

DIVIDEND POLICY IN THE BRAZILIAN MEAT INDUSTRY: INFLUENCE OF NON-OPERATING INCOME

POLÍTICA DE DIVIDENDOS NA INDÚSTRIA DE CARNES BRASILEIRA: INFLUÊNCIA DO RESULTADO NÃO OPERACIONAL

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Resumo

O objetivo deste estudo é demonstrar que empresas do setor de proteína animal possuem lucro não operacional diferente dos demais setores e que o lucro não operacional está correlacionado com o pagamento de dividendos (payout). Metodologia: foram coletados dados de empresas de capital abertos listadas na B3 entre os anos de 2017 e 2020, sendo usadas ferramentas estatísticas de teste t de Student e de mínimos quadrados ordinários. Resultados: não foram encontradas evidências que mostrassem diferenças entre o setor de proteína animal e demais setores quanto ao lucro não operacional e nem a foi encontrada a associação entre distribuição de dividendos e lucro não operacional. A análise intrasetorial, entretanto, mostrou que empresas do setor de proteína animal com alta proporção de lucro não operacional sobre lucro bruto implicaram em queda no preço das ações. Contribuições teóricas/metodológicas: o uso das duas técnicas estatísticas mostraram-se complementares na análise dos dados.

Palavras-chave: dividendos; indústria da carne; lucro não operacional

Abstract

Objective: the aim of this study is to demonstrate that companies in the animal protein sector have non-operating profit different from other sectors and that non-operating profit is correlated with the payment of dividends (payout). Methodology: data were collected from publicly traded companies listed on B3 between 2017 and 2020, using statistical tools such as Student's t test and ordinary least squares. Results: no evidence was found to show differences between the animal protein sector and other sectors in terms of non-operating profit, nor was an association between dividend distribution and non-operating profit found. The intra-sector analysis, however, showed that companies in the animal protein sector with a high ratio of non-operating profit to gross profit led to a fall in share price. Theoretical /methodological contributions: the use of the two statistical techniques proved to be complementary in the data analysis.

Keywords: *dividends; Meat industry; non operational profit*

INTRODUÇÃO

The agribusiness sector, more specifically meat and meat products, has grown significantly in recent years. According to data from the Brazilian Institute of Geography and Statistics (IBGE, 2015), the growth in the accumulated production of meat and meat products (poultry, beef and pork) grew by about 15% between 2010 and 2014, reaching approximately 24 million tons produced in 2014. Updated data from the Ministry of Agriculture, Livestock and Supply (MAPA, 2022) show that the second largest agribusiness exporting sector was meat. With US\$ 1.61 billion in January 2022 (39.8%), it reached a record value for these months in the entire historical series. There was an increase in the volume exported (21.1%) and in average export prices (15.5%). According to MAPA, the main meat exported by

Brazil was beef, with US\$ 801.06 million in foreign sales (46.2%), a record for the months of January. Both the volume exported and the average export price grew, 25.7% and 16.3%, respectively. Chicken meat exports were also records, with the value exported reaching US\$ 604.89 million (42.8%). The volume exported was also a record (20.2%), in addition to having had high average export prices (18.8%). Unlike beef and chicken, foreign sales of pork grew exclusively due to the expansion of exported volume, which increased 18.5%, from 62 thousand tons (January/2021) to 73 thousand tons (January/2021). 2022). On the other hand, the average export price fell by 7.4%. The reduction in Chinese demand for imported pork has affected international prices since the second half of 2021, due to the recovery of the Chinese pig herd. Even so, China continued to be the main importer of Brazilian fresh pork, with a 44% share of exported volumes, which represented US\$ 62.85 million (a 20.4% decrease).

With regard to the meat and meat sector, Brazil has gone through a major transformation process. As Oliveira (2014) highlights, it is clear that the advances presented both in animal production and in the development of the national industry have taken Brazil to a prominent level in the world economy as one of the largest world exporters of meat. Even with the economic crisis that hit several countries in 2008 and barriers imposed by the government (such as the high tax burden and health issues that force many slaughterhouses to act illegally), Brazil was strengthened by its internal solidity, heated aggregate demand and solid financial system, managing to remain with some security in the international market (OLIVEIRA, 2014). With regard to exports of meat and meat products, especially those of bovine origin, Brazil continues to be one of the main exporters (ABDI, 2011).

