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Relationship between Earnings Response Coefficient and Free Cash Flow and State Ownership: Evidence in Brazil

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Abstract

Objective: This study analyzes the impact of free cash flow and state ownership on the Earnings Response Coefficient (ERC) in the Brazilian capital market.

Method: A sample of 210 companies from 2011 to 2019 was obtained from the Economatica database, with the Earnings Response Coefficient being the dependent variable, free cash flow and state control being the main independent variables, in addition to control variables, which were analyzed using panel data regression with the Pooled Ordinary Least Squares (POLS) method.

Results: The results show that free cash flow accounting information has relevant marginal implications on the earning response coefficient and state ownership. The interaction between free cash flow and state ownership reinforces that increases in unexpected earnings are due to the presence of these two elements.

Contributions: The findings contribute to the literature on emerging markets by reporting that free cash flow (accounting data) and state monitoring (governance aspect) are informative items for the earnings response coefficient. Consequently, this can improve investors' financial analysis and company evaluation process and make managers pay attention to the effects of the decision to maintain cash surpluses. Therefore, it allows these stakeholders to understand that the existence of available resources (free cash flow) in a business indicates prospects of future earnings.

Keywords: Free cash flow; Earnings Response Coefficient (ERC); State ownership; Stock price informativeness.

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1. Introduction

The Earnings Response Coefficient (ERC) measures the relationship between earnings and stock return (Pimentel, 2015). ERC measures abnormal market return against unexpected prospective earnings components, i.e., financial and non-financial aspects of companies that may result in future earnings (Collins *et al*., 1994; Lundholm & Myers, 2002). For example, free cash flow (FCF), a sustainable source of cash when a company needs cash outflows to repay its direct stakeholders (shareholders, creditors) (Xie *et al*., 2023), might lead investors to review their expectations about a company, due to potential future dividends, leading to changes in share prices (Collins & Kothari, 1989). Thus, the opportunity for future earnings positively influences ERC (Collins & Kothari, 1989; Collins *et al*., 1994) when current stock returns reflect prospective information (abnormal returns) on future earnings.

In the shareholders' view, FCF generated during a year is a sufficient condition for the appropriation of dividends (Faulkender & Wang, 2006). FCF directed to profitable investment projects rather than issuing debt or new shares (Chang *et al*., 2014) indicates a company's likely financial ability to generate cash for its shareholders. A company can invest more when FCF is high, and the effective use or investment of assets increases the value of a company. In contrast, the ineffective application of assets reduces it (Yeo, 2018). Thus, the application of surplus cash, an asset that managers may use freely, can affect profitability (Chen *et al*., 2016), the value of companies (Jensen, 1986; Yeo, 2018), and, subsequently, ERC.

However, from a manager's perspective, FCF can also be used to reduce debt, finance capital, or be retained as preventive savings (Chang *et al*., 2014; Yeo, 2018). In this context, free cash flow consists of excess cash needed to finance projects with positive net values when discounted at the cost of capital (Jensen, 1986). As a result, companies with substantial free cash flow tend to experience conflicts of interest between shareholders and managers, as managers may decide to use it in projects that are beneficial from a management point of view but not from the business owners' point of view (Chen *et al*., 2016; Zhang *et al*., 2016). According to Agency Theory, managers tend to make decisions that favor their personal interests, not considering the perspective of the company's stakeholders (Yeo, 2018).

Jensen (1986) considers that companies with few corporate governance mechanisms invest excess cash inefficiently. Institutional shareholders act as monitoring mechanisms of managers' behaviors, such as when using free cash in inefficient investments. The reason is that institutional shareholders are more informed than the average investor and can sell their shares if dissatisfied with the company's performance or try to influence its management (Karpavičius & Yu, 2017; Yeo, 2018).

The government's direct participation as a majority institutional shareholder creates potential conflicts and uncertainty for minority investors, considering the support of projects that require investment. On the other hand, it may provide many benefits, such as access to financing and support in times of financial difficulties (Loch *et al*., 2020). However, state-owned enterprises (SOEs) have a stronger market position. They are more strongly supervised by society than their counterparts (Jiang *et al*., 2014), which results in higher free cash flow yield (Xie *et al*., 2023). Such a situation suggests that if the current free cash flow of government-controlled companies provides predictable information about future earnings to shareholders, it will be a positive function of abnormal earnings return.

Projecting the potential use of net cash flows provides managers and investors with valuable data to estimate a company's value and its investment projects (Yaari *et al*., 2016), as free cash flow is an item that executives cannot easily smooth out, as it comes from the operations' "gain," rather than "calculated" by accountants (Xie *et al*., 2023). Previous research has investigated whether free cash flow contributes to excess synchronicity of stock returns (Cheung & Jiang, 2016) and dividend distribution (Kallapur, 1994) and whether there is a productivity distinction from free cash flow in state-owned enterprises. As a determinant of the earnings response coefficient, there are assessments of the product's market power (Lee, 2018), the role of risk (Pimentel, 2015), the capital structure or leverage (Dhaliwal *et al*., 1991), beta risk, growth opportunity, size, and persistence of earning (Collins & Kothari, 1989).

Contrary to previous studies, this study seeks to understand the informative nature of current returns on unexpected future earnings by considering free cash flow accounting data, which is not a direct measure of earnings. Still, its effective application may result in future earnings. Faulkender and Wang (2006) highlight that the value of additional money, i.e., the amount of free cash flow itself, is seldom discussed. The association between free cash flow and abnormal returns, considering state-owned and non-state-owned companies, is also addressed. Loch *et al.* (2020) warn that the effects of conflicts between principal (government as majority shareholder) and principal (majority shareholder) when the company is state-owned have been neglected. Additionally, the free cash flow performance of state-owned enterprises compared to non-state-owned ones remains an empirical question that demands attention (Xie *et al*., 2023). Therefore, it remains to be seen whether government participation is beneficial or detrimental to investors' reaction to prospective earnings in the face of free cash flow. Thus, the analysis here focuses on the impact of free cash flow and state ownership on the Earnings Response Coefficient in the Brazilian capital market.

This study's relevance lies in the importance of examining the behavior of a financial item (free cash flow) that can affect a market-level component (earnings response coefficient). Furthermore, the Brazilian market is attractive to investigate because it presents a significant separation between voting and cash flow rights due to dual-class shares and the concentration of ownership and control (Pimentel, 2015).

