

Does the Ex-dividend Date Impact Price Variations in the Brazilian Stock Market?

Djalma Otávio Moreaux Nunes, Sérgio Jurandyr Machado, Mathias Schneid Tessmann* and Alexandre Vasconcelos Lima

Brazilian Institute of Education, Development and Research – IDP

Abstract: This work seeks to investigate the behavior and rationality of investors in Brazil. For this, it tests the behavior of stock prices on the day of Ex-dividends or Ex-interest, due to the price of the previous Ex-day (Ex-1). The sample consists of 144 events and was built with shares that made up the dividend index of the Brazilian stock exchange in all portfolios launched during the years 2018 and 2019. The results show that of the 144 events analyzed, 27% of the records presented the share price on the Ex-dividend date higher than the price registered on the previous date (Ex-1), when the share was entitled to receive the announced dividends. These findings are useful for the scientific literature that investigates finance by bringing empirical evidence about the behavior of Brazilian investors, as well as for portfolio managers and other economic agents.

Keywords: Dividends, Ex-Date, Dividend Index, Brazilian stocks.

JEL Classification: E44, G11, G12, G14.

1. INTRODUCTION

A dividend is the part of a company's profit that is paid as a bonus to its shareholders. More simply, a dividend is a premium paid to a shareholder for money invested in a particular company. For Bhattacharya (1979), dividends work as a signal of expected cash flow, assuming that investors have imperfect information about a company's profitability. For Assaf Neto (2014), dividends are part of a company's results, which are distributed to shareholders, referring a certain period.

Dividends in Brazil were formally regulated by law 6,404 of December 15, 1976. This law, also known as Lei da S.A. (Anonymous Society), legally defines the activity of for-profit companies, discussing operating rules, statutes, shareholding composition and liability of the partners. In essence, Law 6,404/1976 aimed to attract new investors to the capital market, protecting minority shareholders and encouraging private companies in the country, in addition to standardizing some accounting guidelines. In Brazil, despite the constant political debates on the subject, the receipt of dividends by shareholders is not taxed. Thus, only the taxable income of companies is taxed by corporate income tax and social contribution on net income.

Another way used to remunerate shareholders is through the payment of equity interest. In general, the payment of equity interest is a return to the money invested by the shareholder, as a payment of interest on an amount contributed.

Assaf Neto (2014) describes interest on equity as another option for companies to remunerate their shareholders, in addition to the payment of dividends based on calculated profits, being a remuneration format that brings tax advantages to the company because the interest paid is deductible to calculate the company's income tax.

For Gomes et. al. (2015), equity interest is recorded in the income statement of companies as a financial expense, becoming a tax benefit through the company's income tax deductions and social contribution to the net income that it provides. However, equity interest is not tax-free. If, on the one hand, there is a tax benefit for companies that distribute the result, on the other hand, shareholders are taxed at 15% by the withholding income tax.

Carvalho (2003) compared these two methods for shareholder remuneration (dividends and equity interest) and according to his study, the payment of equity interest can be more advantageous for the profit-distributing company than the payment of dividends because of the disbursement of resources (taxes and investor remuneration) in the interest on equity method is lower than in the dividend format, increasing companies' equity.

In this paper, the behavior of stock prices on the Ex dividends or Ex interest on capital will be analyzed and compared with the prices of the day before the Ex-date (Ex-1). With this, the objective is to verify the relevance of occurrences that may raise possible questions about the rationality of investors who trade assets in the Brazilian stock market.

The Ex-dividend date is the day on which companies that have stocks traded on the stock exchange determine a limit for stocks to be traded without the right to receive previously

*Address correspondence to this author at the (Brazilian Institute of Education, Development and Research – IDP);
E-mail: mathias.tessmann@idp.edu.br.

announced dividends or interest on capital. All stocks acquired up to the day before the Ex-date are entitled to receive dividends and interest announced for a certain period. From the Ex-date, the investor loses the right to receive the announced remuneration and will have to wait for the next announcement of payment of dividends or interest on capital of the company that holds stocks to verify if he will be entitled to receive it.

