023), (HOSSIN; AHMED, 2020), which states that dividend payments negatively affect stock price volatility. A high Dividend Payout Ratio (DPR) indicates the company has strong cash flow and is able to pay high dividends (KARTAWIJAYA; HASIBUAN, 2024). This can increase investor confidence and reduce stock price volatility because investors feel more secure and confident in the company's financial prospects. Conversely, a low DPR could signal the company is choosing to reinvest its profits for future growth. While this can be viewed positively, a lack of dividend payments could increase uncertainty among investors, which could lead to higher share price volatility.

On the other hand, according to Kartawijaya and Hasibuan (2024), the DPR has a positive impact on stock price volatility because it reflects the company's policy in distributing profits to shareholders (KARTAWIJAYA; HASIBUAN, 2024). Same results were found by Sirat and Hadady (2024). The authors determined the effect of Dividend Yield on Stock Price Volatility in IDX30 index companies listed on the Indonesia Stock Exchange (IDX) for the 2019-2023 period. The Dividend Yield variable had a positive effect on Stock Price Volatility. According authors, this shows that the higher the Dividend Yield level, the Stock Price Volatility will increase. Conversely, the lower the Dividend Yield, the Stock Price Volatility will decrease.

Dasman and Gunawan (2022) took the population of mining sector companies listed on the Indonesia Stock Exchange (IDX) for the 2016–2020 period. The authors found dividend policy has no impact to price share volatility. Trading volume has a positive impact on share price volatility. This result support signaling theory developed by Akerlof (1978), which states that information is the main factor for capital market participants, especially investors because information containing records and descriptions of a company that has been carried out and future plans. Accurate, complete and appropriate information is used for perform analysis in making investment decisions. Information that has positive values will be responded well by market participants and vice versa. The reaction in the capital market can be seen by the changes in stock prices in the time the information is announced which is already known evenly. Market players interpret and analyze information as good news signals that can result in an increase in stock prices which means increase volatility (DASMAN; GUNAWAN, 2022).

Kartawijaya and Hasibuan (2024) analysed the impact of stock trading volume, leverage, and dividend payout ratio (DPR) on stock price volatility among companies included in the Kompas100 Index and listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022. The results showed that trading volume has a positive influence on stock price volatility, where an increase in trading volume tends to be followed by an increase in volatility. This happens because high trading volumes reflect intensive buying and selling activity in the market, which is often caused by investor reactions to new information or significant events. When more shares are traded, stock prices become more sensitive to changes in demand and supply. In addition, in high-volume situations, large decisions made by institutional investors can lead to sharp price

movements. Therefore, increased trading volume is usually associated with increased stock price volatility.

On the other hand, Fitriani and Simon (2024) employed data from all total of 171 manufacturing industry firms listed on the Indonesia Stock Exchange (IDX) over the period from 2019 to 2021. They found stock trading volume does not play a significant role in influencing stock prices. Kurniawan et al (2024) studying energy sector companies in 2019 – 2022 also concluded the trading volume variable does not has an influence on share prices.

Dividends are payments that will be made by the company to shareholders, either in the form of capital or cash. This is determined by the board of directors in the company so that the company determines the policy to distribute dividends (SUDANA, 2009). Dividend payments are made by investors to make investment decisions. high dividend policy because dividends are less risky than the capital gains expected from retained earnings investments. Investors are considered rational so they want to avoid risk which refers to the possibility of not getting a return on investment (KUMARASWAMY, 2017). According to Rowena and Hendra (2017), dividend policy is a company that has benefited has provisions whether it will be given to investors as retained earnings or in the form of dividends, which will be used as investment financing in the future.

In Brazil, in the period before 1976, company directors had free will to determine the amount to be paid to shareholders in the form of dividends. In 1976, however, the Corporations Law - Law No. 6404/76 was created, which brought articles that proposed mandatory amounts for distribution (GELBCKE et al, 2018). It establishes in its article 202 that shareholders have the right to receive as a mandatory dividend, in each fiscal year, the portion of the

profits established in the bylaws, or if this is silent, the amount will be half of the net accounting profit of the fiscal year minus or plus the following amounts: a) Quota intended for the constitution of the legal reserve; b) Amount allocated to the formation of reserves for contingencies and reversal of the same reserves formed in previous fiscal years; and, c) Unrealized profits transferred to the respective reserve and profits previously recorded in this reserve, which have been realized in the fiscal year. In the second paragraph of the same article, it is established that, in the event that the bylaws are not silent regarding its distribution, the minimum mandatory dividend may not be less than 25% of the adjusted net income (GELBCKE et al., 2018).