This study's results are helpful for investors, as they can support the growth of companies through the incorporation of information (FCF) about future earnings, as one realizes that it is possible to generate consistent and growing earnings with free cash flow and state monitoring. Consequently, managers also benefit, as they will assimilate free cash flow and state ownership as indicators of investor confidence in the predictability of future earnings.

From a theoretical perspective, contribution is added to the studies by Cheung and Jiang (2016) and Kallapur (1994), which did not present a consensus on the relevance of free cash flow in stock returns, by Loch *et al.* (2020) and Yeo (2018), which suggest more debates on state monitoring, to monitor managers' use of assets, by Faulkender and Wang (2006), which highlighted the need to discuss the value of free cash flow, and by Xie *et al.* (2023), which point out the need for more studies on the performance of free cash flow in state-owned versus non-state-owned companies.

Furthermore, it helps to show the predictability of future earnings based on free cash flow, is a valuable accounting disclosure for investors, and is a governance factor – a state entity. Therefore, the Free Cash Flow Theory advances, as this study analyzes prospective earnings in the face of financial/non-financial variables and the Agency Theory by evaluating the reaction of shareholders to free cash flow as a financial indicator of future earnings, given the fact that managers can allocate it freely, even in state-owned companies that are subject to greater social control.

2. Hypotheses Development

Kothari and Sloan (1992) emphasize that stock prices reflect market participants' expectations about future earnings. This is largely because the stock market anticipates future earnings through the use of accounting and non-accounting information sources. Note that company fundamentals, which determine the uncertainty about the realization of expected future cash flows, may account for a significant portion of the association between current returns and future earnings, even before managers exercise voluntary discretion over financial reporting and disclosures (Lee, 2018).

The value (to the equity holder) of additional cash varies considerably, depending on the probability of its destination: i) retaining excess cash, rather than distributing it, would ensure not incurring in transaction costs associated with raising cash, but in costs to maintain it, suggesting increased capital distribution through dividend payments or share buybacks; ii) a high debt holder company with excess cash paying its debts implies a lower probability of bankruptcy and high probability of investors not receiving dividends; and iii) a company with a low level of cash reserves is highly likely of needing external capital markets to finance its liabilities and short-term investments, which involves transaction costs (Faulkender & Wang, 2006).

Having cash reserve also serves the managers' interests, as it reduces the pressure to create value in a company, considering that such resources can be used in projects, help to preserve the company's financial stability, and, consequently, maintain their jobs (Mikkelson & Partch, 2003). Another possibility for administrators to retain cash as financial assets is to protect themselves from difficulties in raising external capital (Richardson, 2006). According to Agency Theory, managers tend to make decisions that favor their personal interests rather than from the perspective of serving the company's stakeholders (Yeo, 2018).

In summary, from a shareholder's perspective, free cash balance means that the cost of internal financing is lower than external financing (Mikkelson & Partch, 2003); there is the possibility of capital distribution (Faulkender & Wang, 2006), and the business is doing well and can pay its debts to third parties (Richardson, 2006). From the manager's perspective, the business prospects are promising but do not necessarily serve the shareholders' interests (Richardson, 2006; Yeo, 2018). Therefore, free cash flow information allows users of accounting information to assess an organization's performance and potential risks.

Generally, the information attracting investors is related to earnings and share appreciation (price), as both indicate a company's performance (Lee, 2018). If a company stops paying dividends, the stock price will fall, while not timely paying interest and principal indicates bankruptcy (Karpavičius & Yu, 2017). Therefore, depending on a company's characteristics, free cash flow indicates a gain for investors; hence, they respond to these probabilities. Incorporating the market forecast of future earnings into the return-earnings relationship in the financial accounting literature has been measured using the Earnings Response Coefficient (ERC) (Kothari & Sloan, 1992; Lee, 2018).

Investors immediately incorporate forward-looking information with low uncertainty about future cash flows into their stock trading activities. However, if such information is highly uncertain, they will likely wait for additional supporting information, delaying incorporating the forward-looking information into their stock trades (Lee, 2018). Thus, the market capitalization of future earnings in stock prices depends on the speed at which uncertainty regarding future cash flows is resolved.

A company's value contains several components: real estate, equipment, brand, and money. Of these components, only money can be used freely by managers, specifically Free Cash Flow (FCF), which, depending on its use, can increase or decrease a company's value (McCabe & Yook, 1997). Its effective use or investment increases the value of a company, while ineffective use reduces it (Brush *et al.*, 2000). FCF allows the manager to use available funds for various activities, which may or may not contribute to increasing a company's value (Jensen, 1986).

Jensen and Meckling (1976) show that paying interest and dividends reduces the cash flow accessible to managers, preventing them from investing excess cash in low-return projects or unprofitable investments, serving their interests at the owners' expense. These findings became known as the Free Cash Flow Theory, which seeks to mitigate shareholder losses or motivate managers to pay resources in dividends instead of investing them below the cost of capital or wasting them into organizational inefficiencies. Therefore, dividends can be considered an effective instrument to control the agency problem associated with free cash flow.

Faulkender and Wang (2006) examined the variation in excess stock returns over the fiscal year. They found that the marginal value of money decreases with higher cash holdings, greater leverage, better access to capital markets, and firms opting for distributing cash through dividends rather than buybacks. Yeo (2018) identified that FCF is a determinant of investment and dividends in the maritime transport sector; so higher FCF leads companies to increase investment and reduce dividends. Mikkelson and Partch (2003) observed that companies with high cash flow grew faster, assumed higher levels of investment, and had higher market value ratios than book value ratios, suggesting that excess cash supports growth and reduces the use of external financing.

In short, the central idea is that ERC is an inherent property of financial reports in matters of credibility/reputation (Collins & Kothari, 1989; Lee, 2018), and the sensitivity of stock prices to new information depends, in particular, on the history of reports and, more specifically, on book value evolution (Kothari & Sloan, 1992). In other words, a company's characteristics that show earnings predictability. Companies with free cash flow are more likely to return money to shareholders (Faulkender & Wang, 2006). Therefore, it seems reasonable to assume that reported free cash flow and historical and accounting information, which denotes investment capacity, creates expectations of dividend distribution or that managers will reinvest excess in the company, increasing shareholder response to unexpected earnings. Since investors see free cash flow as an indicator of the firm's future performance and stock returns (Deng *et al.*, 2013), the higher the FCF, the more intense the investors' reaction to a given amount of unexpected future earnings (ERC). Faulkender and Wang (2006) note that the value that shareholders attribute to the money a company holds is seldom investigated. Thus, the first research hypothesis (H1) is proposed:

H_1: There is a positive relationship between free cash flow and the Earnings Response Coefficient.