For investors interested in receiving remuneration for their invested capital, the Ex-date can be a moment of analysis and decision on new investments. Assuming a hypothetical company that has stocks traded on the Brazilian market and that operates in a perfect market without information asymmetry, on the day exactly before the Ex-date, its stocks are being traded at 20 reais at the market closing price. If this company has announced a payment of dividends in the amount of 2 reais per stock, on the day of the Ex-date, its stocks must undergo a price adjustment to raise awareness of the payment of dividends. Thus, on the day of the Ex-date, the stocks of the hypothetical company start trading at 18 reais, *ceteris paribus*.

However, after the various purchase and sale operations of the assets of our hypothetical company on the day of the Ex-date, let's assume that the stocks end the day worth the same 20 reais as the previous day. That is, on the day of the Ex-date, we would have a price per stock equal to the value of the previous day when the stocks were entitled to receive the announced dividends at 2 reais per stock.

Thus, this work presents the following research question: Are there variations in stock prices when comparing stock prices on the Ex and Ex-1 date that are sufficient for the event to become relevant to question the rationality of investors to buy stocks without the right to receive dividends with prices equal to or higher than the stocks that had the right to remuneration?

It is hoped to obtain a better understanding of this questioning, through the identification of the values of the stocks on the Ex and Ex-1 dates and the comparative analysis of the prices and returns found, including in the analysis of the impact of dividends and market variations. The finding that the event studied occurs regularly can raise hypotheses of market anomalies, from the capital gain with the purchase of stocks on the Ex-1 date, followed by their respective sale on the following day (Ex-date), adding to this investment strategy, the receipt of the announced dividend.

Likewise, the identification of the event researched in this study may raise questions about the rationality of an investor buying stocks on the day of the Ex-date, for a value similar to or even higher than the previous day, without the benefit of the announced dividend. In addition to the questions raised, the topic has relevance for investors in the equity market, who have the receipt of dividends and interest on capital, the core of their investment strategies.

This paper is divided into five sections, the first being focused on the introduction and contextualization of the research topic. The second section presents a summary of the literature on the subject, section three describes the methodology and data sample used in the research and sections 4

and 5 present the results and conclusions obtained with the work.

2. LITERATURE REVIEW

Neto and Saito (2003) studied the behavior of stock prices, after the announcement of the payment of dividends. The study analyzes the period between 90 days before the Ex-1 date and 90 days after, considering all dividend payments, from the main Brazilian companies, between 1998 and 2000. The authors' study does not focus exclusively on some market imperfections, such as information asymmetry, the effect of taxes or the customer phenomenon. As a result of this study, the authors established a direct relationship between the dividend yield and the accumulated abnormal return of Brazilian stocks in the post-dividend period.

Thus, the study found that companies that paid dividends above the mandatory minimum (25% of net income) had higher abnormal cumulative returns than companies that paid the minimum required amount. In addition, the study by Neto and Saito (2003) did not find evidence that the type of controller (state, family and funds) had any influence on the abnormal returns accumulated in the period after payment of dividends. The same applied to privatized companies.

In a more recent study, Khanal and Mishra (2017) assessed stock price reactions to dividend announcements. The study investigated the behavior of stock prices as a function of dividends in a 30-day window before and after the announcement of dividends, in the period from 2006 to 2012 in the American market. This period is often characterized by slow economic growth. The research used the Study of Events methodology, on a sample of 460 records of stock prices and information on dividends. As a result, the study found a significant response in stock prices around the event, identifying positive average returns. However, the abnormal returns found were lower when compared to previous years.

In another work, Procianoy and Verdi (2003) studied the existence of the clientele effect in the Brazilian market, in the period between 1989 and 1993, with a sample of 693 events, from 132 companies. The data were divided into 4 main groups: Year of payment (1989, 1990, 1991, 1992 and 1993), class of stocks (common or preferred), company sector (financial sector and other sectors) and stock yield.

