BAR Brazilian Administration Review

ANPAD

Research Article

Persistence of Accounting Information in Regulated and Unregulated Firms in the Brazilian Economy

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How to cite: Rêgo, G. M. S., Souza, P. V. S., & Morais, H. C. B. (2025). Persistence of accounting information in regulated and unregulated firms in the Brazilian economy. *BAR-Brazilian Administration Review, 22*(3), e240168.

DOI: https://doi.org/10.1590/1807-7692bar2025240168

ABSTRACT

Objective: this study aims to analyze differences in the persistence of accounting information between firms operating in regulated and unregulated sectors of the Brazilian economy. **Methods:** the sample comprises, on average, 276 companies listed on B3, with data spanning from 2011 to 2022. Ordinary least squares (OLS) regression tests were performed, and a total of 20 models were analyzed. Persistence was measured using two different models, focusing on earnings, cash flows, and accruals. Fifteen dummy variables were constructed and grouped into four categories: regulation, purely economic vs. economic and accounting regulation, national regulatory agencies, standardized chart of accounts, and individual dummies for each regulated sector. **Results:** firms in the sample exhibit persistence in earnings, cash flows, and accruals. Regulated firms demonstrate higher earnings and cash flow levels compared to unregulated firms; however, these are less persistent, suggesting lower quality of accounting information in regulated sectors. **Conclusions:** the findings indicate that firms may prioritize performance at the expense of accounting information quality. These results support the development of regulatory policies and may aid the decision-making processes of investors and creditors.

Keywords:
accounting information persistence; economic regulation; regulated sectors

JEL Code:
M410, G180, L970

Received:
September 18, 2024.
This paper was with the authors for two revision.

Accepted:
May 30, 2025.

Publication date:
August 06, 2025.

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Funding:
The author stated that there is no funding for the research.

Conflict of Interests:
The authors stated that there was no conflict of interest.

Editors-in-Chief:
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(Universidade Federal de Goiás, Brazil)

Associate Editor:
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Reviewers:
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and one anonymous reviewers.

Peer Review Report:
The disclosure of the Peer Review Report was not authorized by its reviewers

Editorial assistants:
Eduarda Anastacio and Simone Rafael (ANPAD, Maringá, Brazil).

Data Availability: Rêgo, G., Souza de Souza, P. V., & Morais, H. (2025). Persistência das Informações Contábeis em Setores Regulados e Não Regulados na Economia Brasileira. [Data set]. Zenodo. doi: https://doi.org/10.5281/zenodo.16648002.
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INTRODUCTION

Regulation is understood as the interference of governmental bodies in the economy with the aim of avoiding market failures through specific guidance of private companies' activities (Monticelli et al., 2023). The importance of regulation arises from the existence of sectors that, without oversight, may fail and harm not only the country's economy but also a considerable portion of society that depends on these services (Adams, 2022).

One of the mechanisms used by the state to regulate sectors is the establishment of regulatory agencies (Monticelli et al., 2023). In Brazil, regulatory agencies were created in the context of the neoliberal policy adopted after redemocratization. However, since this policy did not solve the social problems of the time, economic intervention by the state became necessary to ensure social well-being (Silva & Nelson, 2015). Thus, regulatory agencies were concentrated in sectors that provide public services, as they were mainly exploited by state capital and, in the privatization process, were delegated to the exploitation of private capital (Holanda & Coelho, 2020).

Regarding the regulatory agent, there are theories about how its behavior should be toward society and economic relations. The first is the public interest theory of regulation, in which the regulator seeks to intervene in the economy to safeguard collective interests and maximize social well-being, ensuring that the outcomes benefit not only the regulated sectors but also the population (Adams, 2022; Züger & Asghari, 2023). Meanwhile, the second line of thought is the economic theory of regulation, which is shaped to meet the demands of groups with power, whether political or economic, that exert greater influence over the regulator, whose objective is to pursue economically more favorable outcomes to the detriment of social interests (Thomas & Thomas, 2022).

In Brazil, accounting disclosure is extensively regulated, as users of accounting information require assurance regarding the financial statements issued by companies for decision-making (Alexandre & Mello, 2017). Thus, accounting regulation establishes a set of rules that entities must follow in the preparation of accounting reports to meet users' demand for quality accounting information (Souza et al., 2024).

A desirable characteristic of organizations is to present financial statements with high-quality earnings, since when results are more sustainable, earnings emerge as an essential element for decision-making (Rahman, 2023). One way to assess earnings quality is through the persistence of accounting information, which is a proxy that suggests that more persistent earnings are more useful for decision-making; thus, greater persistence indicates higher information quality (Dechow et al., 2010).

Users of accounting information are interested in evaluating both the company's current performance and estimating future performance (Jeong & Choi, 2019). However, discrepancies may occur in production, or factors may interfere with the disclosure of accounting information, which constitutes information asymmetry, reducing the usefulness of accounting data for evaluating and forecasting companies' future performance (Suharsono et al., 2020). Therefore, regulation is an essential measure to combat information asymmetry (Monticelli et al., 2023).

Studies have analyzed the relationship between regulation and the persistence of accounting information. The studies by Silva et al. (2018) and Ferreira and Souza (2021) identified the relationship between earnings persistence and corporate governance in the public utility sector and with the economic-financial performance of companies in the health sector, respectively. The study by Melo and Cavalcante (2016) analyzed whether specific elements of the chart of accounts could contribute to increased persistence of accounting information in the electricity sector. Meanwhile, Wardhani et at. (2015) and Shi et al. (2023) examined whether share pledging and corporate governance contribute to earnings persistence; however, in this case, they segregated the sample using a dummy variable comparing regulated and unregulated companies.

Previous studies revealed a lack of research focusing on persistence as the main subject, as they use this attribute merely as a tool to measure other characteristics and whether they affect information quality. Furthermore, the relationship between persistence and regulation still lacks more in-depth methodologies. In this regard, the present research poses the following question: What are the differences in the persistence of accounting information between companies in regulated and unregulated sectors of the Brazilian economy?

To answer this question, the objective of this research is to analyze the differences in the persistence of accounting information between companies in regulated and unregulated sectors of the Brazilian economy. This study differs from others by conducting an analysis of persistence through various aspects of regulation, whether by agencies, the chart of accounts, or the level of regulation.

The relevance of this research lies in its approach to the quality of accounting information and its relationship with regulation, topics that are relevant for a better

understanding of transparency and compliance among companies subject to the action of national regulatory agencies. Thus, the regulated sectors analyzed are defined as essential or public to society, which makes this topic even more relevant, as it can enhance public understanding of the regulatory framework under which companies providing essential services operate.

In the theoretical realm, the study contributes to the literature concerning earnings persistence and regulated sectors of the economy, promoting methodological innovation for analyzing regulation and its various forms in the national environment, which also represents a gap to be addressed. The methodological innovation arises from the multiple forms of measuring regulation, in an integrative manner, combined with the measurement of accounting information persistence. In the practical realm, the study contributes to improving users' ability to make decisions. Thus, based on the information presented, users may gain greater confidence in making decisions, whether in evaluating current and future performance (investors), credit granting and risk analysis (creditors), or monitoring companies' compliance with accounting standards (regulators).

THEORETICAL FRAMEWORK

Theoretical foundations of the study and economic and accounting regulation

Regulation is defined as a set of rules applied to guide companies, through a regulatory body, toward desired behavior, by controlling the actions of entities or individuals (Monticelli et al., 2023). To identify the beneficiaries of regulation, the form it will take, and its effects on resource allocation, several theories have been developed to understand the underlying motives of the regulator (Stigler, 1971).