Karpavičius and Yu (2017) argue that an increase in cash balances is partly due to institutional monitoring and suggest that companies hold less than ideal cash in the absence than in the presence of institutional ownership. Yeo (2018) also highlights that without effective monitoring, such as that from shareholders or foreign ownership or the government, managers may choose to invest in low or negative net present value projects in which they expect to obtain financial rewards or other gains.

When the State is the controlling shareholder, it usually has multiple and conflicting objectives. On the one hand, it requires controlled companies to be as competitive and efficient as private companies; however, on the other hand, it may impose the need to consider social well-being (Loch *et al.*, 2020). Therefore, SOEs can operate as efficiently as other organizations. Consequently, shareholders' interests appear protected in state-owned companies, as ownership control targets profitable companies. Furthermore, the existence of institutional investors increases the value of the money a company holds, which increases a company's value (Karpavičius & Yu, 2017) and may lead investors to react in advance, as this leads to the probability of unexpected future earnings. Thus, because state ownership intervenes in management seeking earnings, it can be a proxy for the appreciation of current shares against unexpected earnings, which leads to the second research hypothesis (H2):

H_2: companies with the State being the controlling shareholder have a positive relationship with the Earnings Response Coefficient.

Investors generally appreciate such a company's performance and tend to respond positively and increase the value of shares. Karpavičius and Yu (2017) indicate that institutional monitoring, cash reserves, or both impact a company's value. Furthermore, investors' response to cash flow may be a reprimand to managers for the inappropriate use of free cash flow resources. However, this scenario may be different when the State is a controlling shareholder, as it has its own interests, which may differ from those of minority shareholders (Loch *et al.*, 2020; Yeo, 2018), though it can also be an institutional investor that signals benefits because, in times of difficulty, the government facilitates access to credit.

Poncet *et al.* (2010), Sun *et al.* (2002) and Xu and Wang (1999); reported that state ownership affects the performance and financial constraints of companies, as it is effective in monitoring a company's performance. Zhang *et al.* (2016) highlight that companies with state participation tend to invest more and choose better investment opportunities. Chen *et al.* (2016) investigated whether and how free cash flow and corporate governance characteristics (ownership structure, board of directors, and board of supervisors) affect investments at the company level. They found that specific governance structures, such as the concentration of ownership and the size of the supervisory board, mitigate excess investment, and the concentration of state ownership stimulates investment. Xie *et al.* (2023) indicate that state-owned companies generate more substantial free cash flows in the long term than non-state-owned companies due to their greater ability to control expenses. Thus, the understanding is that state ownership monitors the organization, including how free cash flow is managed and more consistently generated, to promote a positive future performance, interfering with the prospect of unexpected returns for shareholders. Hence, the third research hypothesis emerges (H_3):

H_3: companies with the State being the controlling shareholder and with free cash flow have a positive relationship with the Earnings Response Coefficient.

Other aspects highlighted in the literature that affect shareholder return expectations are organizational characteristics. Chang *et al.* (2014) classify financially constrained firms based on entity size, noting that financially constrained (smaller) firms allocated more additional cash flow to liquidity than less constrained (larger) firms, and large firms allocated more additional cash flow for investment than smaller ones. Thus, if free cash flow is not distributed as dividends, it will possibly be applied to investments; a company's value increases if such investments are effective and decreases if they are ineffective (Yeo, 2018). Therefore, as companies accumulate, generate, or have the opportunity to make investments that result in more cash flow, shareholders tend to react as they prospect potential unexpected future earnings from shares, that is, greater ERC.

The analysis of business idiosyncrasies leads us to believe that the greater a company's systematic risk, the lower the present value of a given increase in expected future dividends; a risk-averse investor will assign a smaller value to such a company and his/her response to unexpected earnings will be less intense (Collins & Kothari, 1989). Therefore, high (systematic) risks suggest low ERC and, consequently, a negative relationship between these parameters. Following the same reasoning, if an entity has leverage problems, the investors' expectation of receiving dividends decreases (Dhaliwal *et al.*, 1991), i.e., leverage has a "negative denominator" effect on the association of unexpected earning-return on shares. (ERC). On the other hand, investors might realize that the presence of free cash flow, even if a company has debt, indicates it can pay debts and continue growing in the market (Park & Jang, 2013). However, the absence of cash flows indicates that something may not be right with earnings, and perhaps managers are omitting the company's actual performance (Dichev *et al.*, 2016).

3. Methodological Procedures

This study's sample consists of 210 Brazilian non-financial companies listed in Brasil, Bolsa, Balcão (B3) from 2011 to 2019, with data available for at least four years in the Economatica® database to determine the dependent variable (ERC). Only four companies have the minimum number of observations, the others have five or more years of data, and 94.29% have seven or more years of information.

This study evaluates the period after the International Financial Reporting Standards (IFRS) were adopted, though 2020 was not considered due to the socioeconomic effects of the COVID-19 pandemic on the world economy. The pandemic generated a volatile environment with critical levels of liquidity in several business segments (Nicola *et al.*, 2020), which consequently affected cash flow and, therefore, could distort the results. Additionally, companies in the financial sector were disregarded, as they have their own equity structure (Karpavičius & Yu, 2017).

This descriptive, quantitative, and documentary study analyzed data using descriptive statistics, correlation matrix, and panel regression via the Pooled Ordinary Least Squares (POLS) method, similar to Pimentel (2015). Continuous variables were winsorized between 1% and 99% to reduce the effect outliers.