The results obtained by Procianoy and Verdi (2003) point to pressure on stock prices around the Ex-dividend date, with 47% of the events having the stock price on the Ex-date, higher than on the Ex-1 date (with right to dividends). This finding denotes behavior that can be considered irrational on the part of investors since they would be paying more for a stock without the right to dividends.

It is noteworthy that the hypothesis of the clientele effect by Miller and Modigliani (1961) proposes that each company would tend to attract a clientele made up of investors interested in its specific payment policy. In this way, individuals who pay very high amounts of taxes, on receiving dividends, would be interested in remunerating themselves through capital gains and not on dividends, seeking companies that satisfy their investment strategies. On the other hand, investors who have a low tax rate on receiving divi-

dends would be interested in buying stocks in companies with good dividend distributions.

An example of this would be the Property Clientele effect described by Allen, Bernardo and Welch (2000). If institutional investors are taxed less than individual investors, dividend-paying companies would attract fewer individuals and more institutions as shareholders, which in turn have advantages in identifying and evaluating good management, ensuring that companies are well managed.

Related to price formation on the day of the Ex-date, Dupuis (2019), analyzed the behavior of the stock price on the day of the Ex-dividend, in a tax-free market, investigating the effect of liquidity on the premium on the day of the Ex-date. The work considers that there is sufficient documentation to attest to the reduced drop in stock prices on the Ex day when compared to the amount of the dividend paid. However, according to the author, this market inefficiency is generally attributed to the clientele effect and concludes that even in tax-free markets, abnormal returns persist and that liquidity, the size of the dividend yield, the market's turnover and transaction costs are statistically significant in understanding the anomaly in the price formation of stock on the Ex-date.

Jakob and Whitby (2017) studied the impact of nominal stock prices on the day price of the Ex-date. The work evaluates whether the nominal price of the stock can help to explain the price anomaly on the Ex-date when the value of the stock falls less than the value of the dividend paid. As a result, the study identified that stocks with lower nominal prices have price reductions that are more consistent with theoretical estimates of an efficient market. The study also analyzed the price-to-dividend relationship around stock split events.

In another study, Cardoso, Ely and Shikida (2018) address the existence of a dividend month premium in the Brazilian stock market. This premium consists of the existence of abnormal returns when a company is expected to issue dividends. The work analyzes the behavior of asset returns in the Brazilian market in the months in which a dividend issuance is likely, intending to verify the possibility of generating abnormal returns from portfolios built with stocks that are expected to announce dividends. The study found evidence of a positive and relevant premium of around 1% per month, for portfolios composed of stocks that had forecast new dividend announcements. This premium was intensified in portfolios composed of small-cap stocks or stocks with higher dividend yields.

In the context of shareholder tax rates and the clientele effect hypothesis, Elton and Gruber (1970) studied the importance of shareholder tax bands for stock pricing models, capital allocation models and payment policies. of dividends. The authors concluded that there is a relationship between the shareholders' tax brackets and the company's dividend policy. This relationship provides information necessary for calculating the cost of retaining a company's earnings, provides evidence in support of the clientele effect of Modigliani and Miller, suggesting that a change in dividend policy could cause an onerous change in shareholder wealth, and illustrates a form of market rationality, in which shareholders

with high tax rates show a preference for capital gains over dividend income over those with lower tax rates.

In the work of Baker and Wurgler (2004), it is proposed that the decision to pay dividends is predominantly related to investor demand. In this way, managers cater to investors by paying dividends, when investors place a premium on the price of dividend-paying stocks. The study results suggest that dividends are highly relevant in stock prices, however, at appropriate times and situations.

Thus, the present work seeks to contribute to the literature presented by bringing empirical evidence for the effects of divestment payments on the prices of stocks traded on the Brazilian stock exchange.

3. METHODOLOGY

This paper conducts empirical research on stock prices on the Ex-date (without the right to receive dividends) and Ex-1 (with the right to receive dividends), making a comparison between the values found and their price variations. To measure stock price changes on the day of the Ex-date, as in the work of Procianoy and Verdi (2003), the model by Elton and Gruber (1970) was used.