In recent years, changes can be observed in the industry, with a greater degree of professionalization of market agents, leading companies to go public, internationalization, diversification of activities and products, mainly with the aggregation of value and creation of brands, as a consequence of a concentration of large players that are price makers (BRAGAGNOLO, 2020).

The dividend is a portion of net income that is distributed to investors as a form of remuneration for their capital. The amount to be paid and the form of distribution are complex decisions that have generated numerous researches (VANCIN, 2014). The optimal dividend policy is one in which the balance between current dividends and future growth is reached, maximizing the stock price (LEMES-JÚNIOR et al., 2002). For a long time, dividends were not relevant to investors in Brazil, mainly due to the high inflation rates prevailing in the Brazilian economy and the absence of monetary correction on dividends (PROCIANOY, 2006). With the stability of prices in the economy after 1996, dividends became more valued, gaining prominence in companies' portfolios (ASSAF NETO et al., 2007).

Brazil's dividend policy differs from that established in developed countries such as the United States and England. Mandatory configurations in the payment of dividends, aspects of accounting for operations and taxation on this type of income are examples of comparative differences (BRUGNI et al. 2011). Brazilian regulators, in order to improve legal protection for minority shareholders, established a mandatory minimum dividend through Law 6,404/76.

Despite this, according to Mota (2007), the conclusions of international studies cannot be applied directly to the Brazilian market, since

there are a number of particularities, among which the following stand out: (a) existence of a mandatory minimum dividend; (b) possibility of paying interest on equity; (c) large concentration of ownership; and (d) dividends, from a fiscal point of view, are more advantageous than share buybacks. Also according to the author, the existence of cash flow, the stability of these flows, the non-commitment to indebtedness, the concern with corporate governance and the existence of few investment opportunities are factors that lead companies to distribute a greater part of their profits in the form of dividends and/or interest on equity.

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

The aim of this work is to seek a correlation between non-operating profits and the dividend distribution policy by companies in the Brazilian education 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 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 shown and discussed in section 4, where the hypotheses will be tested. The work ends in section 5, where the conclusions are resumed.

2 THEORETICAL REFERENCE

According to data from CEPEA (2020), in the Agribusiness Export Indexes report for the third quarter of 2019, the volume exported grew by 6%, when compared to 2018, due to the expansion of exports of meat, corn, cotton, ethanol and coffee. Foreign sales recorded a significant increase of 354% in the first nine months of 2019 compared to the volume shipped in 2000. The study points out, however, that this increase in the volume shipped was not enough to keep the sector's foreign sales at the same levels observed in 2018. There was a drop of 4% and the sector's revenue totaled US\$ 72 billion in this period. Invoicing in national currency registered an even more intense decline, of 15%, which is due to the effects of both the retraction of prices in dollars and the appreciation of the real. The dollar is fundamental for the profitability of exports; however, its appreciation can lead to significant increases in production costs and harm the profitability of the sector (BRAGAGNOLO, 2020).

In recent years, changes can be observed in the industry, with a greater degree of professionalization of market agents, leading companies to go public, internationalization, diversification of activities and products, mainly with the aggregation of value and creation of brands, as a consequence of a concentration of large players that are price makers (BRAGAGNOLO, 2020). Economic variables are also crucial for the formation of market prices for beef, since beef has a high income elasticity of demand, therefore its demand is sensitive to price increases and income reductions, it also has as competitors, proteins which are perfect substitutes, and historically cheaper, such as poultry and pork meat (BRAGAGNOLO, 2020).

The factors that influence demand are related to family income, there is seasonality at the end and beginning of the month due to the receipt of salaries, increasing the purchase of beef when the population is more capitalized, holidays and end-of-year parties also contribute for punctual elevations in the arroba of the fat ox. The supply is influenced by the price of replacement cattle, directly related to the female slaughter cycle, costs of inputs for the intensive system and the country's basic interest rate, which if it is high, ranchers are not encouraged to withdraw funds from financial investments to invest in real assets with greater risks, on the other hand, in periods of low interest, ranchers are encouraged to increase investments in real assets, due to the unattractive opportunity cost and a greater search for return associated with risk (BRAGAGNOLO, 2020).