The public interest theory of regulation suggests that regulation should prioritize the collective interest, so that interventions benefit regulated markets but, more importantly, serve users and society at large (Adams, 2022). However, due to various criticisms of this perspective, another theory emerged in which the regulator is seen as being primarily concerned with remaining in power and advancing personal interests (Thomas & Thomas, 2022). The economic theory of regulation posits that regulation constitutes a complex network of interactions driven by individual interests rather than collective needs, in which key agents seek to maximize their own benefits (Cline et al., 2022).

Beyond theoretical frameworks, the importance of regulation is justified by the existence of sectors that require governmental direction due to society's high dependence on their services. The failure of these sectors would severely impact the population (Cline et al., 2022). In this sense, two types of regulation exist: economic regulation and accounting regulation.

Economic regulation refers to governmental intervention in markets to ensure the fulfillment of state-defined objectives, which would not be achieved without guidance tailored to entities' activities (Betz & Kim, 2021). In Brazil, this form of regulation emerged after the privatization of public enterprises and the crisis of liberalism, which necessitated state actions to ensure that private sector participation would uphold social rights and address the population's social needs (Silva & Nelson, 2015).

Accounting regulation, in turn, plays a crucial role in establishing standards and accounting practices to be followed by professionals in the field. Its goal is to enhance the quality of financial reporting and reduce information asymmetry in the disclosure of regulated entities' financial statements (Suharsono et al., 2020). Users of accounting information require confidence in the data provided by companies for decision-making purposes, and regulation thus seeks to ensure balanced and reliable disclosure of accounting information (Olojede & Erin, 2021).

One of the methods employed to regulate the private sector was the establishment of regulatory agencies, institutions created to regulate and supervise companies that provide services with high social value (Monticelli et al., 2023). In Brazil, the presence of regulatory agencies has been concentrated in sectors that provide public services, which were previously exploited predominantly by state-owned enterprises and, following the implementation of neoliberal economic policies, were transferred to private capital (Holanda & Coelho, 2020). These agencies are responsible for regulating specific sectors and, in line with regulatory theories, may act in favor of either public interests (Adams, 2022) or specific interest groups (Cline et al., 2022).

Regulatory agencies are classified into two levels of regulation: economic only, and economic and accounting, comprising a total of 11 institutions (Aquila et al., 2019). In 2017, the National Mining Agency (ANM) was created to economically regulate the country's mining sector starting in 2019 (Provisional Measure No. 844 [Medida Provisória n° 884], 2018). Additionally, the ANA Reference Standard No. 1 (Ministério da Integração Nacional e do Desenvolvimento Regional, 2021) formally assigned the National Water Agency (ANA) the function of establishing, since 2019, regulatory accounting standards for its sector. Accordingly, Table 1 presents the classification of the 11 existing national regulatory agencies:

Table 1. Economic regulation vs. economic and accounting regulation.

Economic regulation only	Economic and accounting regulation
National Film Agency (ANCINE)	National Telecommunications Agency (ANATEL)
National Waterway Transportation Agency (ANTAQ)	National Agency of Electric Energy (ANEEL)
National Health Regulatory Agency (ANVISA)	National Civil Aviation Agency (ANAC)
National Mining Agency (ANM)	National Agency of Supplementary Health (ANS)
	National Terrestrial Transport Agency (ANTT)
	Brazilian National Agency for Petroleum, Natural Gas, and Biofuels (ANP)
	National Water and Sanitation Agency (ANA)

Note. Based on Aquila, G., Pamplona, E. O., Ferreira Filho, J. A., Silva, A. S., Mataveli, J. V. A., Correa, J. E., Maria, M. S., & Garcia, G. C. (2019). Quantitative regulatory impact analysis: Experience of regulatory agencies in Brazil. *Utilities policy, 59*, 100931. https://doi.org/10.1016/j.jup.2019.100931

Persistence of accounting information

Earnings persistence represents the sustainability of a company's results, meaning it suggests that profits will be maintained in future periods within a predictable range (Jeong & Choi, 2019). For this to occur, earnings must be of high quality, since they are widely used as tools for forecasting outcomes and evaluating current and future performance. As such, earnings are a focal point for many users of financial information, including investors, creditors, and regulators, among others (Oktavia & Susanto, 2022).

Earnings consist of accruals and operating cash flows, two accounting components with different levels of persistence, which consequently affect the predictability of future earnings (Pimentel & Malacrida, 2020). If current cash flows or accruals are subject to opportunistic management, the risk of error in future earnings forecasts increases (Nam, 2019). Therefore, it is expected that both operating cash flow and accruals should be of high quality to enhance the predictive power of earnings (Pimentel & Malacrida, 2020).

Cash flow is a component of earnings that represents the actual cash movements generated by the entity. It comprises the activities that affect cash and derive from the company's core operations, meaning it reflects cash disbursements and receipts (Oktavia & Susanto, 2022). This component is a strong predictor of future performance due to its lower susceptibility to managerial manipulation and its forecasting independence. In other words, if earnings persistence is compromised by opportunistic accrual management, cash flow becomes a more reliable basis for forecasting (Nam, 2019). As such, cash flow persistence is positively associated with earnings persistence; that is, more sustainable cash flows suggest that the company's earnings are more persistent (Oktavia & Susanto, 2022).

Meanwhile, accruals are adjustments made to current earnings that can affect future outcomes. They are often the target of opportunistic management, which, when it occurs, makes these accruals less persistent due to their reversal in future periods, thereby reducing their effectiveness for forecasting an entity's future performance (Nam, 2019). Consequently, companies with lower levels of accruals may exhibit greater earnings persistence, making this component an additional tool for future cash flow analysis (Oktavia & Susanto, 2022; Pimentel & Malacrida, 2020).

Hypotheses development

Previous studies involving earnings persistence in regulated sectors primarily associate this proxy with other measures of earnings quality, such as earnings management (Ferreira & Souza, 2021), earnings smoothing (Kolozsvari & Macedo, 2016), conservatism (Melo & Cavalcante, 2016), corporate governance (Silva et al., 2018), and value relevance (Shi et al., 2023; Wardhani et al., 2015), while only a minority use persistence as a standalone measure of information quality (Lorek & Willinger, 2007). The present study adopts the latter approach to measure persistence as an indicator of the informational quality of companies in regulated sectors compared to those in unregulated markets, as this line of research remains a gap in the Brazilian context.

Regarding how regulation has been addressed in prior studies, it is generally operationalized in two ways: (1) through a dummy variable that classifies firms into regulated and unregulated sectors, coded as one and zero, respectively (Lorek & Willinger, 2007; Shi et al., 2023; Wardhani et al., 2015); or (2) by composing the sample exclusively with firms from a specific regulated sector (Ferreira & Souza, 2021; Melo & Cavalcante, 2016; Silva et al., 2018). The current study employs the first method and introduces a third approach not observed in prior literature, which involves creating a separate dummy variable for each regulated sector. This allows for more detailed control over the regulated industries and provides deeper and more consistent insights into how regulation relates to the quality of accounting information.

To measure the chosen proxy, previous studies on earnings persistence estimated regressions of the future value of a given variable based on its current value, thereby assessing its predictability (Kolozsvari & Macedo, 2016; Lorek & Willinger, 2007; Shi et al., 2023;

Wardhani et al., 2015). Several of these studies employed the model proposed by Dechow and Schrand (2004) (Melo & Cavalcante, 2016; Silva et al., 2018). Accordingly, this study adopts the Dechow and Schrand (2004) model due to its frequent use as a method of persistence measurement.

