COOPERATIVE GOVERNANCE AND EARNINGS MANAGEMENT IN BRAZILIAN CREDIT UNIONS

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ABSTRACT

This study investigates the relationship between income smoothing and cooperative governance practices in Brazilian credit unions from 2018 to 2021. The governance proxy was constructed f`rom 17 binary questions drawn from the Central Bank of Brazil's governance survey (2014), while income smoothing was measured using the model proposed by Maia, Bressan, and Lamounier (2013). To achieve the research objective, we performed panel regressions with fixed effects estimated by Ordinary Least Squares (OLS) and applied Weighted Least Squares (WLS) to address heteroskedasticity. The results indicate an improvement in governance practices over the period and a positive and significant association between income smoothing and cooperative governance. This finding can be explained by the unique characteristics of credit unions, in which governance mechanisms aim to protect the institution and its members. The study contributes to the literature by suggesting that, when aligned with sound governance principles, income smoothing may serve as a prudent management tool.

Keywords: Credit unions. Income smoothing. Earnings management. Cooperative governance.

GOVERNANÇA COOPERATIVA E GERENCIAMENTO DE RESULTADOS EM COOPERATIVAS DE CRÉDITO BRASILEIRAS

RESUMO

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Este estudo investiga a relação entre o *income smoothing* e as práticas de governança cooperativa nas cooperativas de crédito brasileiras entre 2018 e 2021. A proxy de governança foi construída a partir de 17 questões binárias do questionário do Banco Central do Brasil (2014), enquanto o *income smoothing* foi mensurado pelo modelo de Maia, Bressan e Lamounier (2013). Para alcançar o objetivo, realizamos regressões em painel com efeitos fixos via Mínimos Quadrados Ordinários (MQO) e aplicamos Mínimos Quadrados Ponderados (MQP) para corrigir heterocedasticidade. Os resultados indicam aumento da governança no período e associação positiva e significativa entre *income smoothing* e governança cooperativa, explicada pelas especificidades das cooperativas, nas quais a governança protege a instituição e seus membros. O estudo amplia o debate ao sugerir que, quando alinhado a princípios de boa governança, o *income smoothing* pode atuar como mecanismo prudencial de gestão.

Palavras-Chave: Cooperativas de crédito. Suavização de Resultados. Gerenciamento de resultados. Governança Cooperativa.

1 INTRODUCTION

Agency conflicts represent substantial costs to organizations and negatively affect their performance. The adoption of corporate governance mechanisms constitutes an effective response to mitigate such conflicts, as these mechanisms influence agents' behavior and consequently reduce agency costs (Eisenhardt, 1989; Silva, Santos, Santos & Ranciaro Neto, 2022). Governance practices can be applied across different types of organizations, provided they are adapted to their specific institutional characteristics (Brazilian Institute of Corporate Governance [IBGC], 2015).

According to Agency Theory (Jensen & Meckling, 1976), the contractual nexus between principal and agent may give rise to information asymmetries that trigger conflicts of interest, which in turn require monitoring mechanisms and incentive structures (Eisenhardt, 1989). In credit unions, this dynamic unfolds in a distinctive manner, as members simultaneously assume the roles of owners, users, financiers, and, in some cases, managers. This configuration creates an environment particularly conducive to potential agency problems.

In the Brazilian context, credit unions differ from traditional banking institutions due to their associative nature and absence of profit orientation (Brazil, 1971). They were formally incorporated into the National Financial System with the enactment of Complementary Law No. 130/2009 (Brazil, 2009). These entities play a significant role in promoting financial inclusion, as they reach segments of the population that are often underserved by conventional banking systems, thus representing a viable alternative for both savers and borrowers (Meinen & Port, 2014; Sicredi, 2019; Greatti & Sela, 2021).

The absence of a clear separation between ownership and control gives rise to agency conflicts stemming from the overlapping of roles (Branch & Baker, 2000; Bressan, Braga & Bressan, 2012). Although self-management is often idealized as a solution, it does not eliminate the divergence of interests among cooperative members. Democratic elections may generate internal disputes, thereby requiring continuous monitoring to ensure that management effectively represents the collective interests (Westrup, Camilo & Estevam, 2018; Central Bank of Brazil [BCB], 2009; Fontes Filho, Ventura & Oliveira, 2008b).