Equation 1 was used to test hypothesis 1, i.e., the influence of free cash flow on the Earnings Response Coefficient (ERC). The variables are defined in Table 1, with description, acronym, metric, expected sign, and theoretical support. According to Equation 2, the state ownership proxy was included in the model for hypothesis 2.

$$ERC_{it} = \alpha_0 + \alpha_1 FCF_{it} + \alpha_j \sum_1^7 Controls + \varepsilon_{it} \quad (1)$$

$$ERC_{it} = \alpha_0 + \alpha_1 FCF_{it} + \alpha_2 SOEs_{it} + \alpha_j \sum_1^7 Controls + \varepsilon_{it} \quad (2)$$

Regarding the approach to investigating whether the ERC is affected by excess free cash flow, if the effect is positive (negative), ERC is expected to increase (decrease), i.e., (α1> 0) or (α1 < 0), more FCF is associated with investors' perception of higher (lower) earnings opportunity. Another central aspect is whether the State controls the company, which is positively associated with ERC because state monitoring can prevent companies from investing in low-return projects (Karpavičius & Yu, 2017), and investors tend to react positively to such earning prospects. Regressions similar to those used by Chen *et al.* (2016), who analyzed the characteristic of the state ownership structure and FCF through interaction, were adopted to test hypothesis 3, i.e., whether there is a positive relationship when the company concomitantly has free cash flow and is State owned. Therefore, equations 1 and 2 were performed, and the interaction between the independent variables of interest (FCF*SOEs) was included, according to Equation 3.

$$ERC_{it} = \alpha_0 + \alpha_1 FCF_{it} + \alpha_2 SOEs_{it} + \alpha_3 FCF_{it} * SOEs_{it} + \alpha_j \sum_{1}^{7} Controls + \varepsilon_{it} \quad (3)$$

Equations 1 to 3 consider the variables in Table 1 as control variables, including sector and year. Regarding the sectors, the denomination Economic Sector, adopted by the Economatica® database, was used to include the following: industrial goods; communications; cyclical consumption; non-cyclical consumption; basic materials; others; oil, gas, and biofuels; health; Information Technology; and public utility.

Table 1
Study variables

Description	Acronym	Metric	Expected sign	Theoretical support
		DEPENDENT VARIABLE		
Earnings Response Coefficient	ERC	Measured according to Table 2.	NA	Collins *et al*. (1994); Kallapur *et al*. (1994)
		INDEPENDENT VARIABLES OF INTEREST		
Free Cash Flow	FCF	Amount of free cash flow (FCFt) weighted by total assets (t).	+	Faulkender & Wang (2006)
State Owned	SOEs	Dummy assuming 1 when the largest shareholder is the government (more than 50%), and zero otherwise.	+	Yeo (2018)
		CONTROL INDEPENDENT VARIABLES		
Company's size	SIZE	Natural logarithm of total assets.	+	Collins & Kothari (1989)
Beta risk (Beta do CAPM)	RβT	Natural logarithm of the value obtained from the Economatica® database, CAPM model from the last 5 years.	–	Collins & Kothari (1989)
Market to book (growth opportunity)	MBT	Ratio between the market value of shares divided by the amount of net equity.	+	Collins & Kothari (1989)
Capital Structure (Leverage)	LEVE	Ratio of current plus non-current liabilities divided by shareholders' equity.	–	Dhaliwal *et al*. (1991)
Profit Persistence	PER	Persistence of earnings determined according to Dechow *et al*. (2010).	+	Collins & Kothari (1989)

A preliminary exploratory analysis was performed to verify the criteria for determining the dependent variable. It showed that the values of risk beta, market to book, and leverage had a positively distorted distribution with outliers. Although there is no explicit assumption about explanatory variables, outliers may lead to misleading results and strongly influence the estimation of coefficients. Therefore, the three variables previously mentioned were transformed into logarithms.

Table 2 shows the steps to calculate the Earnings Response Coefficient (ERC).

Table 2
ERC Calculation

Step
1st Stage: finding the independent variable – abnormal earning (AE_{it}): $$AE_{it} = \frac{(L_{it} - L_{it-1})}{P_{it-1}}$$ AE_{it} = unexpected earnings per share of company *i* in period *t*; L_{it} = profit per share of company *i* in time *t*; L_{it-1} = profit per share of company *i* in period *t-1*; P_{it-1} = share price of company *i* in the previous period *(t-1)*.
2nd Stage: finding the dependent variable – abnormal return (R_{it}): $$R_{it} = \frac{(P_{it+1} - P_{it})}{P_{it}}$$ R_{it} = stock return from April of year *t* to March of year *t + 1*; P_{it} = price of share *i* in April of year *t*; P_{it+1} = price of share *i* in March of year *t+1*.
3rd Stage: measuring the ERC (β_1) through regression:: $R_{it} = \alpha_0 + \beta_1 LA_{it} + \varepsilon_{it}$, where: R_{it} = abnormal return of company *i* in period *t*; EA_{it} = Unexpected earnings (abnormal profits); β_1 = ERC; ε_{it} = error component in the model of company *i* in period *t*.

Note: steps for calculating the ERC, according to Collins *et al*. (1994) and Kallapur *et al*. (1994).

As shown by Table 2, the study's dependent variable (ERC) emerges from the relationship between unexpected earnings and abnormal returns. Unexpected earnings (1st step) considerate the variation in scaled earnings (divided) by the market value of the share at the beginning of the period (1st step) (Collins & Kothari, 1989), which, according to Pimentel (2015), is a measure widely accepted and well documented in international literature. In line with previous studies, the abnormal stock return (2nd step) with greater liquidity is the accumulated annual return from April of year t to March of t + 1 to capture any return reaction associated with the announcement of earnings for year t (Pimentel, 2015). In other words, coefficient β (3rd step) arising from the regression between earnings (independent variable – 1st step) and the variation in return (dependent variable – 2nd step) corresponds to the measure of the investor's unexpected return on a given share (Collins *et al*., 1994; Kallapur *et al*., 1994). This study's emphasis is on how free cash availability affects shareholder wealth (abnormal earning); hence, it is necessary to examine single stock returns (Faulkender & Wang, 2006).

Following Kallapur (1994), the step 3 regression (Table 2) was estimated for each company's time series separately. The same operational estimation was performed per company to determine persistence, considering profit before income tax (PBT), and measured using the Dechow *et al*. (2010) model. Four or more years of data were also evaluated to determine this variable. Only eight of the 210 companies had eight years of data, and the remaining had nine years of data.

Table 1 shows that the FCF amount is available in the Economatica® database, weighted by total assets to equate at the company's level (Kadioglu & Yilmaz, 2017). The FCF amount was chosen because this availability can affect a company's value and is documented as a determinant for investments and dividends, which implies shareholders' increased expectation of returns of abnormal earnings (Deng *et al*., 2013; Faulkender & Wang, 2006).