Regarding results, several studies have examined the relationship between earnings persistence and regulation. Among those that used a dummy to compare regulated and unregulated sectors, most concluded that regulation contributes to higher information persistence (Lorek & Willinger, 2007; Shi et al., 2023), whereas a few found no significant relationship (Wardhani et al., 2015). In studies focused on specific regulated sectors, the findings were generally positive, indicating the presence of earnings persistence in the sector analyzed (Ferreira & Souza, 2021; Melo & Cavalcante, 2016; Silva et al., 2018). Thus, a review of the literature suggests that regulation contributes to greater earnings persistence, meaning that the earnings of regulated firms are not equal to or similar to those of unregulated firms in terms of persistence. Based on these findings, the first hypothesis of this study is formulated as follows:

H1: The earnings persistence of regulated Brazilian firms is greater than that of unregulated firms.

In addition, no studies were found that directly analyzed the persistence of accruals or cash flows. However, based on regulatory theory, Adams (2022) argues that regulation acts to maximize the utility of the sector, that is, to improve its performance and ensure its sustainability over time. Moreover, a firm's performance is reflected in its cash flows, which indicate how well it has performed in a given period (Oktavia & Susanto, 2022). Thus, regulation, by aiming to enhance the performance of regulated firms, may contribute to higher cash flows compared to unregulated firms, and consequently, to differences in their persistence. Based on this rationale, the second hypothesis of the study is proposed:

H2: The operating cash flow persistence of regulated Brazilian firms is greater than that of unregulated firms.

Furthermore, accruals are components of earnings that influence the informativeness of earnings persistence, since their persistence is associated with lower levels of earnings management, which, in turn, contributes to higher-quality earnings (Nam, 2019). Ensuring the disclosure of high-quality accounting information is one of the objectives of regulation, particularly when it encompasses both economic and accounting aspects, so that users can make decisions with confidence (Alexandre & Mello, 2017). Thus, regulation may contribute to accruals persistence by establishing standards and guidelines for the preparation of financial statements aimed at enhancing the quality of the information disclosed (Suharsono et al., 2020). Based on this reasoning, the third hypothesis of this study is formulated as follows:

H3: The accruals persistence of regulated Brazilian firms is greater than that of unregulated firms.

METHOD

Sample, period, and data

To identify the interactions between regulation and the persistence of accounting information, the research population comprises all non-financial publicly traded companies listed on the Brazilian Stock Exchange — B3 (Brasil, Bolsa, Balcão), due to the availability and accessibility of information. The financial sector was entirely excluded from the population, as it follows distinct practices that differ from conventional standards commonly adopted by other sectors for preparing financial reports, which hinders comparability.

For sample construction, data were collected from the Economatica® database. Companies that failed to disclose all the financial information required for econometric estimation, such as earnings, operating cash flow, and total assets, were excluded. Thus, the final sample consisted of an average of 276 companies per year, spanning from 2011 to 2022, totaling 3,308 observations. It is important to note that data from 2010 were also used, as the models require lagged variables. In this way, the dataset captures the whole post-adoption period of international accounting standards following Law No. 11,638/07 (Lei no. 11.638, 2007).

Table 2. Sample composition.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Population	336	336	336	336	336	336	336	336	336	336	336	336	4.032
(-) Exclusions	(108)	(103)	(98)	(96)	(85)	(81)	(71)	(37	(20)	(13)	(6)	(6)	(724)
Sample	228	233	238	240	251	255	265	299	316	323	330	330	3.308

Note. Prepared by the authors.

As shown in Table 2, the total number of companies varies each year, meaning the data do not form a balanced panel. To avoid a significant loss of observations and to preserve the temporal and sectoral controls applied manually, we chose not to balance the panel. Using fixed effects models estimated by the system itself could generate perfect collinearity with manually included dummy variables. Therefore, the models were estimated using ordinary least squares (OLS) with pooled data. Table 3 summarizes the 20 econometric models analyzed in this study.

Table 3. Econometric models.

No.	Y	β_0	$_k$	β_{12}	β_{13}	β_{14}	β_{15}	β_{16}
Persistence base models								
1	NI_{it}	Const.	$\Sigma year_k$	NI_{it-1}				
2	NI_{it}	Const.	$\Sigma year_k$	CFO_{it-1}	ACC_{it-1}			
3	CFO_{it}	Const.	$\Sigma year_k$	CFO_{it-1}				
4	ACC_{it}	Const.	$\Sigma year_k$	ACC_{it-1}				
General representation of persistence models with regulation dummies (REG)								
5 to 20	NI_{it}	Const.	$\Sigma year_k$	NI_{it-1}	REG	NI_{it-1}*REG		
	NI_{it}	Const.	$\Sigma year_k$	CFO_{it-1}	ACC_{it-1}	REG	CFO_{it-1}*REG	ACC_{it-1}*REG
	CFO_{it}	Const.	$\Sigma year_k$	CFO_{it-1}	REG	CFO_{it-1}*REG		
	ACC_{it}	Const.	$\Sigma year_k$	ACC_{it-1}	REG	ACC_{it-1}		

Note. NI = Net income; CFO = Operating cash flow; ACC = Accruals, measured as the difference between NI and CFO; t = Current period; t – 1 = Lagged period; i = Firm; Const. = Model constant; Σyear = Year control dummies; REG = Regulation dummy. Source: Prepared by the authors.

Table 3 outlines the models estimated in this study. Eleven time dummies were created to control for heterogeneities in the data arising from time variations. To control for firm size effects on accounting information, all variables were scaled by total assets.

Models 1 through 4 were based on the models developed by Dechow and Schrand (2004) and Dechow et al. (2010), and are used to assess persistence without incorporating regulatory variables. These serve as the base models of the study. They respectively measure: (1) the persistence of current net income (NI_t) as a function of lagged net income (NI_{t-1}); (2) the persistence of NIt in relation to its lagged components, operating cash flows (CFO_{t-1}) and accruals (ACC_{t-1}); (3) the persistence of current operating cash flows based on lagged values; and (4) the persistence of current accruals in relation to their lagged values. In these models, persistence is identified by statistically significant and positive coefficients for the lagged variables (NI_{t-1}, CFO_{t-1}, and ACC_{t-1}).

Based on these four base models, an additional 16 models were estimated by including variables representing regulation. To this end, 15 regulation dummies (REG) were created, divided into four distinct analytical groups: (1) general regulation (R), to identify overall differences in persistence between regulated and unregulated companies; (2) economic regulation (ER) and economic and accounting regulation (EAR), to analyze persistence based on the type of regulation; (3) regulation by national regulatory agencies (RRA) and regulation by standardized chart of accounts (RSCA), to complement the second group of analysis; (4) a dummy for each regulated sector (10 dummies in total) to provide a more granular understanding of how different regulated sectors influence persistence. The film sector was excluded due to the absence of companies meeting the sample criteria. Table 4 specifies information on these regulatory measures.

Table 4. Independent variables of regulation.