Given the growing importance of credit unions within the Brazilian National Financial System (SFN), the Central Bank of Brazil (BCB) launched the Cooperative Governance Project between 2006 and 2009 to strengthen governance practices in the sector (BCB, 2009). Subsequent studies conducted in 2013 and 2014 expanded this agenda, culminating in the establishment of minimum governance requirements through Resolution No. 4.434/2015, later updated by Resolution No. 5.051/2022 (BCB, 2014; National Monetary Council [CMN], 2015, 2022). In 2016, the Brazilian Cooperatives Organization (OCB) published the *Manual of Governance Best Practices*, providing specific guidelines for single-tier cooperatives (OCB, 2016).

The pursuit of presenting results that convey a positive image to cooperative members and other stakeholders may lead credit unions to manage their earnings in a discretionary, yet legal, manner, making use of specific accounts such as the Loan Loss Provision (LLP) to smooth profits over time (Bradt, Bortoli & Fonseca, 2022). *Income smoothing* is one of the primary mechanisms employed for this purpose, aiming to reduce net income volatility, preserve the distribution of surpluses, and alter the institution's perceived risk (Bressan, Bressan & Silva Junior, 2015). The term *accruals*, which forms the basis for measuring income smoothing, refers to accounting adjustments that defer the recognition of cash flows and may be used to smooth reported financial results (Dechow, Sloan & Sweeney, 1995).

The literature already encompasses studies on income smoothing in both traditional financial institutions (Shala, Ozili & Ahmeti, 2024) and credit unions (Maia, Bressan & Lamounier, 2013; Bressan, Bressan & Silva Júnior, 2015, 2017; Sallaberry et al., 2024), as well as investigations into corporate governance in these two organizational contexts (Franzoni et al., 2024; Vila et al., 2023; Favali et al., 2020; Mercer et al., 2019; Santos et al., 2021; Silva et al., 2022). However, studies addressing the relationship between governance and income smoothing are more frequently found in traditional financial institutions (Jam'ah et al., 2024; Pinto et al., 2020), while the literature examining this relationship in Brazilian credit cooperatives, particularly those within the S_4 segment, remains incipient.

Furthermore, classical studies on corporate governance indices, such as Gompers, Ishii, and Metrick (2003), who developed the "Governance Index", demonstrated that stronger governance structures are associated with higher market value and improved operational performance. Subsequently, Bebchuk, Cohen, and Ferrell (2008) refined this approach by proposing the "Entrenchment Index," showing that not all governance mechanisms exert a uniform impact on firm value and highlighting the importance of identifying the most relevant components for each specific context. These seminal works provide the foundation for the use of governance proxies in applied research, such as the IGCoop.

Thus, there is a relevant gap in the understanding of the impacts of income smoothing associated with cooperative governance in this specific segment. In light of the above, the following research question is proposed: **what is the relationship between income smoothing and the quality of cooperative governance practices in Brazilian credit unions?**

In this context, the main objective of this article is to analyze the relationship between income smoothing and the quality of corporate governance, as measured by the Cooperative Governance Index (IGCoop), in Brazilian credit unions in the S_4 segment over the period 2018–2021. More specifically, it aims to: (i) construct and apply the Cooperative Governance Index (IGCoop), developed from 17 binary items distributed across the dimensions of representativeness, administrative structure, and oversight; (ii) measure the intensity of income smoothing based on discretionary accruals related to the LLP, using the econometric model employed by Maia, Bressan and Lamounier (2013); (iii) examine the association between IGCoop and income smoothing by testing the model with and without the IGCoop variable; and (iv) compare the findings with the national and international literature on governance and earnings management in financial institutions and cooperatives.

The findings reveal progress in the adoption of governance practices over the period analyzed (2018–2021), as well as a positive and statistically significant association with income smoothing. This suggests that cooperative governance functions as an institutional protection mechanism, particularly through the discretionary use of LLP mitigating adverse reactions and promoting stability.

2 THEORETICAL FRAMEWORK

2.1 Cooperative Governance and Earnings Management in Brazilian Credit Unions

Agency theory, developed by Jensen and Meckling (1976), explains the conflicts between owners and managers and serves as the foundation of corporate governance. An agency relationship is characterized as a contract in which one party (the principal) delegates authority to another (the agent) to make decisions on its behalf (Jensen & Meckling, 1976). This delegation creates potential problems of opportunistic behavior, such as adverse selection and moral hazard, due to the information asymmetry between the parties (Eisenhardt, 1989).

In credit unions, this conflict is intensified by the overlapping of roles: members simultaneously act as owners, clients, and financiers, while also exerting influence over management. This unique configuration increases the risk of decisions that prioritize individual interests over the collective good, reinforcing the importance of cooperative governance as a disciplining mechanism.