In the work, the authors analyze that in a rational market, the behavior of stock prices on the day of the Ex-date should reflect the value of dividends vis-à-vis the capital gain of its shareholders. Thus, Elton and Gruber (1970) constructed the following theoretical model, based on the behavior of stock prices on the Ex day and shareholder tax rates:

$$\frac{P_{Ex-1} - P_{Ex}}{D} = \frac{1 - I_{div}}{1 - I_{gc}} \quad (1)$$

In (1), P_{Ex-1} is the stock price on the day before the Ex-date, P_{Ex} is the stock price on the day of the Ex-date, D is equal to the amount of the dividend paid, I_{div} is the amount of tax to the shareholder on the dividend and the I_{gc} is the value of capital gain taxes to shareholders.

Since in Brazil dividends were not taxed within the period analyzed in this work ($I_{div} = 0$) and capital gains taxes (I_{gc}) varied between 0 and 25%, depending on the type of investor, the theoretical price of the stocks on the day of the Ex-date (P_{ExT}) can be described as follows:

$$P_{ExT} = P_{Ex-1} - \frac{D}{1 - I_{gc}} \quad (2)$$

According to Procianoy and Verdi (2003), assuming a tax rate equal to 0 on capital gain, the maximum theoretical expected value of the stock price on the day of the Ex (P_{ExTmax}) would be:

$$P_{ExTmax} = P_{Ex-1} - D \quad (3)$$

On the other hand, using the 25% rate, the minimum expected theoretical value of the stock on the Ex-date (P_{ExTmin}) would be:

$$P_{ExTmin} = P_{Ex-1} - \frac{D}{0,75} \quad (4)$$

Following the study by Procianoy and Verdi (2003), we will create two variables (DP_1 e DP_2), these being the results

of the relationships between the effective price of a stock on the Ex-date and its minimum and maximum expected theoretical price on the same date, according to the following equations:

$$DP_1 = \left(\frac{P_{Ex}}{P_{ExTmin}} \right) - 1(5)$$

$$DP_2 = \left(\frac{P_{Ex}}{P_{ExTmax}} \right) - 1(6)$$

From equations (5) and (6) the stock prices on the Ex-date can be analyzed and if these prices are following the theoretical values expected for that date. Finally, to reduce uncertainties in the model and align the results obtained with the market trend within the studied period, the values of the shares on the Ex-date will be adjusted to the market, according to the São Paulo Stock Exchange Index - Ibovespa (IBOV) and its return on the day of the Ex. The use of the Ibovespa as a market reference index is in line with other studies already carried out, such as Procianny and Verdi (2003) and Neto and Saito (2003). The adjusted stock price on the Ex-date will be defined by:

$$P_{Exa} = K * P_{Ex}(7)$$

In equation (7), the adjusted stock price on the Ex-date is represented by P_{Exa} , while K is the market fit coefficient. This coefficient is calculated as follows:

$$K = \frac{1}{\left(\frac{IBOV_{Ex}}{IBOV_{Ex-1}} \right)}(8)$$

$IBOV_{Ex}$ and $IBOV_{Ex-1}$ are the quotations of the Brazilian Ibovespa index at the close of the Ex and Ex-1 dates of each stock studied. Since the prices on the Ex-date were adjusted by the coefficient K , the price differences (DP_1 and DP_2), determined by equations (5) and (6), will also be recalculated by the adjusted Ex price (P_{Exa}), generating new variables DP_{1a} and DP_{2a} .

The stocks used in the study are from large, publicly traded companies that have public data available for consultation at the Brazilian securities commission, are traded on the B3 stock exchange and are members of the Brazilian dividend index IDIV. The IDIV is a total return index, which aims to be the indicator of the average performance of the quotations of the assets that stood out in terms of investor remuneration, in the form of dividends and equity interest.

The index is made up of stocks and units of companies listed on the B3, which meet inclusion criteria such as: Not being classified as a Penny Stock, being present in 95% of the trading sessions during the validity period of the 3 previous portfolios, having the sum of the dividend yields of every 12 consecutive months, observed in 36 months, greater than 0 and be within the 33% of the total assets with the highest distributed dividend yields, among others.