In turn, the USA – the country where most of the theories and studies on this subject originate – has tax legislation that is different from that of Brazil regarding dividend policy. The main heterogeneities of Brazilian legislation on this matter are: (a) the receipt of dividends by shareholders does not constitute a taxable event; (b) there are mandatory minimum dividends; (c) there is an additional form of distribution of resources called interest on equity, which is deductible from the calculation basis for taxes on the profits of the company that distributes them, but consists of a taxable event for the shareholder who receives them (FORTI et al, 2015).

More recently, the American Taxpayer Relief Act of 2012 (HR 8) was passed by the United States Congress and signed into law by President Barack Obama in early 2013. This legislation extended the capital gains and dividend tax rates from 0 percent to 15 percent for taxpayers whose income does not exceed the thresholds set for the highest income tax rate (39.6 percent). Those exceeding these thresholds (\$400,000 for single filers; \$425,000 for heads of household; \$450,000

for joint filers; \$11,950 for estates and trusts) were subject to a maximum rate of 20 percent for capital gains and dividends (DIVIDEND TAX, 2023).

The electricity sector is considered one of the most essential for society in general, given the current dependence on energy by the population, which needs electricity to carry out most of its daily activities, produce or provide services (SILVA, 2017). Godinho and Alberton (2020) analyzed the return provided by publicly traded companies in the electricity sector for individual investors over an 11-year period, comparing them with other types of investments. Given the conservatism of most Brazilian savers, the aim was to analyze companies in the electricity sector with greater liquidity, since the sector has volatility below the market average, in addition to being a segment of vital importance for society. It was found that the electricity companies analyzed had an average return higher than the Ibovespa, CDI and Savings in the period analyzed, indicating that the electricity sector provided above-average profitability for its shareholders during the period analyzed. According to Silva (2023), stock prices in electricity sector were negatively influenced by dividends in companies in the United States and Germany, but there was no correlation between changes in asset prices and dividend payments in the case of Brazil. These results are in line with the studies by Silva and Kirch (2020) and Silva and Kirch (2023a).

Silva (2024a), with the aim of searching for differences in the dividend payment policy on shares of companies in the electricity sector in Brazil, the United States and Germany, since their tax laws on the subject are different from each other, used the same sample as Silva (2023). The author found greater dilution of dividend payments in the USA, i.e., a greater annual number of payments, which may be related to the legal framework based on common law and

which, according to LaPorta et al (2000) and Ferris et al (2010), is used as a way of greater protection for minority shareholders. Armitage's (2012) catering dividends theory was also able to justify some differences found between countries, such as the greater appreciation of assets in the US compared to Brazil in terms of dividends with diluted payments.

Silva (2024b), using the same sample as Silva (2023), analyzed the influence of the stock split and consolidation of companies in the electricity sector in Brazil, the United States, and Germany on dividend policy and asset prices. The results showed that in relation to dividends and changes in asset prices, there was a higher dividend payment in companies that did not split in Brazil, while the opposite occurred in the USA, which is in line with the results of Lakonishok and Lev (1987) for the North American group, but not for Brazil. However, the results of the Brazilian group regarding price variation, which was the same between the split and non-split groups, are in line with Silva and Kirch (2020) when analyzing a period of time longer than 3 months. The higher income payout in the Brazilian group due to undivided assets is not only at odds with Silva and Kirch (2020), who found no differences, but also with Fama's own work (1969), which showed that splitting leads to an increase in dividend payouts. There were no significant differences between the aggregations, which is in line with Comiran (2009) for the Brazilian market.

The study of Jandik and Makhija (2005) showed that, unlike other firms, electric utilities in USA significantly increased their diversification levels over the period of study, 1980. The authors found that diversified utilities trade at significant diversification premiums during the period of strict utility regulation, 1980-92. Since their ability to freely distribute their profits was constrained due to potential adverse regulatory reaction,

single segment utilities tended to inefficiently over-invest in their electric segments, unlike diversified utilities that had opportunities to spread their investment over various industries. Thus, diversification provided valuable alternative avenues for the excess cash generated by utilities. However, following partial deregulation of the industry during 1993-97, these diversification premiums disappeared. Moreover, the single-segment utilities also no longer appeared to overinvest in this period (when constraints on the distributions of utility profits weakened). The study also suggests that it is important to take into account a firm's specific circumstances, such as the prevailing conditions in its industry, to understand its diversification decision and the value effects of that decision.