In Brazil, the IBGC (2015) proposes guidelines for good practices in this area. In credit unions, agency conflicts are intensified by the overlap between ownership and management, a characteristic feature of the cooperative model (Bialoskorski Neto, Barroso & Rezende). In this context, the concept of cooperative governance is adopted, aimed at preserving mutualist principles and ensuring institutional continuity (Lima, Araújo & Amaral, 2008; OCB, 2016).

Although less consolidated from a theoretical standpoint, cooperative governance complements corporate governance by structuring the allocation of responsibilities and reinforcing the principles of transparency, fairness, accountability, and organizational responsibility (Jansen, Maehler & Wegner, 2018; Fontes Filho, Marucci & Oliveira, 2008). Its pillars, self-management, fairness, transparency, education, and sustainability, guide democratic management, strengthen trust, and promote ethical and resilient conduct (OCB, 2016).

The effectiveness of cooperative governance requires an institutional framework and a clear understanding of collective identity, imposing on its agents behaviors grounded in diligence, integrity, and accountability (IBGC, 2015).

According to the Central Bank of Brazil (BCB, 2016), the governance structure must include members, the general assembly, boards (administrative, supervisory, advisory), committees (social and technical), independent auditing, and executive management. Law No. 5,764/1971 mandates the existence of the General Assembly (GA), the Board of Directors (BoD), and the Supervisory Board (SB).

The GA, the highest decision-making body, requires accessible communication and the effective participation of members (IBGC, 2015; OCB, 2016). The BoD, elected by the GA, defines strategic guidelines and safeguards the interests of the membership base (Brazil, 2022). Complementary Law No. 196/2022 prohibits individuals from holding the position of chair in more than one cooperative within the same system, establishing a four-year term of office.

The SB, autonomous and accountable to the GA, is responsible for monitoring management and overseeing accounting practices, issuing reports that reinforce the reliability of financial statements (Tosini & Bastos, 2008; IBGC, 2015; OCB, 2016).

Financial statements represent the primary instrument for disclosing an organization's economic and financial position to external stakeholders, playing a fundamental role in reducing information asymmetries, provided they are prepared with reliability and integrity (Samak, Said & Latif, 2014). However, the use of discretionary adjustment, even when in compliance with accounting standards, may compromise transparency by obscuring adverse economic events, thereby undermining the neutrality and usefulness of financial information (Goulart, 2007; Manukaji, 2018; Martinez, 2001; Zendersky, 2005).

The normative flexibility inherent to accounting standards allows a certain degree of managerial judgment, which may be strategically exploited by managers to distort the representation of an entity's economic reality (Fuji, 2004; Martinez, 2006; Sousa et al., 2020). This behavior, conceptualized as earnings management, consists of the deliberate manipulation of financial statements for opportunistic or informational purposes, without explicitly violating the prevailing regulations (Gabriel & Corrar, 2010; Healy & Wahlen, 1999; Schipper, 1989).

One of the most recurrent forms is *income smoothing* (IS), used to reduce earnings volatility, particularly by more conservative managers (Bortoluzzo, Seng & Gomes, 2016; Ribeiro & Colauto, 2016). IS may occur naturally, because of operating activities, or intentionally, and may take a real form (with cash flow impact) or an artificial form (without cash flow impact), both of which stem from managerial decisions (Eckel, 1981; Ribeiro & Colauto, 2016).

In the highly regulated financial sector, understanding IS requires attention to institutional specificities (Dantas, Carvalho & Pereira, 2018). Banking risk comprises expected losses (managed through provisions) and unexpected losses (covered by capital), based on internal risk metrics (Norden & Stoian, 2013). In this context, the LLP stands out as the sector's main accrual, affecting earnings, capital, and managerial decisions, as well as signaling credit risk (Goulart, 2007; Albuquerque, Morais & Pinto, 2020).

In Brazil, Resolution No. 2,682/1999 regulates the establishment of the LLP, requiring minimum provisioning rates ranging from 0.5% (level A) to 100% (level H), according to the credit risk classification of the operation, and not allowing amounts below these thresholds (CMN, 1999; Zendersky, 2007). The lending institution is responsible for classifying and reviewing this risk on a monthly basis, based on objective criteria. However, the absence of an upper limit for provisioning creates room for discretionary managerial decisions (Faria Junior, Machado & Dantas, 2021).