Variables	Definition	Source
Independent variables — Sector regulation (REG)		
Regulation (R)	Dummy that assumes one when the company is regulated and zero otherwise.	Shi et al. (2023)
Economic regulation (ER)	Dummy variable that assumes one when the company has only economic regulation and zero otherwise.	Alexandre and Mello (2017)
Economic and accounting regulation (EAR)	Dummy variable that assumes one when the company has both economic and accounting regulation and zero otherwise.	
Regulation by regulatory agencies (RRA)	Dummy variable that assumes one when the company is regulated by a specific regulatory agency and zero otherwise.	
Regulation by standardized chart of accounts (RSCA)	Dummy variable that assumes one when the company is regulated by a standardized chart of accounts and zero otherwise.	
Regulation by specific regulated sector (RSRS)[a]	Dummy variable that assumes one for a company that belongs to a specific regulated sector and zero otherwise.	Prepared by the authors

Note. [a] Specific dummies were made for the following sectors: electric energy (ANEEL); oil, gas, and biofuel (ANP); telecommunications (ANATEL); health surveillance (ANVISA); health (ANS); water and sanitation (ANA); land transportation (ANTT); waterway transportation (ANTAQ); civil aviation (ANAC); and mining (ANM). Source: Prepared by the authors.

Thus, each of the four base models was re-estimated four additional times, once for each group of regulatory analysis, resulting in Models 5 through 20. In these models, the coefficients of the interaction terms between accounting information and regulation dummies (e.g., NI_{t-1}*REG, CFO_{t-1}*REG, and ACC_{t-1}*REG) provide insights into how persistence in earnings, cash flows, and accruals differs between regulated and unregulated firms.

Finally, to make the models more robust, the assumptions of normality of the residuals were measured using the chi-squared test, homoscedasticity of the residuals using the White test, and collinearity of the regressors using the variance inflation factor (VIF). Nevertheless, outliers were identified using the interquartile range multiplied by three, and these were winsorized up to a limit of 1% of the negative and positive extremes.

As for the regression assumptions, all White and chi-squared test coefficients were statistically significant at the 1% level (p-value < 0.0001), indicating heteroscedastic and non-normally distributed residuals. Given the heteroscedasticity, White robust standard errors were applied to adjust the results. The normality assumption can be relaxed due to the large sample size (3,308 observations), as OLS estimations possess asymptotic properties. Regarding multicollinearity, all VIFs were below 10, ranging from a minimum of 1.008 to a maximum of 6.554, indicating no multicollinearity issues.

RESULTS

This section presents the research findings through the analysis of descriptive statistics, inferential statistics, and the discussion of results. Each analytical dimension is presented in a subsection of the results, containing an explanation through tables and articulation with the previously presented literature.

Descriptive analysis

Table 5 presents the descriptive statistics divided into three groups: all companies, only regulated companies, and only unregulated companies. This segregation is necessary to highlight the main analysis groups of this study and to allow greater comparability between them.

Table 5. Descriptive statistics.

Panel A — All companies					
	Mean	Median	Stand. Deviation	Maximum	Minimum
NI	-0.0421	0.0289	0.3968	0.3481	-3.1012
CFO	0.0109	0.0548	0.3355	0.3827	-2.7389
ACC	-0.0474	-0.0326	0.1512	0.3662	-0.8475
Panel B — Regulated companies					
	Mean	Median	Stand. Deviation	Maximum	Minimum
NI	0.0096	0.0344	0.1892	0.3481	-1.7226
CFO	0.0835	0.0882	0.1054	0.3827	-0.8529
ACC	-0.0718	-0.0579	0.1381	0.3662	-0.8475
Panel C — Unregulated companies					
	Mean	Median	Stand. Deviation	Maximum	Minimum
NI	-0.0554	0.0275	0.4335	0.3481	-3.1012
CFO	-0.0078*	0.0467	0.3702	0.3827	-2.7389
ACC	-0.0411	-0.0259	0.1538	0.3662	-0.8475

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals. Source: Survey data.

It was observed that regulated companies have, on average, higher earnings than unregulated companies, which provides initial evidence that regulated firms exhibit superior performance compared to unregulated ones. The median and maximum values for both groups are similar, which indicates that the difference in average performance between regulated and unregulated companies is mainly due to lower results among the unregulated firms, which reduces the group's mean.

Regarding the components of earnings, both the mean and the median show that operating cash flows of regulated sectors are higher, while accruals are lower. Thus, if the average earnings of regulated companies are higher and their accruals are lower, it is possible to infer that cash flows are responsible for the superior performance of these entities.

From the dispersion analysis, it is possible to verify that unregulated companies show more dispersed earnings, cash flows, and accruals than regulated ones, as they have higher standard deviations and lower minimum values, which denotes greater volatility in current information.

Econometric analysis

The main results of the research are distributed across five tables, with four models in each, totaling 20 models. Table 6 presents the four baseline persistence models. Table 7 highlights the four models with the regulation

dummy (R). Table 8 presents the persistence models including the variables economic regulation (ER) and economic and accounting regulation (EAR). Table 9 demonstrates the persistence models related to regulation by regulatory agencies (RRA) and regulation by standardized chart of accounts (RSCA). Finally, Table 10 provides the four persistence models that contain a variable for each nationally regulated sector.

Firstly, it was identified that all estimated models were statistically significant in the F-test. The explanatory power of each model, on average, is 55% for the persistence of current earnings as a function of lagged earnings, 59% for the persistence of current earnings as a function of their lagged components (CFO_{t-1} and ACC_{t-1}), 65% for the persistence of operating cash flow alone, and 16% for the persistence of earnings accruals.

Table 6. Earnings persistence.

Variables	NI_t Model 1		NI_t Model 2		CFO_t Model 3		ACC_t Model 4	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Const.	-0.0225	0.2927	-0.0236	0.2556	0.0045	0.8253	-0.0248	0.0008***
NI_{t-1}	0.6273	<0.0001***						
CFO_{t-1}			0.7895	<0.0001***	0.7214	<0.0001***		
ACC_{t-1}			0.6223	<0.0001***			0.3631	<0.0001***
R^2	0.5464		0.5783		0.6385		0.1513	
F-test	<0.0001***		<0.0001***		<0.0001***		<0.0001***	

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. Source: Survey data.

Observing the results of the baseline models shown in Table 6, it is evident that, for the full sample, current earnings, current cash flows, and current accruals are persistent, since the coefficients of the lagged accounting information variables (NI_{t-1}, CFO_{t-1}, and ACC_{t-1}) in the four baseline models were positive and significant at the 1% level.

Upon examining the coefficients of these variables in Tables 7, 8, 9, and 10, it was found that the results remain consistent (same sign and significance — 1%), which reinforces the consistency and robustness of the estimations used, as high variations in sign and significance when new variables are introduced may indicate biased results.

Table 7. Earnings persistence and regulation (R).

Variables	NI_t Model 5		NI_t Model 6		CFO_t Model 7		ACC_t Model 8	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Const.	-0.0350	0.0802*	-0.0352	0.0432**	-0.0115	0.5424	-0.0224	0.0038***
NI_{t-1}	0.6447	<0.0001***						
CFO_{t-1}			0.8112	<0.0001***	0.7367	<0.0001***		
ACC_{t-1}			0.7166	<0.0001***			0.3383	<0.0001***
R	0.0349	<0.0001***	0.0381	0.0064***	0.0568	<0.0001***	-0.0039	0.4205
NI_{t-1}*R	-0.3042	0.0100***						
CFO_{t-1}*R			-0.4686	0.0146**	-0.4094	0.0008***		
ACC_{t-1}*R			-0.3209	0.0337**			0.0841	0.3154
R^2	0.5560		0.5907		0.6497		0.1329	
F-test	<0.0001***		<0.0001***		<0.0001***		<0.0001***	

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals; R = Regulation. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. Source: Survey data (2024).