In global terms, the most produced and consumed source of animal protein (except milk) is pork, with 29.86% of the total. It is followed by chicken meat, with 22.97%, chicken eggs (18.5%) and beef (17.56%). These four sources correspond to 88.44% of the animal protein consumed worldwide (SANTOS FILHO et al, 2011). Brazil presents a different dynamic for the consumption of animal protein (except milk). Unlike the rest of the world, animal protein production is dominated by chicken and beef with, respectively, 41.31% and 36.49% of the national total, while pork and chicken eggs correspond to 12.19% and 7.38%, respectively. These four sources correspond to 97.37% of the total animal protein produced in the country (SANTOS FILHO et al., 2011). From the point of view of the organization of production, over the years, first the poultry industry and later the swine industry has undergone significant changes. The verticalization of chains is a reality and the

predominant integration model (KRABBE et al., 2013).

The importance of the meat and derivatives sector can also be verified by observing its importance to the Brazilian capital market. Companies in the meat and meat products segment have had a special participation in the consumption index (ICON) and in the composition of the Ibovespa (IBOV) of the São Paulo Stock, Commodities and Futures Exchange (BM&FBOVESPA, 2015; BM&FBOVESPA, 2022). According to Folleto et al. (2015), the significant participation in these indexes (28.15% of the composition of the ICON and 6.04% of the IBOV), which are composed of companies in the cyclical and non-cyclical consumption sectors (ICON) and companies with the highest number of trading on the stock exchange (IBOV), allows us to observe the important participation of the meat and derivatives sector in the negotiations of companies in the consumer sectors and in the average quotation of the assets with the highest volume traded and representativeness of the stock market. More recent data (BM&FBOVESPA, 2022) show a decline in the weight of these companies in the index, with 13% of the ICON composition and 3.3% of the IBOV, but still with relevant weight.

Farias et al (2015) applied the asset pricing model known in the financial economics literature as the Capital Asset Pricing Model, using the balance sheets of selected companies JBS and BRF - Brasil Foods as tools. The period related was from the year 2009 to 2010. The results showed that both companies in the period under study had a beta lower than 1, that is, risk lower than the market risk. This can also be observed from the expected returns. In 2009, the year in which the market showed high growth, the analyzed firms saw expected returns below the market returns. As in 2010, the year in which the market had a drop in

the rate of return, firms showed a decline in return in a smaller proportion than the market, obtaining expected returns higher than the market.

Sousa (2015) evaluated whether the performance of food companies' shares can be explained by the behavior of macroeconomic variables such as GDP, Selic interest rate, exchange rate, trade balance, unemployment rate, price index and consumer confidence index. . Using Johansen's tests for the period from 2004 to 2014, the results allow us to infer that the variable GDP and trade balance, represented by the coverage rate, have significant cointegrations in the behavior of stock prices and that some stocks such as the company Minerva have strong cointegrations with all the variables studied, it is then concluded that the macroeconomic variables have significant importance in the performance of stocks (SOUSA, 2015). In the estimation of the first cointegration vector, by the Johansen method, it was observed that the estimated variables, referring, GDP and coverage rate were statistically significant, having cointegrations of 89% and 84%, respectively with the group of actions selected, due to the variation in GDP is influenced by private consumption, that is, household spending for the purchase of goods or services. Therefore, the more people consume, the more GDP tends to grow. Likewise, a drop in consumption can limit growth, or even lead to a drop in GDP, depending on the behavior of other factors also influencing the share price. The trade balance represented by the coverage rate also influences the share price, since when exporting products abroad, foreign exchange enters the country. Sousa (2015) also explains that when importing products from abroad, foreign exchange leaves the country and this impacts the balance sheet of companies. As for the exchange rate variable, the group of meats and derivatives and sugar does not have a strong co-integration due to the vast majority of its commodities and

raw materials are acquired within the national territory.