Resolution No. 4,966/2021 of the National Monetary Council (CMN) replaced the previous regulation, aligning accounting practices with IFRS 9 and requiring provisions to be based on expected credit losses, regardless of default status. Its enforcement began in 2025, with a mandatory implementation plan established for 2022 under Resolution No. 5,019/2022, which required systemic, regulatory, and personnel adjustments. Because implementation is taking place between 2022 and 2024, the data used in this study, anchored in the 1999 regulation, remains valid and are not affected by the new regulatory framework.

The LLP comprises discretionary and non-discretionary components: the former corresponds to the portion exceeding the legal minimum, enabling earnings management within the boundaries of regulatory compliance (Dantas, Carvalho & Pereira, 2018; Faria Junior, Machado & Dantas, 2021).

Although the LLP functions as a prudential instrument against expected losses, its excessive use compromises the transparency of financial statements by increasing earnings opacity and hindering the assessment of an institution's true economic risk (Norden & Stoian, 2013; Shala et al., 2024). In the context of credit unions, the incentive for earnings management stems from the proportional distribution of surpluses among members, which heightens the pressure for stable and positive results (Maia, Bressan & Lamounier, 2013; BCB, 2009; Brazil, 2009).

The possibility of loss sharing and the requirement for minimum capital, directly influenced by equity, make earnings smoothing a strategic practice for ensuring institutional continuity and reputation (Bressan, Maia & Souto, 2020; CMN, 2017). Within this scenario, discretionary practices via the LLP are frequently employed to mitigate fluctuations in reported earnings (Bressan, Bressan & Silva Júnior, 2015; Bressan, Bressan & Silva, 2016).

Given this context, corporate governance plays an essential role in curbing opportunistic behavior by establishing control and oversight mechanisms that promote the reliability of financial information and managerial accountability (Chopra, 2018; Yang, Leing Tan & Ding, 2012). Nevertheless, recent studies suggest that governance may, in certain contexts, function not only as a disciplining factor but also as a mechanism of legitimation. Silva et al. (2022) identified adverse effects of governance on performance in S_4 credit unions, indicating that its implementation may generate costs and unexpected outcomes. Similarly, Jam'ah, Seomitra and

Daulay (2024) showed that governance, by creating greater formalization and transparency, can legitimize income smoothing practices as a strategy for stability.

In this sense, it is plausible to assume that higher levels of cooperative governance are associated with a greater propensity toward income smoothing, especially when the analysis focuses on highly regulated environments that rely heavily on member trust, which leads us to the following research hypothesis:

H1: Higher levels of cooperative governance are positively associated with the practice of income smoothing in Brazilian credit unions.

2.2 Empirical Studies on Cooperative Governance and Earnings Management

The financial system constitutes the critical infrastructure of a national economy, and the soundness of its institutions is indicative of a country's macroeconomic stability (Chopra, 2018). In this context, corporate governance mechanisms play a strategic role in mitigating decision-making asymmetries and preserving organizational integrity, particularly in the Brazilian financial sector, whose operations are subject to stringent regulation and oversight by the Central Bank of Brazil (BCB).

In credit unions, Santos et al. (2021) identified, through cluster analysis and based on BCB data (2014), that 65% of the 994 Brazilian credit unions exhibited low levels of governance and representativeness, whereas 35% demonstrated high levels of governance, with strong performance in oversight and auditing, suggesting efforts to mitigate agency conflicts. Complementarily, Silva et al. (2022) constructed a governance proxy composed of 15 binary indicators, analyzing 81 S4-segment credit unions in 2018, and found that 43% displayed moderate to high levels of governance. However, the authors observed a negative effect of governance on performance, attributing this outcome to implementation costs within a highly regulated environment.

Regarding income smoothing, the first study in Brazil was conducted by Maia, Bressan and Lamounier (2013), using a sample of 405 credit unions affiliated with Sicoob (2001–2011). The authors identified the use of the Loan Loss Provision (LLP) to smooth earnings, manage capital adequacy, and avoid reported losses, providing empirical evidence of income smoothing practices through net provisioning expenses.

Continuing the investigations into earnings management in credit unions, Bressan, Bressan and Silva Júnior (2015) analyzed 118 SICREDI credit unions (2001–2010) and, using histogram-based analysis, found evidence of earnings management in 76% of the sample. Subsequently, Bressan, Bressan and Silva (2016) examined 149 credit unions from the same system (2001–2011) and, using panel data, confirmed the use of the PCLD for earnings smoothing. Similarly, Bressan, Souza and Bressan (2017) analyzed 113 Unicred-affiliated credit unions (2001–2011) and found evidence of income smoothing practices aimed at conveying solidity to members.