When considering the analysis of regulated and unregulated companies without specifying the type of regulation, the results in Table 7 show that regulated companies present higher performance and operating cash flow than unregulated ones, as the regulation dummy (R) was positive and significant at 1% in Models 5, 6, and 7. No differences were identified in accrual levels, as the coefficient of dummy R was not significant in Model 8.

Regarding persistence, Table 7 shows a reduction in the persistence of current earnings as a function of lagged earnings (NI_{t-1}*R in Model 5, negative and

significant at 1%), which occurs through both operating cash flows and earnings accruals (CFO_{t-1}*R and ACC_{t-1}*R in Model 6, negative and significant at 5%). It was also identified that operating cash flow persists less from one period to another, as the coefficient of the variable CFO_{t-1}*R in Model 7 was negative and significant at 1%. So far, the only accounting information that persists with the same intensity between regulated and unregulated companies is accruals, since the coefficient of ACC_{t-1}*R was not significant.

It is worth noting that the reduction in persistence is partial, meaning that the information of economically regulated companies did not cease to be persistent, as the subtraction of the accounting coefficients by the interaction variable coefficients still results in a positive value. For example, in Model 5, the coefficient of NIt–1 is 0.6447, and the coefficient of NIt–1*R is –0.3042, which results in a subtraction of 0.3405, indicating the persistence level of earnings for regulated companies. Thus, the information still persists, but with less intensity. Notably, in all subsequent significant analyses, there was never a total loss of persistence.

Table 8. Persistence and economic regulation (ER) and economic and accounting regulation (EAR).

Variables	NI_t Model 9		NI_t Model 10		CFO_t Model 11		ACC_t Model 12	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Const.	-0.0346	0.0843*	-0.0343	0.0494**	-0.0109	0.5679	-0.0225	0.0037***
NI_{t-1}	0.6448	<0.0001***						
CFO_{t-1}			0.8113	<0.0001***	0.7368	<0.0001***		
ACC_{t-1}			0.7166	<0.0001***			0.3383	<0.0001***
ER	0.0394	0.0031***	0.0277	0.0443**	0.0402	0.0010***	0.0078	0.3001
EAR	0.0332	<0.0001***	0.0407	0.0098***	0.0614	<0.0001***	-0.0073	0.1879
NI_{t-1}*ER	-0.2115	0.2748						
NI_{t-1}*EAR	-0.3202	0.0124**						
CFO_{t-1}*ER			-0.2793	0.1042	-0.2481	0.0442**		
CFO_{t-1}*EAR			-0.5098	0.0162**	-0.4476	0.0004***		
ACC_{t-1}*ER			-0.4331	0.0597*			0.0751	0.5704
ACC_{t-1}*EAR			-0.3059	0.0539*			0.0815	0.3709
R^2	0.5563		0.5912		0.6501		0.154	
F-test	<0.0001***		<0.0001***		<0.0001***		<0.0001***	

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals; ER = Economic regulation; EAR = Economic and accounting regulation. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. Source: Survey data.

When considering the type of regulation between economic regulation (ER) and economic and accounting regulation (EAR), Table 8 shows that the coefficients of the ER and EAR dummies were positive and predominantly significant at the 1% level in Models 9, 10, and 11. These results indicate that, even when separating regulation into two groups, regulated companies still show higher performance and higher cash flow compared to unregulated ones. The coefficients of ER and EAR were not significant in Model 12, meaning that no differences were identified in accrual levels between regulated and unregulated companies.

Regarding the analysis of possible differences in persistence for economically regulated companies (ER), Table 8 shows that the coefficients of NI_{t-1}*ER in Model 9 and ACC_{t-1}*ER in Model 12 were not significant, which means there are no changes in the persistence of current earnings as a function of lagged earnings nor in the persistence of current accruals between economically regulated and unregulated companies. On the other hand, it was shown that current earnings are less persistent as a function of accruals from the previous period and that cash flows are less persistent, as indicated by negative and significant coefficients at the 10% and 5% levels, respectively, in Models 10 and 11 (ACC_{t-1}*ER in Model 10 and CFO_{-1}*ER in Model 11).

For companies regulated both economically and accounting-wise, only the coefficient ACC_{t-1} in Model 12 was not significant, meaning that there are no changes in accrual persistence. The other coefficients were negative and significant between 5% and 10%, indicating that current earnings are less persistent as a function of lagged earnings (NI_{t-1}*EAR in Model 9), both through cash flows and accruals (CFO_{-1}*EAR and ACC_{t-1}*EAR in Model10), and that current cash flows are less persistent as a function of lagged cash flows (CFO–1*EAR in Model 11).

Table 9. Persistence and regulation by regulatory agencies and by the standardized chart of accounts.

Variables	NI_t Model 13		NI_t Model 14		CFO_t Model 15		ACC_t Model 16	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Const.	-0.0357	0.0729*	-0.0372	0.0319**	-0.013	0.4957	-0.0225	0.0039***
NI_{t-1}	0.6448	<0.0001***						
CFO_{t-1}			0.8112	<0.0001***	0.7367	<0.0001***		
ACC_{t-1}			0.7165	<0.0001***			0.3382	<0.0001***
RSCA	0.0404	0.0003***	0.0249	0.0080***	0.0367	<0.0001***	0.0062	0.2774
RRA	0.0286	0.0007***	0.0327	0.0342**	0.0641	<0.0001***	-0.0124	0.0613*
NI_{t-1}*RSCA	-0.2283	0.188						
NI_{t-1}*RRA	-0.3274	0.0136**						
CFO_{t-1}*RSCA			-0.1212	0.2949	-0.2208	0.0012***		
CFO_{t-1}*RRA			-0.5107	0.0075***	-0.4401	0.0004***		
ACC_{t-1}*RSCA			-0.1811	0.3428			0.0252	0.8464
ACC_{t-1}*RRA			-0.3647	0.0294**			0.0991	0.303
R^2	0.5564		0.5917		0.6502		0.1557	
F-test	<0.0001***		<0.0001***		<0.0001***		<0.0001***	

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals; RRA = Regulation by regulatory agencies; RSCA = Regulation by standardized chart of accounts. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. Source: Survey data (2024).

Table 9 shows that the variables regulation by regulatory agency (RRA) and regulation by standardized chart of accounts (RSCA) are positive and significant between 1% and 5% in Models 13, 14, and 15, once again indicating that regulated companies exhibit greater performance and cash flow compared to unregulated companies. Table 9 also highlights that companies regulated by a standardized chart of accounts experienced a reduction in persistence only in cash flows (CFO_{t-1}*RSCA in Model 15), while companies regulated by agencies showed a reduction in persistence in both cash flows (CFO_{t-1}*RRA in Model 15), current earnings as a function of lagged earnings (NI_{t-1}*RRA in Model 13), and as a function of lagged earnings components (CFO_{t-1}*RRA and ACC_{t-1}*RRA in Model 14). Again, no changes were observed in accrual persistence for regulated companies.