In the work of Silva and Kirch (2020), daily data of prices and volume traded, as well as amounts paid for dividends and stock unfolding, were selected from companies in the electricity sector listed on the São Paulo Stock Exchange (BOVESPA). The period covered was from 2009 to 2019. The unfolding was related to an increase in the volume traded on the first day after its occurrence, but this not occur in subsequent periods (1 week, 1, 3 and 6 months and 1 year after).

As described above, the following hypotheses were established:

H0A: there is no difference between companies in the Brazilian and US electricity sectors in terms of trading volume.

H1A: there is a difference between companies in the Brazilian and US electricity sectors in terms of trading volume.

H0B: there is no difference between companies in the Brazilian and US electricity sectors in terms of the influence of trading volume on dividends and their share prices.

H1B: there is a difference between companies in the Brazilian and US electricity sectors in terms of the influence of trading volume on dividends and their share prices.

METHODOLOGY

From the Yahoo Finance website (YAHOO FINANÇAS, 2023), data were collected on dividend payments and daily stock values of companies in the electricity sector in Brazil and the United States, respectively traded on the São Paulo and New York stock exchanges. The values corresponded to the closing of the daily trading session. The period from January 1, 2000 to December 31, 2022 was included. In addition, data on the GDP of the countries under study and the main indexes of each stock exchange were also included for the data analysis: in Brazil, the Ibovespa and in the USA, the SP&500.

The annual yield (ratio between dividend paid and asset price on the payment day) was adopted as dependent variables. The prices, in turn, were converted into annual price variation, where the closing value of the asset on the last day of the year was collected in relation to the value of the previous year (hereinafter D_{preco}) and also through the difference between D_{preco} and the annual variation of the stock index of the respective country (hereinafter $Prsp$). Companies for which there was only one year of data were excluded, which would make the conversion to the variables described above unfeasible. The annual traded volume was converted into two variables: d_media , the annual variation of the traded volume and CV, the coefficient of variation within each year.

The data were analyzed using ordinary least squares (OLS). Initially, the countries were evaluated individually, with yield, d_preco and

$Prsp$ as dependent variables and d_media and CV as dependent variables. When analyzing the two countries together, a dummy was created where USA = "1" and Brazil = "0". The data were also analyzed using logistic regression with the dependent variable being the countries, where the value "0" was adopted for Brazil and "1" for the USA. The level of statistical significance was set at 0.1.

RESULTS

On the São Paulo Stock Exchange (B3), 17 companies were found, totaling 180 company-years. The New York Stock Exchange found 35 companies, but Eletrobras was discarded because it was already traded on B3. Thus, through 34 companies, a total of 651 company-years was found.

The descriptive statistics of the companies from both countries are shown in Tables 1 and 2. The difference between the two groups is evident in terms of aspects related to the volume traded. Both the annual variation in the volume traded and the coefficient of variation are higher in the group of Brazilian companies, and it is also worth noting that the CV of Brazilian companies is three times higher than that of US companies. Also noteworthy is the maximum values of Brazilian companies, which are much higher than those of US companies.

As for the other variables, the yield of Brazilian companies is 50% higher than that of US companies. Once again, the maximum values were also higher in Brazilian companies, both for yield and for price variation and price variation adjusted by the stock market index.

Table 1 – Descriptive Statistics of the Brazil Sample (n = 180)

	Mean ± Standard Error	minimum	pct25	median	pct75	maximum
D_preco	0.074 ± 0.028	-0.803	- 0.115	0.025	0.205	2.334
Prsp	0.007 ± 0.027	-0.805	- 0.197	- 0.005	0.177	2.456
yield	0.062 ± 0.005	0.000	0.017	0.045	0.091	0.548
CV	1.903 ± 0.152	0.355	0.576	0.949	2.458	14.707
d_media	1.016 ± 0.307	- 0.992	- 0.132	0.086	0.523	35.094

Table 2 – Descriptive Statistics of the USA Sample (n = 651)