Gaspar and Garcia (2018) when applying fundamental analysis via discounted cash flow on Minerva Foods shares, brought the projected value of the company's cash flow to present value, based on a discount rate. It found that the fair value of shares issued by Minerva Foods, and as previously presented, after an analysis of both the Company and its sector of activity, the fair value of R\$ 12.42 per share was found. The author concluded that the Company's shares had a high potential for appreciation, which makes them an extremely interesting asset to buy.

Gouvêa (2013) also used the discounted cash flow method approach for the company JBS, the most used method to determine the value of industrial companies, where the valuation pointed to a price of R\$ 5.64 per share of the company which is not consistent with the market price of R\$ 6.90 on 05/24/13. The share is, in this scenario of analysis, overvalued for the assumptions used, and it should be noted that the values obtained are significantly affected by the assumption of long-term growth. Bragagnolo (2020) also evaluated through discounted cash flow companies in the meat industry in 2019, showing that the shares of Minerva (BEEF3) and Marfrig (MRGF3) were underpriced, while the shares of JBS (JBSS3) were overpriced.

In recent years there has been a significant growth in corporate Mergers and Acquisitions (M&A) strategies in Brazil (KPMG, 2012). During this period, the JBS Friboi case stands out, which acquired Frigorífico Bertin, becoming the world leader in the animal protein processing sector. The purpose of this study is to identify the variables that determine the post M&A performance of the aforementioned case (FORTE, 2015). The post-combination results revealed that the variables that represent operational efficiency

and financial situation were the ones that best explained the post-merger performance, therefore, capable of changing the profitability behavior of acquiring companies that opt for strategies of this type.

Evidence showed that the variables that represent operational efficiency and financial situation were the determinants of JBS Friboi's post M&A performance. The results show a significant and positive relationship between the variables Net Margin, Current Liquidity and EBITDA/Net Sales Revenue, ROA and ROE, so that these variables are capable of changing the behavior of JBS Friboi's profitability. However, when analyzing the period before and after the merger, the average indicators show that there was no improvement in the performance of JBS Friboi. This can be attributed to the short period of time analyzed, as a strategy of this type requires time for synergy gains and an increase in the company's operational efficiency (RODRIGUES et al, 2015).

The average results of the indicators signaled that there was a decrease in the profitability of JBS Friboi after the M&A, which is in line with theoretical precepts that argue that in the short term the acquiring companies present substantially lower gains than the acquired companies. As for the financial situation indicators, the post-combination results were constant for current liquidity and a decrease for the capital structure and debt profile, different evidence compared to the findings of Adu-Darko and Bruce-Twum (2014) and Single, Saini and Sharma (2012).

Knowing and determining a company's gross profit is the first step towards reaching another important value in evaluating the profitability of services or products offered: operating profit. This is one of the indicators that are part of the balance sheet, an accounting report that provides

a summary of the results achieved over a period (SUNO, 2021). It is an important document to be analyzed by potential investors. Companies listed on the stock exchange, for example, publish the balance sheet 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 headings called Operating Income and Non-Operating Results (PADOBEZE; BENEDICTO, 2003). The concept of operability in the income statement is shown in two headings: 1. the concept of operating profit, which presents the income resulting from the company's normal sales and service activities, minus the costs and expenses necessary to obtain these you prescribe; 2. non-operating results, which show the income from costs arising from activities not contained in the previous item, which are usually activities of deactivation of permanent assets, represented in the income statement by the revenue from the sale of permanent items and expenses of permanent asset write-offs.

Operating profit is the profit derived exclusively from the operation of the company and in the financial market. It is also known as EBIT. To determine the company's operating profit, it is sufficient to deduct operating, commercial and administrative expenses (INVESTIDORSARDINHA, 2021). It is a form of profit measurement whose main objective is to establish a relationship between a company's revenue with 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 the face of several 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),

when studying the evaluation reports of public offerings of shares published by the Securities and Exchange 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 calculating 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 in relation to non-operating assets is reflected in practice.

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

Operating profit is profit derived solely from the operation of a business. Operating profit cannot be confused with gross profit (RENOVAINVEST, 2021). In the latter, only variable expenses are discounted – which are those that 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, you need to calculate the gross profit and deduct operating expenses.

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

$$\text{Operating Profit} = \text{Gross Profit} - \text{Operating Expenses} + \text{Operating Revenue}$$

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

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

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).