From the individualized analysis of regulated sectors, shown in Table 10, it was found that not all specific regulated sectors demonstrate superior performance compared to unregulated ones. In Model 17, the sectors with higher performance were electricity, sanitary surveillance, health, water and sanitation, land transportation, and mining. The only sector with lower performance compared to other sectors and unregulated companies was aviation (ANAC). In the deeper analysis in Model 18, which disaggregates lagged earnings into its components CFO_{t-1} and ACC_{t-1}, the electricity, water and sanitation, and mining sectors continued to show higher performance. Model 19 highlights that all regulated sectors have higher operating cash flow than unregulated companies. Model 20 does not show a consistent direction for accruals, as some coefficients were positive, others negative, and some were not significant.

Table 10. Persistence and regulation by specific regulated sector (RSRS).

Variables	NI_t Model 17		NI_t Model 18		CFO_t Model 19		ACC_t Model 20	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Const.	-0.5621	0.0373**	-0.039	0.0260**	-0.0145	0.4508	-0.0241	0.0016***
NI_{t-1}	0.6449	<0.0001***						
CFO_{t-1}			0.8112	<0.0001***	0.7367	<0.0001***		
ACC_{t-1}			0.7173	<0.0001***			0.3384	<0.0001***
ANEEL	0.0449	0.0004***	0.028	0.0091***	0.0383	<0.0001***	0.0112	0.0598*
ANP	-0.0085	-0.6781	-0.0294	0.4399	0.0527	<0.0001***	-0.0403	0.0147**
ANATEL	0.0107	-0.5822	-0.0318	0.2513	0.0333	0.0595*	-0.0621	<0.0001***
ANVISA	0.0322	-0.0215**	0.0183	0.196	0.0379	0.0041***	-0.0025	0.758
ANS	0.0173	0.0272**	0.0004	0.9683	0.0267	0.0119**	-0.009	0.3993
ANA	0.0238	0.0031***	0.0207	0.0297**	0.0353	0.0004***	-0.0017	0.8456
ANTT	0.0352	<0.0001***	0.0128	0.2085	0.0299	0.0185**	0.0065	0.5165
ANTAQ	0.0166	0.3592	0.0072	0.7212	0.0781	<0.0001***	-0.0567	0.0288**
ANAC	-0.1157	0.0297**	-0.0241	0.5678	0.0541	0.0005***	-0.1312	0.0050***
ANM	0.0664	0.0068***	0.0848	0.0039***	0.0635	0.0108**	0.043	0.0406**
NI_{t-1}*ANEEL	-0.2799	0.1506						
NI_{t-1}*ANP	-0.1595	0.2906						
NI_{t-1}*ANATEL	-0.145	0.6431						
NI_{t-1}*ANVISA	-0.2503	0.1993						
NI_{t-1}*ANS	0.2371	0.0353**						

(continue)

Table 10. Persistence and regulation by specific regulated sector (RSRS). (continuation)

Variables	NI_t Model 17		NI_t Model 18		CFO_t Model 19		ACC_t Model 20	
NI_{t-1}*ANA	0.1791	0.1677						
NI_{t-1}*ANTT	0.0709	0.4367						
NI_{t-1}*ANTAQ	-0.6222	<0.0001***						
NI_{t-1}*ANAC	-0.457	0.0199**						
NI_{t-1}*ANM	0.0292	0.837						
CFO_{t-1}*ANEEL			-0.13	0.3641	-0.2893	0.0001***		
CFO_{t-1}*ANP			0.048	0.8533	-0.3449	0.0016***		
CFO_{t-1}*ANATEL			-0.1919	0.4258	-0.1327	0.3795		
CFO_{t-1}*ANVISA			-0.2922	0.0964*	-0.265	0.0481**		
CFO_{t-1}*ANS			0.1378	0.1766	0.0114	0.9173		
CFO_{t-1}*ANA			0.0169	0.893	-0.1998	0.0912*		
CFO_{t-1}*ANTT			-0.0987	0.2467	0.0645	0.4704		
CFO_{t-1}*ANTAQ			-0.7592	<0.0001***	-0.6521	<0.0001***		
CFO_{t-1}*ANAC			-2.2857	0.0146**	-0.5934	0.0015***		
CFO_{t-1}*ANM			-0.3442	0.0134**	-0.238	0.2239		
ACC_{t-1}*ANEEL			-0.2023	0.376			-0.0354	0.8202
ACC_{t-1}*ANP			-0.1434	0.5087			0.0798	0.5804
ACC_{t-1}*ANATEL			-0.5523	0.0988*			-0.2818	0.0800*
ACC_{t-1}*ANVISA			-0.5027	0.0446**			-0.0334	0.799
ACC_{t-1}*ANS			-0.115	0.5211			-0.0617	0.7177
ACC_{t-1}*ANA			0.012	0.9536			-0.0916	0.5879
ACC_{t-1}*ANTT			-0.3843	0.0091***			0.4332	<0.0001***
ACC_{t-1}*ANTAQ			-0.8003	<0.0001***			-0.3918	<0.0001***
ACC_{t-1}*ANAC			-0.4887	0.0091***			-0.0228	0.9012
ACC_{t-1}*ANM			-0.2665	0.1061			0.4804	0.0002***
R^2	0.5621		0.6001		0.6536		0.1725	
F-test	<0.0001***		<0.0001***		<0.0001***		<0.0001***	

Note. NI = Net income; CFO = Operating cash flow; ACC = Earnings accruals; ANEEL = Electric energy; ANP = Oil gas and biofuels; ANATEL = Telecommunications; ANVISA = Sanitary surveillance; ANS = Health; ANA = Water and sanitation; ANTT = Land transportation; ANTAQ = Waterway transportation; ANAC = Civil aviation; and ANM = Mining. * = significant at 10%; ** = significant at 5%; *** = significant at 1%. Source: Research data (2024).

Regarding persistence, considering the results of the interaction variables in the four analyses (Models 17, 18, 19, and 20), all regulated sectors experienced changes in at least one accounting item. The sector with the most changes, with all variables significant and negative in all analyses, was the waterway transportation sector (ANTAQ), showing reduced persistence in earnings (even when considering lagged components), cash flows, and accruals. The second sector with the most reductions, with significant results in three analyses, was aviation (ANAC), where only accrual persistence remained unchanged (ACC_{t-1}*ANAC in Model 20), meaning earnings persistence (and its components) and cash flow persistence decreased. With significant results in two analyses: for the sanitary surveillance sector (ANVISA), there was a reduction in earnings persistence only when analyzed through lagged cash flows and accruals, and a reduction in current cash flow persistence; for the telecommunications sector (ANATEL), a decline in current earnings persistence was observed only as a function of prior-period accruals, along with reduced accrual persistence; and for the mining sector (ANM), the persistence of current earnings declined due to lagged CFO, while accrual persistence increased. For the other sectors, it is worth noting that the only one to show an increase in earnings persistence was the health sector (ANS).

Discussion of results

Based on the results found, it was observed that the companies in the sample exhibit persistence in their earnings, cash flows, and accruals, which indicates the quality of accounting information. Regarding regulation, it was noted that regulated companies have higher performance and cash flows than unregulated ones; however, these are less persistent, suggesting that the quality of information in regulated sectors is lower. When regulation is segregated into distinct groups, more intense reductions in persistence were observed, especially for companies subject to both economic and accounting regulation and those overseen by regulatory agencies.

Finally, the analysis of individually regulated sectors highlighted that most sectors showed lower persistence than unregulated ones in at least one accounting item. However, it is important to note that this reduction in persistence is partial, as even with negative coefficients in the interaction variables, the coefficients of the main accounting information remain positive and significant. This indicates that, although regulation reduces the predictability of earnings and cash flows, the accounting information of regulated companies still maintains some degree of persistence. This aspect suggests that regulation impacts the stability of accounting information but does not completely nullify its usefulness for financial analysis.