	Mean ± Standard Error	minimum	pct25	median	pct75	maximum
D_preco	0.066 ± 0.01	- 0.818	- 0.059	0.068	0.186	1.595
Prsp	- 0.0004 ± 0.01	- 1.057	- 0.142	- 0.015	0.115	1.3
yield	0.04 ± 0.0008	0.000	0.031	0.039	0.047	0.179
CV	0.589 ± 0.012	0.286	0.412	0.486	0.651	2.433
d_media	0.091 ± 0.017	-0.701	- 0.125	0.014	0.2	5.53

The OLS analysis of Brazilian companies in the electricity sector is shown in Table 3. No statistically significant correlations were found between the dependent variables yield, annual price variation and price variation corrected by stock exchange index with annual variation in traded volume and coefficient of variation of traded volume, which is in accordance with Septyadi and Bwarleling (2020), Marini and Dewi (2019), Dewi and Paramitha (2017), Zainudin et al. (2018), Sugathadasa (2018), Nurleli and Wibisono (2021), Ahmad et al. (2018), Nguyen et al. (2020), Khan (2019), Singh and Tandon (2019), Fiorenza et al. (2023) and Hossin and Ahmed (2020), and contradicting the results of Kartawijaya and Hasibuan (2024) and Sirat and Hadady (2024). In regard of dividends and in relation to price variation the results are in according to the results of Fitriani and Simon (2024) and Kurniawan et al. (2024).

The OLS analysis of US companies in the electricity sector is shown in Table 4. The only statistically significant finding was the positive relationship between the average change in trading volume and the annual change in the stock price corrected by the index.

Table 5 shows the results of the regression using OLS grouping the two countries. Both the average variation in the volume traded and the coefficient of variation were significantly lower in the group of US companies, thus accepting H1A.

By combining the two groups of companies (Brazil and the USA), regression was performed using OLS. The results are shown in Table 6, where the dependent variables were yield, d_preco and Prsp. The independent variables were d_media, CV and the country dummy. Of statistical significance, the yield was lower in the US companies. When performing multiple

regression, the yield was again lower in the US companies, in addition to a negative relationship between yield and the stock market index. Therefore, since there is no influence of the volume traded and volatility (in the form of coefficient of variation), HB0 is accepted.

The logistic regression, as shown in Table 7, shows the difference between Brazil and the USA

in terms of traded volume. Both the average change in traded volume and the coefficient of variation were significantly lower in the USA group. These findings were similar to those found in Table 5, where the regression by OLS was shown, also accepting H1A.

Table 3 – Regression by OLS in Brazilian companies

Dependent variable: yield		
Independent variables	Coefficient \pm standard error	Adjusted R ²
constant	0.066 \pm 0.007**	- 0.002
CV	- 0.002 \pm 0.002	

Dependent variable: yield		
constant	0.062 \pm 0.005**	-0.0015
d_media	- 0.001 \pm 0.001	

Dependent variable: d_preco		
constant	0.069 \pm 0.029*	- 0.005
d_media	0.002 \pm 0.007	

Dependent variable: d_preco		
constant	0.063 \pm 0.038	- 0.0045
CV	0.006 \pm 0.014	

Dependent variable: Prsp		
constant	0.008 \pm 0.037	- 0.006
CV	- 0.0003 \pm 0.013	

Dependent variable: Prsp		
constant	0.005 \pm 0.028	- 0.006
d media	0.001 \pm 0.007	

Abbreviations: R²: coefficient of determination; * p < 0.1; ** p < 0.01;

Table 4 – OLS regression for US firms

Dependent variable: yield		
Independent variables	Coefficient \pm standard error	Adjusted R ²
constant	0.042 \pm 0.002**	0.002
CV	- 0.004 \pm 0.003	

Dependent variable: yield		
constant	0.039 \pm 0.001**	0.00045
d_media	0.002 \pm 0.002	

Dependent variable: d_preco		
constant	0.058 \pm 0.01**	- 0.0016
d_media	0.003 \pm 0.021	

Dependent variable: d_preco		
constant	0.082 \pm 0.021**	- 0.0005
CV	- 0.027 \pm 0.032	

Dependent variable: Prsp		
constant	- 0.024 \pm 0.021	0.0007
CV	0.04 \pm 0.032	

Dependent variable: Prsp		
constant	- 0.022 \pm 0.009*	0.02
d_media	0.074 \pm 0.02**	

Abbreviations: R²: coefficient of determination; * p < 0.1; ** p < 0.01;

Table 5 – OLS regression for Brazilian and US companies with trading volume as dependent variable