Hahn et al (2010) emphasize that each company has different objectives and goals, the distribution of dividends varies according to the interests of those in charge and also the economic situation. Bartram et al (2012) emphasize that shareholders prefer the company to pay a greater fraction of its earnings since a lower retention rate reduces opportunities for managers to waste money on unprofitable projects or in other ways that are not advantageous to shareholders.

The dividends to be received by the shareholder depend on a legal system and rigorous practices of Corporate Governance, which are created to minimize the conflicts of interest that

predominate in the relationship established between the company and the stakeholders. Such mechanisms tend to encourage a dividend policy that tends to reward investors with higher percentages for investing their capital in the company.

In recent years, the interest of academic and business circles on the relationship between corporate governance and the policy of distributing profits to shareholders has been growing. La Porta et al (2000b) report that companies located in countries with greater legal protection for minority shareholders (based on common law) pay higher dividends when compared to countries where legal protections are less strict (civil law). Carvalho da Silva (2002) states that Brazil belongs to the tradition of French law (civil law), which offers the least legal protection to investors. Therefore, a high concentration of capital in companies is to be expected, especially with regard to voting capital.

Johnson and Shleifer (2001) consider the payment of a higher dividend payout a means of establishing a reputation for treating minority shareholders appropriately. Bohren and Odegaard (2001) found that the control and ownership structure influences the economic performance of Norwegian companies. A greater concentration of control and the use of non-voting shares are related to a loss of market value. In addition, the authors found evidence that firms where the majority shareholder has a large stake in the company tend to distribute higher dividends.

One of the first Brazilian studies relating dividend policy and agency conflict was carried out by Procianny (1995), who analyzed agency conflicts between controlling and minority shareholders in companies traded on the São Paulo Stock Exchange, through the behavior of dividend policy after the tax changes that took place between

1988-1989. The payment of dividends, in addition to being related to the control and ownership structure, works as a governance mechanism. In this way, companies that adopt corporate governance practices usually have good remuneration policies for their shareholders, paying high percentages of dividends annually.

Farinha (2002) analyzed the dividend distribution policy in the United Kingdom and found that there is a relationship between the payout and the control and ownership structure, since the payment of dividends contributes to the reduction of agency conflicts in the firm, consistent with Easterbrook (1984) and Jensen (1986). Farinha (2002) found a positive relationship between payout and ownership concentration above 30%. Recent studies by Fluck (1998) and Myers (2000) present models of dividend payment related to the agency theory, concluding that the company's management pays dividends in order to avoid monitoring actions by the shareholders. In addition, Jensen (1986) considers the payment of dividends as a way to allocate the company's cash, avoiding investment in projects that do not maximize value to the company.

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

H_{0a}: There is no difference in non-operating profits between companies in the meat industry and other sectors.

H_{1a}: there is a difference in non-operating profits between companies in the meat industry and other sectors.

Also in view of the above, regarding companies in the meat industry, two hypotheses were formulated:

H_{0b}: Non-operating profits are not correlated with the payout of companies in the meat industry.

H_{1b}: Non-operating profits are related to the payout of companies in the meat industry.

3 METHODOLOGY

Public 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. Data were also extracted from this site that served to calculate the two major variables of the study: payout and non-operating gross profit. The payout was calculated from the dividends paid in the current year divided by the net earnings per share. Gross non-operating profit was obtained by subtracting gross operating profit from gross profit. In addition, data on the variation of stock prices 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 added up and recorded as a yield in that respective year.

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

Data analysis was performed using Student's t test and the ordinary least squares test using the Eviews software. For the meat industry, a dummy variable was used (value 1, when belonging to the sector). However, given the peculiarity of the financial sector, whose statements do not differentiate operating income, 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

Intersectoral Analysis

Table 1 shows, by means of mean and standard error, the proportion between non-operating profit and gross profit (LNO/LB), payout, yield and annual variation in the share price of publicly traded companies listed on B3, excluding the meat industry. The total number of companies is 84, making a total of 314 companies-year. From this sample, as shown in table 1, the financial sector was removed, which has the peculiarity of LNO/LB always equal to zero. Thus, in this new configuration, 75 companies remained, making a total of 278 company-years. Finally, in table 1, there are companies in the financial sector, totaling 9 companies and 36 company-years. As for the meat industry, data were collected from 5 companies in the meat industry during the period covered, leading to a total of 20 companies/year. Table 4 shows the average values of the ratio of

gross non-operating profit/gross profit, payout, yield and price variation with their respective standard error.