The results of this study do not support hypotheses H1 and H2, as they revealed that the persistence of earnings and operating cash flow of regulated companies is lower than that of unregulated companies. This effect was even more pronounced in companies subject to both economic and accounting regulation and those monitored by regulatory agencies. Similarly, hypothesis H3 was also rejected, since no significant differences were found in the persistence of accruals between regulated and unregulated companies, indicating that this earnings component remains stable regardless of regulation.

These rejections indicate that, contrary to expectations, regulation does not increase the predictability of earnings, cash flows, and accruals of companies, but instead reduces their persistence. This suggests that regulatory intervention may generate greater volatility in accounting information, possibly due to normative requirements that affect how results are recognized and disclosed.

Regarding previous studies, the results of this research are consistent with Kolozsvari and Macedo (2016), who demonstrated that regulated companies have lower persistence compared to unregulated ones, and contradict Wardhani et at. (2015), who found no significant relationship between the regulation dummy and persistence. The findings also contradict the studies by Shi et al. (2023) and Lorek and Willinger (2007), which found a positive relationship between regulation and earnings persistence. In relation to earlier studies that used samples comprised only of companies from regulated sectors, the evidence from this study also highlights that earnings are persistent in the electricity, water and sanitation, and natural gas sectors (Melo & Cavalcante, 2016; Silva et al., 2018), as well as in the health sector (Ferreira & Souza, 2021).

However, an interesting finding was the greater earnings persistence in the health sector, regulated by ANS. Unlike other regulated sectors, the health sector may have a more stable regulatory environment, ensuring greater continuity in earnings predictability. Additionally, the lower elasticity of demand for healthcare services may contribute to the stability of financial flows, favoring greater persistence in accounting information.

The theory of economic regulation predicts that regulation is a network driven by self-interest at the expense of collective interests (Cline et al., 2022). Conversely, the public interest theory of regulation holds that regulation prioritizes collective over individual interests (Adams, 2022). Therefore, regarding the theories addressed on regulation, the evidence found allows for the identification of attributes of the theory of economic regulation in the Brazilian regulatory environment, since the demands of influential groups, whether economic or political, are met by regulatory institutions to maximize the benefits of these sectors at the expense of public interest requirements, such as the quality of accounting information to support decisions by various types of users. Thus, the theory of economic regulation best underpins the findings of this research.

Regulation showed a positive relationship with the performance and operating cash flow of companies, but a negative relationship with the quality of earnings and cash flow, since regulated companies presented more volatile accounting information. This situation aligns with the effect of regulatory enforcement, which refers to the set of measures aimed at disciplining the market for greater compliance with regulation and reducing financial risks (Delis et al., 2018). This is because, despite these objectives, regulatory actions, instead of increasing the quality of information, may influence the reduction of earnings persistence (Kolozsvari & Macedo, 2016).

Finally, the analysis of different types of regulation indicates that the role of regulatory agencies may have a more substantial impact on the volatility of accounting information than simple accounting standardization through the standardized chart of accounts (RSCA). While accounting standardization may promote greater uniformity in financial records, intense oversight and regulatory requirements by agencies may lead to more abrupt variations in accounting results. This reinforces that the presence of an active regulatory body can significantly affect the predictability of the financial information of regulated companies.

FINAL CONSIDERATIONS

This study aimed to analyze the differences in the persistence of accounting information between companies from regulated and unregulated sectors in the Brazilian economy. For this analysis, an average of 276 non-financial companies listed on B3 were used, covering the period from 2011 to 2022, resulting in 3,308 observations organized in an unbalanced panel. To measure persistence, models were applied to assess the persistence of earnings, cash flows, and accruals, in addition to the inclusion of dummies to compare the quality of accounting information between regulated and unregulated companies.

This study showed that regulated companies exhibit higher performance and operating cash flow compared to unregulated ones; however, they demonstrate lower persistence in accounting information. The reduction in persistence was more pronounced in companies subject to both economic and accounting regulation,

as well as those supervised by regulatory agencies. Furthermore, sectors such as waterway transportation and civil aviation showed the most significant declines in persistence, while the healthcare sector was an exception, showing greater earnings stability. These findings reinforce the idea that, although regulation may bring benefits to companies' performance, it also negatively impacts the predictability of accounting results, which may affect the quality of information available to market users.

Based on these results, it was observed that the regulation dummies presented positive and significant coefficients in the earnings and cash flow models, indicating that regulation may contribute to higher performance and operating cash flows for regulated companies compared to unregulated ones. However, these results are not accompanied by higher information quality, as reductions in persistence were observed, especially among companies under economic and accounting regulation and those under regulatory agency oversight.

The findings of this study may be valuable for the decision-making processes of various accounting information users. The superior performance of regulated companies was accompanied by lower persistence in earnings and cash flows, meaning more volatile financial and economic performance. This information may be useful for investors and creditors interested in companies operating in regulated sectors, as it serves as an essential tool for capital allocation risk analysis and return forecasting for investors, and for credit granting and default risk analysis for creditors.

Additionally, the evidence found is also relevant to regulators, since understanding the volatility of earnings in regulated companies and the performance differences between them and unregulated companies may be useful information for assessing companies' compliance with accounting standards and for developing more effective regulatory measures to protect users' interests and ensure that companies accurately and faithfully disclose their financial condition.

This study was conducted through the incorporation of various variables into the persistence models for earnings, cash flow, and accruals, with the aim of understanding the relationship between regulation and the quality of accounting information. This methodological improvement is one of the study's distinguishing features, as previous research typically presented regulation using a single dummy (regulated vs. unregulated) and applied only the earnings persistence model, or analyzed one or a few specific sectors without comparing them to other sectors or unregulated companies. Thus, a contribution of this study is the deepening of the analysis on regulation and how its specific characteristics relate to the persistence of accounting information in regulated versus unregulated companies.

The limitations identified in this study include the reduction in the number of observations due to missing financial information from some companies during the analyzed periods. To propose ideas for future research, it is suggested that studies be conducted to investigate how the characteristics of regulation relate to earnings proxies, so as to gain greater insight into how the actions of regulatory institutions influence the quality of accounting information. Moreover, it would be interesting to assess whether the superior performance of regulated companies is reflected in greater social performance for consumers, considering that these companies provide essential services to society.