Due to the characteristics described above, the choice of the IDIV index is justified, since this study focuses its analysis on the behavior of stock prices around the Ex dividends date. In this way, the composition of the sample based on

companies listed in the IDIV will favor the detection of events of payment of dividends and interest on capital, facilitating the identification of anomalies in the formation of prices, related to the payment of dividends.

The sample used in the study will refer to the period between January 1, 2018 and December 31, 2019. These years were chosen because they represent two recent, complete and consecutive years where the basic interest rate presented the lowest percentages of recent years. The reduction in the interest rate, in theory, makes the assets more valued, according to Geske and Roll (1983). In addition, according to Hartzmark and Solomon (2019), the demand for dividends is higher when interest rates are lower and interest payments on bonds generate less revenue.

Thus, 144 events of payment of dividends or interest on capital were collected during the period from 2018 to 2019. These payments refer to the 20 companies that were present in all IDIV theoretical portfolios within the analyzed interval. It should be noted that the composition of the IDIV asset portfolio is updated every 4 months.

4. RESULTS

This section presents the results and analyses obtained, based on the research objectives. Table 1 shows the price differences (DP_1 and DP_2) with the values before and after the market adjustment.

Table 1. Price differences (DP_1 and DP_2) before and after market adjustment.

Descriptive Statistics	DP_1	DP_{1a}	DP_2	DP_{2a}
Average	0.0101	0.0065	0.0035	-0.0001
Standard Deviation	0.0204	0.0187	0.0197	0.0180
Median	0.0102	0.0072	0.0036	0.0012
Events	144	144	144	144

Source: Elaborated by authors.

According to Table 1, it can be seen that the average value of DP_1 , before market adjustment, was 1.01%. After adjustment (DP_{1a}), the mean value decreases to 0.65%. However, when analyzing the variable DP_2 , the average before the adjustment was 0.35% above the theoretical maximum price established, while after the adjustment it was -0.01% (within the theoretical margin). The median of the variable DP_{2a} was 0.12%. Thus, the behavior of prices in most records within the total sample (52.78% of events) was above the maximum theoretical price projected for the stocks.

The test was also performed excluding outliers from the sample (values that deviate from the mean by two standard deviations). Of the total of 144 events within the sample, 8 values were excluded because they were outside the lower and upper limits. Table 2 shows the results for the variables DP_{1a} and DP_{2a} , within the new sample with 136 events.

Table 2. Price differences (DP_{1a} and DP_{2a}) with and without outliers.

Descriptive Statistics	With Outliers		Without Outliers	
	DP _{1a}	DP _{2a}	DP _{1a}	DP _{2a}
Average	0.0065	-0.0001	0.0070	0.0007
Standard Deviation	0.0187	0.0180	0.0189	0.0180
Median	0.0072	0.0012	0.0081	0.0020
Events	136	136	136	136

Source: Elaborated by authors.

For the sample without outliers, a hypothesis test was performed with H₀: mean and SD = 0. After performing the test, we found *t* values equal to 4.31 (*p-value* = 0.0000313) for the variable DP_{1a} and 0.46 (*p-value* = 0.6491) for variable DP_{2a}. Thus, the variable DP_{1a} is statistically different from zero, and the same cannot be said for the variable DP_{2a}.

Of the 136 events (without outliers), 15% of the records were within the projected theoretical range ($P_{Extmin} < P_{Exa} < P_{Extmax}$), 30% were below the minimum theoretical price (P_{Extmin}) and 55% were above the maximum theoretical price (P_{Extmax}).

The sample without outliers was studied within each year (2018 and 2019), to identify any extraordinary event that could cause a difference in the annual results. Table 3 below shows that the mean values of the variables DP_{1a} and DP_{2a} were lower in 2019 than in 2018. According to Procianoy and Verdi (2003), this result translates as expected, since when an abnormality is found, this price difference should reduce over time.

Table 3. Annual Comparison.