A set of control variables selected from previous literature, which controls the companies' endogenous and exogenous characteristics, was adopted to reduce the endogeneity problem. Thus, the independent control variables are company-specific factors that control sources of value other than money and may be correlated with investors' prospects of abnormal earnings. Therefore, a positive effect is expected when an entity is state-owned as it is an aspect of governance in which the largest shareholder is the State, which may decide the fate of free cash flow availability, which, according to the literature, is generally used in projects with good returns, implying shareholders will expect higher abnormal returns (Loch *et al*., 2020; Yeo, 2018). Furthermore, larger companies (Chang *et al*., 2014) with more opportunities for growth and persistent earnings show the prospect of increasing earnings for shareholders (Collins & Kothari, 1989). Characteristics associated with the presence of free cash flow might signal more probabilities of returning money to shareholders and, consequently, a higher future abnormal return (Faulkender & Wang, 2006). On the other hand, companies with higher risk and a capital structure dependent on third parties may lead shareholders to expect that the free cash flow will be used to pay off debts and less will be reverted to them, resulting in lower expectations of abnormal returns of future earnings (Faulkender & Wang, 2006).

Leverage was separated into short-term (ST) and long-term (LT), weighted by net equity to obtain robust results. Consistent with the notion that cash flow contains information about an organization's future growth (Chang *et al*., 2014), we seek to understand investors' reaction to unexpected earnings given the existence of short and long-term commitments and free cash flow, as financial restrictions might impede applying free cash flow to investments. Short-term loans increase a company's risk, putting more significant pressure on executives to improve results, such as cash flow, aiming to show financial sustainability capable of minimizing the threat of potential bankruptcy (Dichev *et al*., 2016).

The following tests were performed to validate the models (equations 1 to 3) and results: Jarque-Bera for normality; RESET for the correct model specification; Durbin Watson and Breusch-Godfrey LM for problems related to serial autocorrelation of residuals; VIF for multicollinearity; and White and Breusch Pagan for heteroscedasticity. Table 3 presents the general test results. The multicollinearity, heteroscedasticity, and autocorrelation tests are also included in each specific table in the analysis section.

Table 3
Tests Related to Potential Econometric Problems

Test	Jarque-Bera	RESET	Mean	White	Breusch-Pagan	Durbin-Watson	Breusch-Godfrey LM
Result	JB: 5610 Chi (2): 0	F (3,1641 = 27,54 Prob > F = 0.0000	1,56	chi2 (232) = 755.72 Prob > chi2 = 0.0000	chi2 (1) = 1798,73 Prob >chi2 = 0.0000	0,24785	0.0000

Table 3 shows that data is not normally distributed (Jarque Bera test), lacks multicollinearity (VIF test), and presents heteroscedasticity (White and Breusch-Pagan tests) and autocorrelation (Durbin-Watson and Breusch-Godfrey LM). Given these problems, panel data regression was operationalized with the Pooled Ordinary Least Squares (POLS) method with robust standard error and sector- and year-fixed effects to better specify the models (equations 1 to 3). The POLS method enables the joint estimate of robust standard errors in the face of heteroscedasticity and autocorrelation and also controls the sector's effect, which is invariant over time (Petersen, 2009). The results obtained in the RESET test suggest the null hypothesis was rejected (the functional form is correct, and our model does not suffer from omitted variables).

4 Analysis of Results

Table 4 shows the variables' descriptive statistics.

Table 4
Data Descriptive Statistics

Variable	N	Mean	Standard Deviation	Minimum	p25	Median	p75	Maximum
ERC	1.890	1.9038	5.1024	-7.8062	-0.0460	0,2746	2.2856	26.7338
FCF	1.890	0.0137	0.0849	-0.3052	-0,0221	0,0135	0.0578	0.2707
SIZE	1.835	14.6614	1.9018	9.4375	13.4649	14,7978	15.9075	19.0152
RβT	1.748	0.2107	1.3214	-3.0338	-0.7460	0,3268	1.1990	2.7780
MBT	1.740	1.7514	2.3341	-3.8285	0.4810	1,1395	2.2901	12.4193
LEVE	1.835	1.9040	5.5601	-13.7294	0.4740	1,2063	2.3615	36.2813
PER	1.890	0.2858	0.4704	-1.1594	0.0063	0,3193	0.6164	1.3721
SOEs		Yes	114	6.19%				
		No	1.555	93.81%				

Note: N = Number of observations.

Table 4 shows that the average earning response coefficient (ERC) is positive at 1.9038 and increases to 2.2856 when 75% of the sample is observed and to 26.7338 at the maximum point. The variable free cash flow (FCF) also presented a positive mean of 0.0137 and a standard deviation of 0.0849, indicating that, on average, Brazilian companies had a low variation in free cash flow in the period, with little heterogeneity of estimates. When controlling the percentage of companies with positive FCF (data were tabulated but not included in the table), 57.25% of the sample presented this characteristic, implying that companies would have to decide regarding these values in the future, creating expectations among investors about their destination. This finding reinforces the importance of analyzing FCF from the shareholders' perspective. A negative FCF was found in 25% of the sample (p25), and these companies are likely to rely on third-party capital to finance the negative cash flow (Yeo, 2018).

The companies' size and the risk, market-to-book, and persistence variables appear homogeneous. On the other hand, leverage shows companies with an average debt of approximately 1.9040 related to equity and with a diversity of third-party capital, given the standard deviation of 5.5601. Regarding whether companies are state-owned, 6.19% of the sample is identified as state-owned.

Table 5 presents the association (Spearman correlation) between the study variables.

Table 5
Data Correlation Matrix

	ERC	FCF	SIZE	RβT	MBT	LEVE	PER	SOEs
ERC	1							
FCF	0.1149***	1						
SIZE	0.1237***	0.0721***	1					
RβT	0.0509**	-0.0327	0.0339	1				
MBT	0.2315**	0.1584***	0.3104***	0.0384	1			
LEVE	-0.052**	-0.0944***	0.3954***	0.0311	0.4419***	1		
PER	0.2066***	0.0692***	0.108***	0.0551**	0.2181***	0.0206	1	
SOEs	0.0046	-0.0674***	0.1774***	-0.0551**	-0.0587**	-0.0171	-0.0302	1

Note: ***, **, * significance level of 0.01, 0.05, and 0.10 respectively.

The highest correlation was between leverage and market-to-book, which is positive at 0.4419. Therefore, the correlations in Table 5 suggest no high degree of multicollinearity between the independent variables. Furthermore, a positive relationship is found between the study variables and the dependent variable (ERC), except for leverage, which shows a negative relationship. Additionally, initial evidence has been obtained that FCF and state ownership increase investors' responses to potential unexpected future earnings, given their positive association with ERC. On the other hand, FCF is negatively associated with company's risk (RβT). Such evidence corroborates that companies with greater systematic risk indicate a lower possibility of future dividends due to unexpected earnings (Collins & Kothari, 1989).