Dependent variable: CV		
Independent variables	Coefficient ± standard error	Adjusted R ² 0.232
Constant	1.903 ± 0,073**	
EUA ¹	- 1.314 ± 0.083**	

Variável dependente: d_media		
Constant	1.016 ± 0,148**	0.035
EUA	- 0.925 ± 0.168**	

Abbreviations: ¹Dummy: USA = 1, Brazil = 0; CV: coefficient of variation; d_media: average variation in traded volume; R²: coefficient of determination; * p < 0.1; ** p < 0.01;

Table 6 – OLS regression in Brazilian and US companies

Dependent variable: yield		
Independent variables	Coefficient \pm standard error	Adjusted R ²
Constante	0.066 \pm 0.004**	0.061
CV	- 0.002 \pm 0.001	
USA ¹	- 0.025 \pm 0.003**	
Dependent variable: d_preco		
Constante	0.067 \pm 0.028*	-0.002
CV	0.004 \pm 0.01	
USA ¹	- 0.003 \pm 0.027	
Dependent variable: Prsp		
Constante	0.002 \pm 0.028	-0.002
CV	0.003 \pm 0.01	
USA ¹	- 0.004 \pm 0.027	
Dependent variable: yield		
const	0.062 \pm 0.003	0.061
USA	- 0.023 \pm 0.003	
d_media	- 0.001 \pm 0.0006	
Dependent variable: d_preco		
const	0.069 \pm 0.021**	-0.002
USA	- 0.011 \pm 0.023	
d_media	0.002 \pm 0.005	
Dependent variable: Prsp		
const	0.002 \pm 0.02	-0.0006
USA	-0.017 \pm 0.023	
d_media	0.004 \pm 0.005	
Dependent variable: yield		
const	0.062 \pm 0.003**	0.063
USA	- 0.023 \pm 0.003**	
d_media	- 0.001 \pm 0.0006	
Ibovespa ²	- 0.013 \pm 0.007*	
PIB	0.0004 \pm 0.0006	

Abbreviations: ¹Dummy: USA = 1, Brazil = 0; ² Ibovespa index for Brazilian companies and SP&500 for US companies; R²: coefficient of determination; * p < 0.1; ** p < 0.01;

Table 7 – Logistic regression in Brazilian and US companies

Dependent variable: usa ¹			
Independent variables	Coefficient ± standard error	Exponential	Adjusted R ²
constant	2.969 ± 0.194**	19.47	0.245
CV	- 1.955 ± 0.215**	0.1415	
Dependent variable: usa ¹			
constant	1.381 ± 0.091**	3.98	0.038
d media	- 0.491 ± 0.116**	0.611	

Abreviações: ¹Dummy: USA = 1, Brasil = 0; R²: coefficient of determination; * p < 0.1; ** p < 0.01;

To summarize, the variation in stock prices and yields did not have a statistically significant correlation with the variation in average trading volume and coefficient of variation in Brazilian companies. In USA companies, on the other hand, the only statistically significant finding was the positive relationship between the variation in price corrected by the index and the annual variation in average trading volume. In the comparison between countries, the variation in average trading volume and coefficient of variation were lower in US companies, showing lower volatility. Furthermore, the variation in average trading volume and coefficient of variation did not have a correlation with the variation in stock prices and dividends in any of the countries.

FINAL CONSIDERATIONS

The study of the trading volume of shares and dividends dates back to the first half of the 1980s (ASQUITH; KRASKER, 1984). Many studies have focused on changes in trading volume due to ex-dividend dates, such as Michaely and Vila (1996). Subsequent studies, mainly carried out by Indonesian researchers such as those cited above, have studied the trading volume of shares in other dimensions of dividend policy.

This study was dedicated to using linear and non-linear econometric instruments to study possible relationships between the annual variation of the trading volume as well as the coefficient of variation as a proxy for volatility with the dividend policy (in the form of annual yield) and annual variation of share prices. In addition, these variables were also compared between companies in the electricity sector in Brazil and the United States.

The results are in line with the literature, as demonstrated in the results. Except for the isolated finding of a positive correlation between price variation corrected by the S&P500 index and trading volume, the other comparisons did not demonstrate statistically significant relationships.

Future work prospects include the study of more countries, as well as non-parametric models, given the high values of the coefficient of variation of trading volumes, especially in Brazilian companies.