Complementarily, Santos and Guerra (2019) examined 15 Unicred credit unions (2009–2014) and, based on a chi-square test, observed a relationship between earnings management aimed at avoiding losses and efficiency scores. The authors highlight that more efficient cooperatives exhibit a lower propensity toward earnings management, suggesting that the motivation to manipulate results is associated with institutional performance.

Ngeno, Naibei and Langat (2021) analyzed 50 credit unions in Kenya (2015–2019) and found that governance practices influence earnings management. Using discretionary accruals as the dependent variable and board characteristics and CEO duality as independent variables, they observed that board strength reduces earnings management, whereas CEO duality intensifies it.

In Brazil, de Souza and Moraes (2021) examined the relationship between the Basel Capital Adequacy Ratio and the LLP over the period 2010–2018, concluding that the ratio improves the informational quality of financial reports, with a negative and significant effect on provisioning. Their study highlights the role of prudential regulation, via the Basel Accords, in promoting the stability of the financial system.

Souza, Araújo and Neves (2023) found, for Brazilian financial institutions (2010–2019), that larger boards and longer board tenures are associated with a greater propensity toward earnings management. In contrast, smaller audit committees tend to favor earnings management, whereas longer audit committee tenures inhibit such practices.

At the international level, Wicaksono and Indarti (2024), analyzing the banking sector in Indonesia, showed that robust governance mechanisms reduce earnings management. In Jordan, however, Jam'ah, Seomitra and Daulay (2024) found the opposite effect: governance, by promoting control and transparency, creates an institutional environment that favors monitored income smoothing practices.

Thus, the literature shows that governance may influence income smoothing either positively or negatively, depending on how governance is measured. Moreover, there are multiple methodologies for capturing indications of earnings management. In this study, we adopt the model of Maia, Bressan and Lamounier (2013), which uses discretionary accruals as a proxy.

3 METHODOLOGICAL PROCEDURES

3.1 RESEARCH DESIGN, POPULATION AND SAMPLE

This study is characterized as an empirical investigation (Wooldridge, 2013) with a quantitative approach (Martins & Theóphilo, 2007). In terms of the means employed, it is classified as documentary research (Raupp & Beuren, 2008), and in terms of its purposes, as a descriptive study (Vergara, 2004).

The population comprises all single-tier financial cooperatives listed by the Central Bank of Brazil. The sample, in turn, is defined with reference to Resolution

No. 4,553/2017 of the National Monetary Council (CMN, 2017), which sets out the segmentation of the Brazilian National Financial System and classifies financial institutions into groups (S_1 to S_5) for the purposes of proportional application of regulation, activities, risk level, and size. Accordingly, the sample includes only single-tier credit unions classified in the S_4 segment.

The selection of this sample is justified by the fact that the S_4 segment comprises more than 80% of the single-tier cooperatives in the National Cooperative Credit System (SNCC) and is also the primary target of regulatory policies aimed at strengthening governance, as established by Resolutions No. 4,434/2015 and No. 5,051/2022.

Accordingly, the sample consists of credit unions with available data for the period from 2018 to 2021, totaling 81, 91, 95, and 102 institutions per year, respectively. In addition, cooperatives undergoing merger processes—whose data were consolidated in assembly—were excluded from the sample. The data were obtained from IF.Data (BCB, 2022) and from the analytical balance sheet files classified according to the Chart of Accounts for the National Financial System Institutions (COSIF).

3.2 Operational Definition of Variables

This study aims to identify income smoothing practices in Brazilian credit unions based on the model proposed by Maia, Bressan and Lamounier (2013), using accruals specific to financial institutions. The dependent variable is the Change in Net Loan Loss Provision Expenses ($VDLoc_{it}$), calculated as the variation in provisions relative to the total loan portfolio. This accrual is widely used in earnings management research because it does not affect cash flow and captures managerial discretion in the constitution of the Loan Loss Provision (LLP) (Maia, Bressan & Lamounier, 2013).

The main independent variable is $IGCoop_{it}$ (Cooperative Governance Index), which was constructed from 17 binary variables derived from the governance survey conducted by the Central Bank of Brazil (2013–2014). The items encompass the dimensions of representativeness, administrative structure, and oversight/auditing. Each item was assigned a value of 1 when the practice was present and 0 when absent, resulting in a final score ranging from 0 to 17 points, which was subsequently normalized to a scale from 0 to 1. Higher values indicate higher quality of cooperative governance.