Table 6 shows the regression results of Equation 1, to highlight whether there is an association between FCF and ERC.

Table 6
Determinants of the Earnings Response Coefficient considering FCF only.

ERC	Coef.	Robust Std. Err.	t	P>t	[95% Conf.	Interval]
FCF	3.8115	1.3874	2.7500	0.0060	1.0901	6.5330
SIZE	0.2485	0.0578	4.3000	0.0000	0.1352	0.3618
RβT	0.1345	0.0760	1.7700	0.0770	-0.0146	0.2836
MBT	0.6280	0.0812	7.7300	0.0000	0.4686	0.7873
LEVE	-0.1627	0.0215	-7.5600	0.0000	-0.2049	-0.1205
PER	1.9917	0.2794	7.1300	0.0000	1.4437	2.5397
_cons	-2.7837	0.7805	-3.5700	0.0000	-4.3147	-1.2528
Multicollinearity (VIF)			1.57			
Heteroscedasticity			0.0000			
Autocorrelation			0.0000			
Number of observations			1.572			
Sector fixed effect			Sim			
Year fixed effect			Sim			
F^2			9,89			
Adjusted R^2			24,88			

The results in Table 6 show a statistically significant relationship between free cash flow and earnings response coefficient. It suggests that investors react positively to free cash flow, i.e., the value creation process is influenced by the extent to which current stock prices incorporate FCF information into the value of future earnings (Lee, 2018). In other words, given that market agents expect future earnings, the FCF amount represents accounting information that affects share prices, confirming the usefulness of the free cash flow as a company's financial indicator (Xie *et al.*, 2023).

Therefore, the positive and significant free cash flow coefficient reinforces the hypothesis that companies with higher free cash flows tend to invest in positive projects, which results in overinvestment and increases company performance (Richardson, 2006; Yeo, 2018). Hence, H_1 failed to be rejected, as a positive relationship exists between free cash flow and the Earnings Response Coefficient. Therefore, investors, realizing that companies with free cash flow might generate unexpected future earnings, react positively to this information in advance.

Table 7 presents the regression results of Equation 2 to highlight whether there is an association between SOEs and the ERC.

Table7

Determinants of the Earnings Response Coefficient considering FCF and SOEs

ERC	Coef.	Robust Std. Err.	t	P>t	[95% Conf. Interval]	
FCF	3.6505	1.3259	2,75	0.0060	1.0500	6.2511
SOEs	1.2101	0.2546	4,75	0.0000	0.7107	1.7095
SIZE	0.2648	0.052	5,10	0.0000	0.1629	0.3667
RβT	0.1461	0.0719	2,03	0.0420	0.005	0.2872
MBT	0.6129	0.0786	7.79	0.0000	0.4587	0.7671
LEVE	-0.1607	0.021	-7.64	0.0000	-0.2019	-0.1194
PER	1.9576	0.2721	7.19	0.0000	1.4239	2.4914
_cons	-3.0326	0.714	-4.25	0.,0000	-4.4331	-1.6321
Multicollinearity (VIF)			1.56			
Heteroscedasticity			0.0000			
Autocorrelation			0.0000			
Number of observations			1.669			
Sector fixed effect			Sim			
Year fixed effect			Sim			
F^2			10,4			
Adjusted R^2			24.69			

Regarding the other variable of interest, whether companies are controlled by a state entity, Table 7 reveals the statistical magnitude of the ERC. It shows that government ownership contributes to monitoring managers' use of financial assets (Yeo, 2018). Therefore, there is a different impact on the ERC depending on whether the company is state-owned.

Corroborating Karpavičius and Yu (2017), the findings show that institutional monitoring, represented in this study by state control, is consistent with improving a company's value. Such a perception of value creation in public-owned companies may result from receiving more subsidies to offset declines in earnings caused by intensified competition from non-state companies (Xie *et al.*, 2023), which may increase or ensure free cash flow to be distributed to shareholders.

Company size is also statistically significant and positively related to the unexpected earnings response coefficient. Thus, large companies generally have more financial resources, allowing them to identify and capitalize on investments, such as in research and development, marketing, or market expansion, for example, resulting in increased earnings and the opportunity for unexpected future earnings. From this perspective, large firms have lower unexpected earnings on average, making their earnings less volatile than in small firms (Chang *et al.*, 2014), i.e., size, a proxy for the business information environment, helps explain abnormal stock returns (Cheung & Jiang, 2016; Collins & Kothari, 1989).

Another determining aspect of the ERC is the risk beta, which is statistically and positively related to the ERC. This finding corroborates the understanding that a company's risk is considered when evaluating the possibility of unexpected future earnings, such as in the distribution of dividends (Collins & Kothari, 1989). Thus, the relationship between risk and ERC in this study (positive association, with a negative expected sign - Table 1) shows that the riskier a firm's expected future returns, the greater the value of that firm for an investor who tolerates high risks, which ultimately affects share prices (and share returns) when evaluating a company (Pimentel, 2015). Therefore, a positive sign between risk and ERC may indicate that investors are willing to pay a premium for the shares of companies facing more significant risks, believing that they have the potential to generate higher returns, which may be due to the amount of free cash flow. Furthermore, they may believe that the company is taking measures to mitigate risks and improve its future performance, positively responding to future earnings, even if there is a perceived risk. For example, in high-growth and innovation sectors such as technology, biotechnology, and startups, entities often face significant risks but also have the potential to offer unique returns.

Growth opportunity, represented by market to book, proved to be statistically and positively significant to the earning response coefficient. Hence, companies with expansion potential make investors respond in advance through the measurement of unexpected earnings. It reveals that the current market-to-book reflects prospective information of relevant value about current and future investments, i.e., earnings above typical rates of return (Collins & Kothari, 1989).

Persistence also showed a positive statistically significant relationship with ERC, which means that more persistent earnings are more predictable and better quality than less persistent ones (Collins & Kothari, 1989). Hence, companies with persistent results can optimize the investors' analysis of the nature and magnitude of future earnings in the financial evaluation process (Pimentel, 2015).

Leverage showed a negative sign and was statistically significant. This means that investors may believe that the prospect of receiving dividends decreases when a company has debts to pay (Dhaliwal *et al.*, 1991), which implies a negative association with unexpected earnings-return on shares (ERC).