REFERÊNCIAS

- AHMAD, M. A.; MOHAMMAD, A. S.; ALRABBA, H. The Effect Of Dividend Policy On Stock Price Volatility: Empirical Evidence From Amman Stock Exchange. *Academy of Accounting and Financial Studies Journal*, v. 22, n. 2, p. 1-8, 2018. <https://doi.org/10.13140/RG.2.2.26262.09289>
- AKERLOF, G. A. The market for "lemons": Quality uncertainty and the market mechanism. In: *Uncertainty in economics*. Academic Press, p. 235-251, 1978.
- ARMITAGE, S. Demand for Dividends: The Case of UK Water Companies, *Journal of Business Finance & Accounting*, v. 36, n. 3-4, p. 464-99, 2012.
- ASQUITH, P.; KRASKER, W. S. Changes in Dividend Policy, Trading Volume, and Investor Clientele. Harvard Business School Working Paper, 1984.
- COMIRAN, Fernando Heineck. *Reação do Mercado Acionário Brasileiro ao Grupamento de Ações*. Orientador: Prof. Dr. Jairo Laser Procianny. 2009. 99 folhas. Dissertação de Mestrado para obtenção de título de Mestre em Administração do Programa de Pós-Graduação em Administração da Universidade Federal do Rio grande do Sul, 2009. Available in: https://lume.ufrgs.br/handle/10183/15831?local_e_attribute=pt_BR Accessed in January 8, 2025.

DASMAN, Sunita.; GUNAWAN, Setyo. The impact of dividend policy and firm specific factors on share price volatility. *Anais... International Conference on Government Education Management and Tourism*, v. 1, n. 1, p. 1-10, 2022.

DEWI, S.; PARAMITHA, R. A. S. Pengaruh Kebijakan Dividen, Volume Perdagangan, Earning Volatiliy, Leverage, dan Firm Size Terhadap Volatilitas Harga Saham Perusahaan LQ45. In *Jurnal Ilmu Manajemen*, v. 7, p. 385, 2017.

DIVIDEND TAX. Available in: https://en.wikipedia.org/wiki/Dividend_tax Accessed in October 07, 2024.

FAMA, E. F.; FISHER, L.; JENSEN, M. C.; ROLL, R. The Adjustment Of Stock Prices To New Information. *International Economic Review (Philadelphia)*, v. 10, n. 1, p. 1-21, 1969.

FIORENZA, Shieryn; WIJAYA, Liliana Inggrit; SUTEJO, Bertha. Silvia. The Effect of Dividend Policy, Profitability, and Leverage on Share Price Volatility of Service Sector Enterprise Indexed on the Indonesia Stock Exchange During 2015–2019. *Annals... Proceedings of the 19th International Symposium on Management*, p. 126-133, 2022. <https://doi.org/10.2991/978-94-6463-008-417>

FITRIANI, A.; SIMON, F. Influence of Macroeconomics Factors, Profitability, and Stock Trading Volume on Stock Prices in The Years 2019-2021. *APTISI Transactions on Management*, v. 8, n. 1, p. 14-23, 2024.

FORTI, C. A. B.; PEIXOTO, F. Maciel; ALVES, D. L. Fatores determinantes do pagamento de dividendos no Brasil. *Revista Contabilidade & Finanças*, v. 26, p. 167-180, 2015.

GELBCKE, E. R., SANTOS, A. D., IUDÍCIBUS, S. D.; MARTINS, E. Manual de contabilidade societária: aplicável a todas as sociedades de acordo com as normas internacionais e do CPC (3a ed.). São Paulo: Atlas, 2018.

HOSSIN, S.; AHMED, F. Dividend Policy and Stock Price Volatility in the Bangladesh Capital Market: An Experimental Analysis. *Saudi Journal of Economics and Finance*, v. 4, n. 7, p. 359–367,

2020.

<https://doi.org/10.36348/sjef.2020.v04i07.008>

JANDIK, T.; MAKHIJA, A. K. Can diversification create value? Evidence from the electric utility industry. *Financial Management*, v. 34, n. 1, p. 61-93, 2005.

KARTAWIJAYA, A. M.; HASIBUAN, H. T. Effects of Stock Trading Volume, Leverage, and Dividend Payout Ratio on Stock Price Volatility. *Jurnal Syntax Admiration*, v. 5, n. 6, p. 2015-2025, 2024.