REFERENCES

Alexandre, N. O., & Mello, L. C. O. (2017). Inconformidades nos relatórios dos auditores independentes: Estudo dos setores regulados e não regulados brasileiros. *Revista de Auditoria Governança e Contabilidade*, 5(20), 16-32. https://revistas.fucamp.edu.br/index.php/ragc/article/view/1020

Adams, T. L. (2022). What is the public interest in professional regulation? Canadian regulatory leaders' views in a context of change. *Professions and Professionalism*, *12*(3). https://doi.org/10.7577/pp.4962

Aquila, G., Pamplona, E. O., Ferreira Filho, J. A., Silva, A. S., Mataveli, J. V. A., Correa, J. E., Maria, M. S., & Garcia, G. C. (2019). Quantitative regulatory impact analysis: Experience of regulatory agencies in Brazil. *Utilities policy*, *59*, 100931. https://doi.org/10.1016/j.jup.2019.100931

Betz, F., & Kim, M. (2021). Economic regulation and corporate governance: The case of wirecard. *Modern Economy*, *12*(9), 1386-1423. https://doi.org/10.4236/me.2021.129072

Cline, B. N., Williamson, C. R., & Xiong, H. (2022). Trust, regulation, and market efficiency. *Public Choice*, 1-30. https://doi.org/10.1007/s11127-021-00945-3

Dechow, P., & Schrand, C. (2004). Earnings quality. *CFA Digest*, *34*(4), 82-85.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of accounting and economics*, *50*(2-3), 344-401. https://doi.org/10.1016/j.jacceco.2010.09.001

Delis, M. D., Hasan, I., Iosifidi, M., & Li, L. (2018). Accounting quality in banking: The role of regulatory interventions. *Journal of Banking & Finance*, *97*, 297-317. https://doi.org/10.1016/j.jbankfin.2018.10.005

Ferreira, A. C., & Souza, A. A. (2021). Determinantes do desempenho econômico-financeiro das operadoras de planos de saúde no brasil e sua relação com a qualidade das informações contábeis. *Revista Universo Contábil*, 17(4), 46-66. https://doi.org/10.21450/rahis.v16i1.4947

Holanda, A. P., & Coelho, A. C. D. (2020). Regulação econômica e decisão de investimento: Evidências no Brasil. *REUNIR Revista de Administração Contabilidade e Sustentabilidade*, *10*(3), 27-36. https://www.reunir.revistas.ufcg.edu.br/index.php/uacc/article/view/786

Jeong, K. H., & Choi, S. U. (2019). Does real activities management influence earnings quality and stock returns in emerging markets? Evidence from Korea. *Emerging Markets Finance and Trade*, *55*(12), 2834-2850. https://doi.org/10.1080/1540496X.2018.1535970

Kolozsvari, A. C., & Macedo, M. A. D. S. (2016). Análise da influência da presença da suavização de resultados sobre a persistência dos lucros no mercado brasileiro. *Revista Contabilidade & Finanças*, *27*, 306-319. https://doi.org/10.1590/1808-057x201602610

Lei no. 11.638, de 28 de dezembro de 2007. (2007). Altera e revoga dispositivos da Lei nº 6.404/76, e da Lei nº 6.385/76, e estende às sociedades de grande porte disposições relativas à elaboração e divulgação de demonstrações financeiras. Diário Oficial da União, Brasília. http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/lei/l11638.htm

Lorek, K. S., & Willinger, G. L. (2007). The contextual nature of the predictive power of statistically based quarterly earnings models. *Review of Quantitative Finance and Accounting*, 28, 1-22. https://doi.org/10.1007/s11156-006-0001-z

Ministério da Integração Nacional e do Desenvolvimento Regional. (2021, 14 de junho). Manual orientativo sobre a norma de referência n°1/ANA/2021: Cobrança pela prestação do serviço público de manejo de resíduos sólidos urbanos. *Agência Nacional de Águas e Saneamento Básico e Ministério do Desenvolvimento Regional*. 110 p. https://www.gov.br/ana/pt-br/assuntos/saneamento-basico/normativos-publicados-pela-ana-para-o-saneamento-basico/resolucao-ana-no-79-2021-1/manual-orientativo-sobre-a-norma-de-referencia-no-1.pdf

Medida Provisória n° 884, de 6 de julho de 2018. (2018, 6 de julho). Atualiza o marco legal do saneamento básico e altera a Lei nº 9.984, de 17 de julho de 2000, para atribuir à Agência Nacional de Águas competência para editar normas de referência nacionais sobre o serviço de saneamento. Presidente da República. https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?jornal=515&pagina=1&data=09/07/2018&totalArquivos=104

Melo, J. R. A., & Cavalcante, P. R. N. (2016). Outros resultados abrangentes: Uma perspectiva do conservadorismo condicional e persistência de empresas do setor elétrico brasileiro. *Revista Conhecimento Contábil*, *2*(2). https://periodicos.apps.uern.br/index.php/RCC/article/view/829

Monticelli, J. M., Verschoore, J. R., & Garrido, I. L. (2023). The emergence of coopetition in highly regulated industries: A study on the Brazilian private healthcare market. *Industrial Marketing Management*, *108*, 35-46. https://doi.org/10.1016/j.indmarman.2022.11.007

Nam, S. (2019). The role of accruals in the prediction of future earnings. *Journal of Accounting and Finance*, *19*(7). https://articlearchives.co/index.php/JAF/article/view/43

Olojede, P., & Erin, O. (2021). Corporate governance mechanisms and creative accounting practices: the role of accounting regulation. *International Journal of Disclosure and Governance*, *18*(3), 207-222. https://doi.org/10.1057/s41310-021-00106-4

Oktavia, M., & Susanto, Y. K. (2022). The determinant factors of earnings persistence. *Jambura Equilibrium Journal*, *4*(1). https://doi.org/10.37479/jej.v4i1.13087

Pimentel, R. C., & Malacrida, M. J. C. (2020). Quarterly earnings, operating cash flow, and accruals in future performance assessment. *Brazilian Administration Review*, *17*(4), e190115. https://doi.org/10.1590/1807-7692bar2020190115

Rahman, S. (2023). Narrative tone and earnings persistence. *Journal of International Accounting, Auditing and Taxation*, *52*, 100562. https://doi.org/10.1016/j.intaccaudtax.2023.100562

Shi, X., Wang, J., & Ren, X. (2023). Share pledging and earnings informativeness. *International Journal of Accounting & Information Management*, 31(2), 270-299. https://doi.org/10.1108/IJAIM-09-2022-0195

Silva, C. A., & Nelson, R. A. R. R. (2015). Uma análise do aspecto regulador do Estado brasileiro à luz do papel das agências reguladoras. *Revista de Direito Administrativo*, 268, 153-185 https://doi.org/10.12660/rda.v268.2015.50738

Silva, J. D., Bonfim, M. P., Gonçalves, R. D. S., & Niyama, J. K. (2018). Qualidade do lucro versus governança corporativa: uma análise das companhias de utilidade pública listadas na b3. *Contabilidade Vista & Revista*, 29(1), 48-76. https://doi.org/10.22561/cvr.v29i1.3680

Souza, P. V. S., Ribeiro, J. P. M., & Paulo, E. (2024). Organizational complexity and value relevance under the regulatory and financial standards of Brazilian electric power companies. *Energy Policy*, *186*, 114000. https://doi.org/10.1016/j.enpol.2024.114000

Suharsono, R. S., Nirwanto, N., & Zuhroh, D. (2020). Voluntary disclosure, financial reporting quality and asymmetry information. *Journal of Asian Finance, Economics and Business*, *7*(12), 1185-1194. https://eprints.unmer.ac.id/id/eprint/3357

Stigler, G. J. (1971). The theory of economics regulation. *The Bell Journal of Economics and Management Science*, 2(1), 3-21. https://doi.org/10.2307/3003160

Thomas, D. W., & Thomas, M. D. (2022). Regulation, competition, and the social control of business. *Public Choice*, *193*(1), 109-125. https://doi.org/10.1007/s11127-022-00989-z

Wardhani, R., Utama, S., & Rossieta, H. (2015). The effect of governance system and degree of convergence to IFRS on the quality of financial reporting: Evidence from Asia. *Corporate Ownership and Control*, *12*(4), 409-423. https://doi.org/10.22495/cocv12i4c3p8

Züger, T., & Asghari, H. (2023). AI for the public. How public interest theory shifts the discourse on AI. *AI & Society*, *38*(2), 815-828. https://doi.org/10.1007/s00146-022-01480-5

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