Table 2 shows the analysis of the variables between the meat industry and the others. LNO/LB, payout and share price variation did not show statistically significant differences. There was a statistically significant difference in yield, which was lower in the meat industry. Such results were maintained even with the exclusion of the financial sector.

Ordinary Least Squares Analysis

Table 3 shows the LNO/LB Ordinary Least Squares (OLS) regression against the meat industry. The results show that the non-operating profit of the meat industry was not statistically significant in relation to the other sectors, thus coinciding with the results of the t test. When using the dummy for the financial sector, whose LNO/LB is zero, the finding that the meat industry has a non-

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

	Publicly traded companies not belonging to the Meat industry	Publicly traded companies not belonging to the Meat industry (excluding the financial sector)	Publicly held companies belonging to the financial sector	Companies in the Meat industry
NO profit/Gross profit	0.37 \pm 0.06	0.4 \pm 0.06	0 \pm 0	0.52 \pm 0.06
<i>Payout</i>	0.48 \pm 0.06	0.47 \pm 0.07	0.58 \pm 0.1	0.23 \pm 0.22
<i>yield</i>	0.03 \pm 0.002	0.03 \pm 0.002	0.05 \pm 0.006	0.003 \pm 0.001
Δ price	0.34 \pm 0.04	0.37 \pm 0.04	0.12 \pm 0.05	0.23 \pm 0.13

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

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

	Companies in the Meat industry versus other sectors	Companies in the Meat industry versus other sectors (excluding the financial sector)
NO profit/Gross profit	0.48	0.6
<i>Payout</i>	0.38	0.42
<i>yield</i>	< 0.001*	< 0.001*
Δ price	0.51	0.43

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

Table 3 - Analysis through OLS

Dependent variable	Independent variable (coefficient)				
	C	MEAT	LNO/LB	FIN	PAYOUT
LNO/LB	(0.37)***	(0.15)			
LNO/LB	(0.4)***	(0.12)		(-0.4)**	
PAYOUT	(0.48)***	(-0.24)	(-0.02)		
PAYOUT	(0.47)***	(-0.23)	(-0.01)	(0.11)	
DPRICE	(0.27)***	(-0.08)	(0.06)*		
DPRICE	(0.29)***	(-0.09)	(0.06)	(-0.18)	(0.01)
YIELD	(0.035)***	(-0.03)***	(-0.002)		
YIELD	(0.03)***	(-0.03)***	(-0.002)	(0.02)	

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

operating profit over gross profit ratio similar to the other non-financial sectors was maintained.

Using the payout as a dependent variable, both for the meat industry, LNO/LB and the financial sector, except for the coefficients, there was no significant relationship between the variables, similar to that shown in the t test. When the stock price variation was used as a dependent variable, both for the meat industry, LNO/LB and the financial sector, except for the coefficients, there was only a significant relationship in the LNO/LB, with a positive correlation that disappeared when the financial sector.

When the yield was a dependent variable, compared to non-operating income and the financial sector, the results are basically similar to those performed with the t test, which showed that the yield of the meat industry was lower than that of the other sectors and that of the financial sector was higher than that of the other sectors. However, there are no significant coefficients for LNO/LB, despite the Durbin-Watson test, established at 1.27 for both, which shows autocorrelation. In this case, either a panel analysis should be carried out, or, as in this case, the results should be viewed with reservations.

Resuming, the intersectoral analysis shows that the meat industry, both through general statistics and econometric instruments, show that the sector's yield is lower than the others. As for payout, share appreciation and proportion of non-operating profit over gross profit, the sector is in line with other companies in other sectors. Thus, the null hypothesis H_{0A} is rejected, despite having found a positive correlation between LNO/LB and price, which disappeared when the financial sector was separated.