KHAJAR, Ibnu. Stock split analysis on price and trading volume in Indonesian Stock Exchange, p. 241-246, 2016. *Annals... Knowledge Management International Conference (KMICe)*, 2016. Available in:

<https://core.ac.uk/download/pdf/78486878.pdf> Accessed in February 02, 2025.

KHAN, M. A. Impact Of Dividend Policy On Share Price Volatility For Companies Listed On Pakistan Stock Exchange. *Management, & Applied Sciences & Technologies*, v. 10, n. 17, 2019. <https://doi.org/10.14456/ITJEMAST.2019.236>

KURNIAWAN, Y. I.; PRAMONO, H.; FAKHRUDDIN, I.; MUDJIYANTI, R. Fundamental Analysis and Trading Volume on Stock Prices with Company Size as a Control Variable. *East Asian Journal of Multidisciplinary Research*, v. 3, n. 4, p. 1621-1632, 2024.

LAKONISHOK, J.; LEV, B. Stock splits and stock dividends: why, who, and when. *Journal of Finance*, v. 42, p. 913–932, 1987.

MARINI, N. L. P. S.; DEWI, S. K. S. Pengaruh Kebijakan Dividen, Leverage, Dan Ukuran Perusahaan Terhadap Volatilitas Harga Saham. *E-Jurnal Manajemen Universitas Udayana*, v. 8, n. 10, 2019. <https://doi.org/10.24843/ejmunud.2019.v08.i10.p01>

MICHAELY, R.; VILA, J. L. Trading volume with private valuation: Evidence from the ex-dividend day. *The Review of Financial Studies*, v. 9, n. 2, p. 471-509, 1996.

NGUYEN, T. H.; NGUYEN, H. A.; TRAN, Q. C.; LE, Q. L. Dividend Policy And Share Price Volatility:

- Empirical Evidence From Vietnam. *Accounting*, v. 6, n. 2, p. 67–78, 2020. <https://doi.org/10.5267/j.ac.2019.12.006>
- NURLELI, D.; WIBISONO, M. The Effect of IFRS Application, Stock Price Volatility, and Fundamental Variables on Jakarta Islamic Index. *Jurnal Manajemen Dan Keuangan*, v. 10, n. 1, p. 1-14, 2021. <https://doi.org/10.33059/jmk.v10i1.2559>
- PRIANA, I. W. K.; MULIARTHA, K. R. Pengaruh Volume Perdagangan Saham, Leverage, dan Dividend Payout Ratio Pada Volatilitas Harga Saham. *E-Jurnal Akuntansi Universitas Udayana*, v. 20, n. 1, p. 1-29, 2017.
- ROWENA, J.; HENDRA, H. Earnings Volatility, Kebijakan Dividen, Dan Pertumbuhan Asset Berpengaruh Terhadap Volatilitas Harga Saham Pada Perusahaan Manufaktur Di BEI Periode 2013-2015. *Jurnal Administrasi Kantor*, v. 5, n. 2, p. 231-242, 2017.
- SARTONO, A. *Manajemen Keuangan Teori dan Aplikasi Edisi Keempat (4th ed.)*. Yogyakarta: BPFE Yogyakarta, 2014.
- SELIPIANA, K. R.; BADJRA, I. B. Pengaruh Kebijakan Dividen, Nilai Tukar, Leverage, Dan Firm Size Terhadap Volatilitas Harga Saham. *E-Jurnal Manajemen Unud*, v. 7, n. 3, p. 1682–1712, 2018. <https://doi.org/10.24843/EJMUNUD.2018.v7.i03.p020>
- SEPTYADI, M. A.; BWARLELING, T. H. Pengaruh Volume Perdagangan Saham, Leverage, dan Kebijakan Dividen Terhadap Volatilitas Harga Saham. *AKURASI: Jurnal Riset Akuntansi Dan Keuangan*, v. 2, n. 3, p. 149–162, 2020. <https://doi.org/10.36407/akurasi.v2i3.251>
- SIAWAN, R. M.; LUKMAN, H. The Determinants Of Stock Price Volatility In Plantation Industry In Indonesia During 2016-2020. *International Journal of Application on Economics and Business (IJAEB)*, v. 1, n. 3, p. 1371-1381, 2023. <https://doi.org/10.24912/ijaeb.v1.i3.1371-1381>
- SILVA, A. R. Taxation on Dividends and its impact on Companies in the electricity Sector in Brazil, the United States and Germany. *Revista UNEMAT de Contabilidade*, v. 12, n. 24, p. 102-123, 2023.
- SILVA, A. R. Frequency of dividend payment among electricity sector firms in Brazil, USA and Germany. *Revista de Administração e Contabilidade da FAT*. v. 15. n. E, p. 61-73, 2024a.
- SILVA, A. R. Stock splits and inplits in Brazil. United States and Germany: Influence over dividends policy in their respective Electric Sector Firms. *FACEF Pesquisa-Desenvolvimento e Gestão*. v. 27. n. 3, p. 185-200, 2024b.
- SILVA, A.; KIRCH, G. Stock split and groupings in the electricity setor and their influence on traded volume, price and yield. *RAUEG – Revista de Administração da UEG*, v. 11, n. 2, p. 111-129, 2020.
- SILVA, Vitória Lucy Assis da. *TESOURO DIRETO: ALTERNATIVA POPULAR DE INVESTIMENTO*. 2017. 59 f. Monografia (Especialização) - Curso de Especialização em Gestão de Negócios, Universidade Federal do Paraná, Curitiba, 2017. Disponível em: <https://acervodigital.ufpr.br/handle/1884/56394>. Acesso em: 25 jan. 2025.
- SINGH, N. P.; TANDON, A. The Effect of Dividend Policy on Stock Price: Evidence from the Indian Market. *Asia-Pacific Journal of Management Research and Innovation*, v. 15, n. 1–2, p. 7–15, 2019. <https://doi.org/10.1177/2319510x19825729>
- SIRAT, Abdul Hadi; HADADY, Hartaty. The Effect Of Dividend Yield On Stock Price Volatility Of Idx30 Index Companies Listed On The Indonesia Stock Exchange In The 2019-2023 Period. *Annals... Bengkulu International Conference on Economics, Management, Business and Accounting (BICEMBA)*, v. 2., p. 445-456, 2024.
- SUDANA, M. Winners take all: Understanding forest conflict in the era of decentralization in Indonesia. *The decentralization of forest governance*, p. 207, 2009.
- SUGATHADASA, D. D. K. The Impact of Dividend Policy on Share Price Volatility: Empirical Evidence with Colombo Stock Exchange in Sri Lanka. *International Journal of Innovative Research & Development*, v. 7, n. 8, 2018. <https://doi.org/10.24940/ijir>