Another assessment concerns the free cash flow variable weighted by the natural logarithm instead of total assets (Table 1). It enabled observing the consistency of the significant results in Table 6 and the similar explanatory power of the model (adjusted R2). These data were tabulated but not included in the table. Disaggregated leverage (short and long-term) was also assessed, and results are presented in Table 8.

Table 8

Determinants of the Earnings Response Coefficient with the Segregated Leverage Variable

ERC	Coef,	Robust Std. Err.	t	P>t	[95% Conf, Interval]	
FCF	3.6420	1.3183	2.76	0.0060	1.0564	6.2277
SOEs	1.1870	0.2545	4.66	0.0000	0.6878	1.6862
SIZE	0.2735	0.0523	5.23	0.0000	0.1709	0.3761
RβT	0.1431	0.0718	1.99	0.0460	0.0022	0.2840
MBT	0.6210	0.079	7.86	0.0000	0.4660	0.7760
ST	-0.0559	0.047	-1.19	0.2340	-0.1480	0.0362
LT	-0.2508	0.0493	-5.09	0.0000	-0.3475	-0.1542
PER	1.9391	0.2722	7.12	0.0000	1.4051	2.4730
_cons	-3.1831	0.7206	-4.42	0,0000	-4.5965	-1.7697
Multicollinearity (VIF)			1.75			
Heteroscedasticity			0.0000			
Autocorrelation			0.0000			
Number of observations			1.669			
Sector fixed effect			Sim			
Year fixed effect			Sim			
F^2			10.28			
Adjusted R^2			24.58			

Table 8 shows that levels of long-term debt are more relevant information to investors than short-term debt when it comes to expectations of return (ERC). Thus, the negative long-term sign shows that, even when there is free cash flow, if an entity has leverage problems, the investors' prospect of receiving dividends decreases (Dhaliwal *et al.*, 1991), affecting ERC. Therefore, these results show that managers should be careful with debt leverage due to a higher possibility of bankruptcy with excessive debt. On the other hand, debt financing reduces managerial discretion (free cash flow) and agency costs, increasing firm value (Chen *et al.*, 2016; Jensen, 1986; Yeo, 2018).

No statistical relevance was found for investors' reaction to a company with short-term financial commitments when there is free cash flow. This finding shows that, with free cash flow, shareholders understand that financial sustainability and potential bankruptcy in the short term are not a problem. Hence, they deem executives are committed to improving the organization's results but do not count on potential unexpected future earnings. Yaari *et al.* (2016) show that, as a rule, current liabilities have a short life and, as a company is seen as something in continuity, it is renewed frequently, and it is also something in which managers have more control over the interest involved. Thus, current liabilities may be something that investors do not perceive as providing unexpected future earnings.

An additional analysis to test H_3 (Equation 3) included the interaction between free cash flow and state ownership (FCF*SOEs). A positive coefficient of this interaction with the ERC implies that an increase in ERC is due to two effects: the presence of free cash flow and state ownership. Table 9 presents these results.

Table 9

Determinants of the Earnings Response Coefficient with the Interaction between FCF and SOEs

ERC	Coef.	Robust Std. Err.	t	P>t	[95% Conf. Interval]	
FCF	-4.2997	1,4499	-2.9700	0,0030	-7.1435	1.4560
SOEs	0.8244	0.2217	3.7200	0,0000	0.3896	1.2591
FCF*SOEs	5.8727	0.7453	7.8800	0,0000	4.4108	7.3346
SIZE	0.3224	0.0419	7.6900	0,0000	0.2401	0.4046
RβT	0.1913	0.0606	3.1600	0,0020	0.0725	0.3102
MBT	0.3801	0.0762	4.9900	0,0000	0.2306	0.5295
ST	-0.0196	0.0371	-0.5300	0,5980	-0.0924	0.0532
LT	-0,1751	0.0396	-4.4200	0,0000	-0.2528	-0.0973
PER	1.5046	0.2594	5.8000	0,0000	0.9958	2.0133
_cons	-3.6399	0.5873	-6.2000	0.0000	-4.7919	-2.4879
Multicollinearity (VIF)			1.58			
Heteroscedasticity			0.0000			
Autocorrelation			0.0000			
Number of observations			1.669			
Sector fixed effect			Sim			
Year fixed effect			Sim			
F^2			22.49			
Adjusted R^2			44.64			

Data in Table 9 indicate a positive and significant relationship between the interaction between free cash flow and SOEs and ERC. Furthermore, the model has a better explanatory power (adjusted R^2), leading us to believe that the ERC can be better defined in state-owned companies with free cash flow. This result indicates that H_3 failed to be rejected.

Therefore, shareholders respond positively to the prospect of unexpected future earnings when there is state ownership and free cash flow. Investors see that companies institutionally monitored by the State indicate potential investment of free cash flow in projects with high net present value that interest shareholders and which will provide future financial rewards (Karpavičius & Yu, 2017), i.e., they predict unexpected future earnings, such as potential distribution of dividends, arising from State monitoring FCF. Another aspect is that SOEs listed on the stock exchange must also create value for shareholders, and free cash flow is shown to be a sustainable source of cash to meet this objective (Xie *et al.*, 2023).

It is also likely that, due to shareholding with decision-making power that can pressure companies to improve their performance, as well as to interfere in management (Karpavičius & Yu, 2017), the institutional ownership of state control leads investors to believe that this governance aspect will prevent managers from using the resources available in free cash flow on inefficient investments, leading investors to anticipate unexpected returns on current shares, i.e., future earnings.

Table 9 shows that FCF is statistically significant and has a negative relationship with ERC. It suggests that considering that SOEs more effectively monitor managers to prevent them from investing resources in cash-destroying investments (Karpavicius & Yu, 2017), these companies are pressured by society to present consistent earnings (Xie *et al*., 2023), enable more accessible financing, and support companies in periods of financial difficulties, (Loch *et al*., 2019) even if with lower FCF. Hence, it is a governance variable that promotes value creation in companies (Karpavicius & Yu, 2017), maximizing shareholder response to potential unexpected future earnings. Therefore, in response to the question raised by Loch *et al*. (2019), government participation is beneficial to companies when there is free cash flow, as shareholders react positively to these two aspects, reducing conflicts between the principal and the principal.