DP _{1a}	2018	2019
Average	0.0103	0.0041
Standard Deviation	0,0184	0.0189
Median	0.0103	0.0054
Events	63	73
DP _{2a}	2018	2019
Average	0.0031	-0.0013
Standard Deviation	0.0173	0.0185
Median	0.0024	0.0011
Events	63	73

Source: Elaborated by authors.

The sample was also subjected to a comparative sectoral analysis (Table 4). The financial sector, composed of banks and insurance companies, was evaluated about the other registered sectors and the results showed that for the variable DP_{1a}, the average value for the financial sector was 0.63%, while the rest of the sample presented the average value of 0.72%. This evidence corroborates the results found by Procianoy and Verdi (2003), where the authors indicated that the higher incidence of dividend payments by companies in the financial sector could imply greater predictability, that is, dividends would be less surprising, which would bring lower results for the sector.

Table 4. Comparison between Sectors.

DP _{1a}	Financial Sector	Others Sectors
Average	0,0063	0,0072
Standard Deviation	0,0160	0,0200
Median	0,0092	0,0061
Events	39	97
DP _{2a}	Financial Sector	Others Sectors
Average	0,0003	0,0009
Standard Deviation	0,0154	0,0191
Median	-0,0005	0,0024
Events	39	97

Source: Elaborated by authors.

Finally, an assessment was carried out regarding the classes of stocks within the sample, to analyze the impact of liquidity on price behavior. According to Procianoy and Verdi (2003), since preferred stocks have greater liquidity than common stocks, it is assumed that they have lower abnormal returns in their prices than common stocks.

Table 5. Stocks Classes.

Descriptive Statistics	DP _{1a}			DP _{2a}		
	ON	PN	UNITS	ON	PN	UNITS
Average	0.0112	0.0050	0.0029	0.0041	- 0.0009	- 0.0027
Standard Deviation	0.0218	0.0170	0.0151	0.0206	0.0165	0.0150
Median	0.0120	0.0051	0.0055	0.0023	0.0018	- 0.0013
Events	51	64	21	51	64	21

Source: Elaborated by authors.

As can be seen in Table 5, preferred stocks had lower DP_{1a} and DP_{2a} values than common stocks, which is in line

with theoretical expectations and reinforces the results found by Procianoy and Verdi (2003). Additionally, we also highlight the results for UNITS-type assets, which showed even lower values for the variables DP_{1a} and DP_{2a} , which is an indication of even greater liquidity for this type of asset.

Another important survey is that within the total sample (144 events), 27% of the records had prices on the Ex-date higher than on the Ex-1 date. In these situations, investors paid more for the stocks on the Ex-date, without the right to dividends, than on the Ex-1 date (with dividends), which is contrary to the expectations of the model.

5. CONCLUSION

This paper sought to test the behavior of stock prices on the day of the date Ex dividends or Ex interest on capital, due to the price of the previous day (Ex-1), from a sample consisting of 144 events, constructed from stocks of the dividend index traded on the Brazilian stock exchange (IDIV) between 2018 and 2019. After excluding outliers, the new sample had 136 events, with only 15% of price records on the Ex-date being within the projected theoretical range ($P_{ExTmin} < P_{Exa} < P_{ExTmax}$), while 55% of cases were above the maximum projected value.

The average stock price on the Ex-date was 0.70% above the minimum value expected by the Elton and Gruber model. This demonstrates that for investors with a higher tax burden, the results, in principle, contradict the theoretical model. For investors exempt from tax on capital gains, the average stock price was 0.07% above the maximum value expected within the model (P_{ExTmax}), but with no statistically significant difference.

Of the total number of events analyzed, 27% registered a higher price on the Ex-date than on the Ex-1 date, which, in addition to contradicting the expected values within the model, supports the results obtained by Procianoy and Verdi (2003). The empirical evidence partly contradicts the expectations of the stock pricing model on the Ex-date and demonstrates the existence of a market anomaly. However, it was not the aim of this work to discuss the feasibility of exploring this anomaly or the existence of market frictions, which would make a strategy in this sense unfeasible.