SURENJANI, D.; MURSALINI, W.I.; YENI, A.; MANAGEMENT, P.S.; MAHAPUTRA, U., YAMIN, M.; SOLOK, K. The Influence of Economic Growth and Share Prices on Profit Growth in Mining Companies in the metal and Mineral Sub Sector Listed on the Indonesian Stock Exchange. *Journal of Management and Economic Research*, v. 2, n. 1, p. 158–175, 2023.

SUSANTO, H., PRASETYO, I., INDRAWATI, T.; ALIYYAH, N.; RUSDIYANTO, R.; TJARAKA, H., KALBUANA, N.; SYAFI'UR ROCHMAN, A.; GAZALI; ZAINURRAFIQI, Z. The Impacts Of Earnings Volatility, Net Income And Comprehensive Income On Share Price: Evidence From Indonesia Stock Exchange. *Accounting*, v. 7, n. 5, p. 1009–1016, 2021. <https://doi.org/10.5267/j.ac.2021.3.008>

VIEIRA, Gabriel Godinho; ALBERTON, Luiz. Qual o retorno obtido pelo acionista ao investir em empresas de capital aberto do setor elétrico no longo prazo? *Annals... 10º Congresso UFSC de Controladoria e Finanças*, 2020. Available in: http://ccn-ufsc-cdn.s3.amazonaws.com/10CCF/20200715215203_id.pdf Accessed February 04, 2025.

WATI, N.; PUSPITANINGTYAS, A. The Influence of Stock Trading Volume, Inflation Rate and Exchange Rate on Share Price Volatility in the Coal Sub Sector Listed on the Indonesian Stock Exchange. *Krisnadwipayana Business Management Journal*, v. 11, n. 2, 2023.

ZAINUDIN, R.; MAHDZAN, N. S.; YET, C. H. Dividend Policy And Stock Price Volatility Of Industrial Products Firms In Malaysia. *International Journal of Emerging Markets*, v. 13, n. 1, p. 203–217, 2018. <https://doi.org/10.1108/IJoEM-09-2016-0250>.