The investors' expectation of future earnings, given state monitoring and the amount of free flow, may arise from the fact that listed SOEs consistently generate more free cash flow than non-SOEs due to strict budget management and social media that imply greater control over expenses (Jiang *et al*., 2014; Xie *et al*., 2023). These companies can also perform better in working capital management, as the government makes suppliers more inclined to provide them with trade credit (Yeo, 2018). Another fact is that publicly-owned companies tend to have easier access to tax preferences, meaning that state-owned public utility companies bear a lower tax burden than non-state-owned companies (Xie *et al*., 2023).

In general, this study's findings indicate that free cash flow associated with a company's characteristics leads investors to expect future earnings, reacting to these probabilities (Karpavičius & Yu, 2017). The institutional idiosyncrasies found in this study are that large firms with free cash flow and state ownership are, on average, associated with more persistent earnings, more significant risks, more excellent growth opportunities, long-term payment prospects, present financial information characteristics that lead the capital market to react and, consequently, to anticipate earnings through changes in share prices, becoming less volatile to unexpected earnings than small firms.

Thus, Kothari and Sloan's (1992) understanding that share prices reflect market participants' expectations about future earnings is reinforced through the use of accounting and non-accounting information with low uncertainty. In this sense, the amount of free cash is a more predictable accounting element when associated with aspects of governance monitoring, corroborating the Agency Theory, which predicts a decrease in information asymmetry when accounting data transmit elements about a company's future performance in the market. Another result is the confirmation of the Free Cash Flow Theory, as long-term debt is necessary to keep free cash flow under control, especially when the company is state-owned and, therefore, aligns the interests of managers to those of shareholders.

5 Final Considerations

This study analyzes the impact of free cash flow and state ownership on the Earnings Response Coefficient (ERC) in the Brazilian capital market. The amount of free cash flow and state ownership is believed to improve firm value by reducing the free cash flow agency problem. Hence, non-financial companies listed on B3 S.A. were considered to test this notion using data from 2011 to 2019 obtained from the Economatica® database. Data were operationalized by panel regression using the Pooled Ordinary Least Squares (POLS) method, with robust standard errors and sector and year-fixed effects.

This study's findings show that free cash flow is positively associated with investors' perceived opportunity for future earnings. Therefore, the "informativeness" of the stock price (how much information about future earnings or cash flows is capitalized in the price) indicates that the free cash flow is correlated with expected earnings revisions and expresses the current stock returns due to unexpected earnings. In emerging markets, such as Brazil, it implies free cash flow as an informative accounting item for share prices and, consequently, can improve the investors' financial analysis and assessment of companies, encouraging managers to pay attention to the effects of the decision to maintain cash surpluses. Therefore, the amount of free cash flow indicates to shareholders the prospect of value creation.

Furthermore, state ownership was found to determine ERC variations, in addition to the joint interaction between free cash flow and SOEs. It shows that the response to prospective earnings is related to the accounting practices and the effects of the company's governance environment. Therefore, government action in companies positively reflects on the expectation of future earnings when there is free cash flow. As a result, governance mechanisms can help monitor managers regarding the application of free cash flow.

Additionally, free cash flow that is "earned" by operations transmits information about the future performance of a company, especially in SOEs, which, according to Xie *et al.* (2023), have greater control over expenses, generate more sustainable free cash flows in the long term, and need to create and provide value to their shareholders, due to social pressure to control expenses and achieve objectives. In this context, the interaction between free cash flow, accounting data that highlights the prospect of creating value for shareholders, and SOEs, organizations with characteristics that enable increasing or maintaining their sustainable free cash flow, implies the perception of measures that reduce asymmetry information and signal unexpected future earnings (ERC).

Although the results reveal important effects of free cash flow and state ownership to explain the earning response coefficient, this study presents some limitations that are unique to the sample analyzed, as it addressed a peculiar scenario that included only non-financial Brazilian companies belonging to B3 S.A. that presented all the necessary information in the period studied.

One of this study's limitations refers to the analysis of state ownership with direct effect, which represents 6% of the sample. New studies should investigate the indirect effects, and specifically analyze the period of the COVID-19 pandemic, because it is a period of potential financial crisis, considering that the results before and after the crisis may differ from the period of crisis. Another potential approach is to segregate the variation in free cash flow, as this will allow both deficits and surpluses to be measured in association with the ERC.

This study also corroborates the literature on the determinants of ERC, such as company size, beta risk, market-to-book, general and long-term leverage, and earnings persistence, which are determinants of the relevance of information for investors to react to unexpected market earnings. In this sense, factors that include the characteristics of a company's earnings generation process, systematic risk of common shares, information environment such as company size, capital structure, growth opportunity, the quality of earnings (persistence), governance aspects (state ownership), and financial assets (free cash flow) might be explanatory factors of ERC.

This study's results provide evidence of the informativeness of free cash flow as a measure of shareholder interest. Therefore, in social terms, this study is helpful to investors, managers, financial analysts, and debt financiers, as it addresses the informativeness of accounting items (free cash flow, company size, beta risk, market to book, short-term leverage and long-term and persistence of results) and governance properties (state control) in the earning response coefficient. It leads stakeholders to understand that the resources available (FCF) to reinvest in a business can lead to future gains. For managers, free cash flow can indicate investor confidence in a company's profitability prospects, as free cash flow implies investment opportunities. Thus, when investors believe that a company can generate consistent and growing earnings through free cash flow and state monitoring, they can support its growth by incorporating information (FCF) about future earnings. In turn, it can contribute to economic development and job creation, encouraging the supply of credit and analysts' positive assessments.

This study's results complement Cheung and Jiang (2016) and Kallapur (1994) from a theoretical perspective, as they analyzed cash items on the return of shares but did not reach a consensus, nor did they evaluate whether companies were state-owned. Additionally, the results contribute to Loch *et al.* (2020) and (Yeo, 2018), which suggest further debates on state monitoring, given that the government's ownership structure can monitor the use of assets by managers, and Xie *et al.* (2023) who indicate the need for more research on the performance of free cash flow in state-owned versus non-state-owned companies.

Thus, this study presents a more comprehensive structure on the market's understanding of the incorporation of prospective, and not necessarily financial information (State owned), into share prices. Furthermore, the Free Cash Flow Theory is corroborated, considering that, on average, free cash flow is seen as a positive indicator for shareholders regarding the probability of unexpected future earnings, especially in companies where the government holds institutional ownership. The Agency Theory is also expanded, as the results indicate that agency conflicts and information asymmetry problems are eased when the State is an institutional shareholder, as it may lead businesses (managers) to constantly improve the productivity of free cash flow due to social pressures.

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