Future research could seek to: i) discuss the reasons that may generate the aforementioned anomaly, especially in markets where dividends are not taxed, such as Brazil; ii) confirm the magnitude of the average deviation found and its persistence in a wider time window, when controlled by ex-

ternal factors that impact the stock price; iii) discuss the efficiency of allocation strategies that seek to exploit any capital gain arising from the purchase of stocks on the Ex-1 date and sale on the Ex-date, adding the receipt of dividends.

REFERENCES

- Allen, F.; Bernardo, A. E.; Welch, I. (2000). A theory of dividends based on taxclienteles. *The journal of finance*, v. 55, n. 6, p. 2499-2536.
- Baker, M.; Wurgler, J. (2004). A catering theory of dividends. *The Journal of Finance*, v.59, n. 3.
- Bhattacharya, S. (1979). Imperfect information, dividend policy, and "the bird in the hand" fallacy. *The Bell Journal of Economics*, p. 259-270.
- Brasil. (1976). *Lei nº 6.404, de 15 de dezembro de 1976*. Dispõe sobre as Sociedades por Ações. Diário Oficial da União. Brasília, 17 de dezembro, p. 1 (suplement).
- Brown, S. J.; Warner, J. B. (1985). Using daily stock returns: the case of event studies. *Journal of Financial Economics*, v.14, n.1, p.3-32.
- Campbell, J. Y.; Lo, A. W.; Mackinlay, A. C.; Whitelaw, R. F. (1998). The econometrics of financial markets. *Macroeconomic Dynamics*, 2(4), 559-562.
- Carvalho, E. R. A. (2003). *Política de dividendos e juros sobre o capital próprio: Um modelo com informação assimétrica*. Ph.D Thesis.
- Dupuis, D. (2019). Ex-dividend day price behavior and liquidity in a tax-free emerging market. *Emerging Markets Review*, v. 38, p. 239-250.
- Elton, E.; Gruber, M. (2011). Marginal Stockholder Tax Rates and the Cliente Effect. *Review of Economics and Statistics*, p. 68-74, n.10.
- Geske, R.; Roll, R. (1983). The fiscal and monetary linkage between stock returns and inflation. *Journal of Finance*, v. 38, n. 1, p. 1-33.
- Gomes, P. H.; Takamatsu, R.; Machado, E. (2015). Determinantes da Política de Remuneração do Capital Próprio: Dividendos versus Juros Sobre Capital Próprio. *REUNIR Revista de Administração Contabilidade e Sustentabilidade*, v. 5, n. 2, p. 62-84.
- Hartzmark, S. M.; Solomon, D. H. (2019). The dividend disconnect. *The Journal of Finance*, v. 74, n. 5, p. 2153-2199.
- Jakob, K.; Whitby, R. (2017). The impact of nominal stock price on ex-dividend price responses. *Review of Quantitative Finance and Accounting*, v. 48, n. 4, p. 939-953.
- Khanal, A. R.; Mishra, A. K. (2017). Stock price reactions to stock dividend announcements: A case from a sluggish economic period. *The North American journal of economics and finance*, v. 42, p. 338-345.
- Miller, M. H.; Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *The Journal of Business*, v. 34, n. 4, p. 411-433.
- Neto, A. A. (2014). *Finanças corporativas e valor*. 7ª ed. São Paulo: Atlas.
- Neto, J. A. N.; Saito, R. (2003). Pagamentos de dividendos e persistência de retornos anormais das ações: evidência do mercado brasileiro. *Revista de Administração da Universidade de São Paulo*, v. 38, n. 2.
- Pereira, C. C.; ELY, R. A.; SHIKIDA, C. D. (2018). Evidências do Prêmio do Mês do Dividendo no Mercado Acionário Brasileiro. *Revista Brasileira de Finanças*, v. 16, n. 4.
- Procianoy, J. L.; Verdi, R. S. (2003). O efeito clientela no mercado brasileiro: será que os investidores são irracionais? *Revista brasileira de finanças, Rio de Janeiro*. Vol. 1, n. 2, p. 217-242.