The lower yield in the meat industry can be explained in two ways: first, if yield means the proportion of the dividend distributed over the share price, it could be because of a low dividend distributed. If the payout does not show a statistical difference between the meat industry and the other sectors, then the dividend does not answer the question, which refers to the second: the low yield is due to a higher share price. This possibility is supported by the works of Gouvêa (2013) and Bragagnolo (2020), who found, through the discounted cash flow, the JBS share above the price. However, the works by Gouvêa and Garcia (2018) when evaluating the company Minerva and by Bragagnolo (2020), when evaluating the companies Minerva and Marfrig, both works through discounted cash flow, that

Table 4 - Analysis of Companies in the Meat industry using Student's t test

	Percentile > 75	Percentile < 25	p value
	Mean ±standard error	Mean ±standard error	
NO profit/Gross profit	0.86±0.05	0.07±0.06	0.096*
Payout	0.94±0.93	0±0	0.35
yield	0.001±0.001	0±0	0.35
Δ price	-0.25±0.12	0.41±0.33	< 0.001*

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

Table 5 - Analysis of the Meat industry through OLS

dependent variable	Independent variable (coefficient)		
	C	NO25	NO75
PAYOUT	(-0.001)	(0.001)	(0.93)
YIELD	(0.005)*	(-0.005)	(-0.004)
DPRICE	(0.4)*	(0.003)	(-0.66)*

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; DPRICE: annual variation of the share price. * = p < 0.1; ** = p < 0.05; *** = p < 0.01.

they were underpriced. It is evident that the results of this study are shown as a pool of companies, without any type of weighting in terms of size or profitability, instead of the case report of the aforementioned works.

Intrasectoral Analysis of the Meat industry

The analysis of the meat industry, as described above in the methodology, defined two groups: the first, with LNO/LB values above the 75th percentile (set at 0.73) and the second group, with percentile below 25 (fixed at 0.43). Table 4 shows the sample arrangement and Student's t test results. Through the test, it was found, in a statistically significant way, that LNO/LB is lower in the group below the 25th percentile. On the other hand, stock prices show higher appreciation where LNO/LB is higher, while payout and yield had no statistically significant differences.

Ordinary Least Squares Analysis of the Meat industry

Table 5 shows the relationship between yield and the meat industry. Despite the low value of the Durbin-Watson test, discussed above, the results did not show differences between the groups, which is in agreement with the Student's t test. The results of the stock price variation of the meat industry showed that the group with the highest LNO/LB had greater price devaluation, which is also in agreement with Student's t test.

Thus, the intrasectoral analysis, both through general statistics and through ordinary least squares, revealed that in companies with a high proportion of non-operating profit over gross profit (above the 75th percentile), the value of shares fell, while in cases below the 75th percentile, there was an appreciation of the assets. As for yield and payout, there were no differences, which shows that the fall in the value of shares in the sector could be explained not only by a high non-operating profit, but also by a low operating profit, as reported by Rodrigues et al. (2015), especially after mergers and

acquisitions. These results, therefore, associated with the results of the intersectoral analysis between payout and non-operating income, accept the nullity of the H_{0B} hypothesis.

5 CONCLUSIONS

The Brazilian meat industry has gained increasing importance in recent years, mainly due to its contribution to maintaining a positive balance of payments, in addition to its high employability and food production. This study worked with two aspects that have not been demonstrated within the meat industry : dividend policy and non-operating profit. More than that, it tried to look for correlations between both, which was possible both in the inter and inter-sectoral analysis, but which did not show any correlation between them.

As for the methodology used, both a basic statistical analysis and the use of econometric elements were chosen; as for the latter, given the short time frame covered, it was not possible to apply econometric models such as ARIMA or Autocorrelation Vector. Despite the distinction between the methods and the limitations of the sample, the results complemented each other, making the data analysis more robust.

The cross-sector analysis proved to be useful when comparing the meat industry with publicly traded companies, demonstrating that the yield is lower than in other sectors. The intra-sectoral analysis, however, when strictly approaching companies in the sector, was not able to associate the payment of dividends with the proportion of non-operating profit in relation to gross profit, but with the fall in the value of assets in companies with high ratio of non-operating profit to gross profit.

Research perspectives within this specific line include the study of other sectors, encompassing a greater amount of time to apply other econometric models, in addition to applying other elements such as the price-to-earnings ratio.

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