The construction of the index incorporates publicly available information, following the adaptation proposed by Silva et al. (2022), who consolidated this questionnaire into a synthetic index applied to the S4 segment. Although earlier studies such as Santos & Leal (2007) and Catapan & Colauto (2014) examined non-financial firms, their governance dimensions, board structure, auditing, and transparency, provide a theoretical foundation that was later adjusted to the cooperative context.

In addition to IGCoop, the following variables are considered: VOC_{it} (Change in Loan Operations), which measures the financial intermediation between surplus and deficit members (Bressan, Souza & Bressan, 2017); and $RNDoc_{it}$ (Non-Discretionary Result), defined as the ratio between earnings before the Loan Loss Provision (LLP) and the total loan portfolio (Maia, Bressan & Lamounier, 2013).

The control variables include: $OpVenc_{it}$: the proportion of overdue loan operations relative to the total loan portfolio (Santos & Santos, 2020); $Spread_{it}$: the difference between the average lending rate and the average funding rate, used as a proxy for financial intermediation profitability (Maia et al., 2019); $Desemp_{it}$: the growth of adjusted equity, employed as a proxy for institutional performance (Maia et al., 2019); $Icoop_{it}$: the age of the credit union, calculated as the logarithm of the difference between the current year and the year of foundation; $CATEG_{it}$: a dichotomous variable that identifies the institutional category (1 = full-service single-tier cooperative; 0 = others), in accordance with BCB regulations (2015, 2022); and TAM_{it}: the size of the credit union, measured by the logarithm of total assets.

Thus, IGCoop is expected to exhibit a positive relationship with income smoothing, since more developed governance structures may institutionalize prudential earnings-smoothing practices, thereby preserving financial stability and reinforcing member confidence (Jam'ah et al., 2024).

Accordingly, Table 1 summarizes all variables used in this study, their expected signs, operational definitions, and corresponding literature sources.

Table 1
Proposed Variables and Operationalization

Variable	***Proxy* / Expected Sign**	Operationalization	Source
		Dependent Variable	
Change in Net Loan Loss Provision Expenses	VDLoc (Not applicable)	$VDLoc_{it} = \frac{\left(\frac{DLoc_{it} - DLoc_{it-1}}{DLoc_{it-1}} x\ 100\right)}{OC_{it}}$	Maia, Bressan & Lamounier (2013); Bressan, Bressan & Silva (2016); Bressan, Souza & Bressan (2017); Santos & Santos (2020)
		Independent Variable	
Cooperative Governance Index	IGCoop (Positive)	*Proxy for the quality of cooperative governance practices.*	Silva, Santos, Santos & Ranciaro Neto (2022).
Change in Loan Portfolio Volume	VOC (Positive)	$VOC_{it} = \frac{VOC_t - VOC_{t-1}}{VOC_{t-1}}$	Maia, Bressan & Lamounier (2013); Bressan, Bressan & Silva (2016); Bressan, Souza & Bressan (2017); Santos & Santos (2020).
Non-Discretionary Result of Loan Operations	RNDoc (Positive)	$RNDoc_{it} = \frac{RaDLoc_{it}}{OC_{it}}$	Maia, Bressan & Lamounier (2013); Bressan, Bressan & Silva (2016); Bressan,

			Souza & Bressan (2017); Santos & Santos (2020).
Control Variables			
Overdue Loan Operations	OpVenc (Negative)	$OpVenc_{it} = \frac{Op.Vencidas_{it}}{Cart.Classif.Total_{it}}$	Maia, Bressan & Lamounier (2013); Bressan, Bressan & Silva (2016); Santos & Santos (2020).
Difference Between Lending Rates (GerOR) and Funding Rates (CustoCap)	*Spread* (Positive)	Spread = $GerOR_{it}$ – $CustoCap_{it}$	Canassa & Costa (2018); Maia, Colares, Cruz & Bressan (2019); Santos & Santos (2020).
Growth of Adjusted Equity	Desemp (Negative)	$Desemp_{it} = \frac{PL_{it}}{PL_{it-1}}$	Vieira (2016); Cordeiro, Bressan, Lamounier & Barros (2018); Maia, Colares, Cruz & Bressan (2019).
Age of Credit Unions	Icoop (Positive)	Age = difference between the year of data collection and the year of CNPJ registration, subsequently transformed into the natural logarithm (Ln)	Maia, Bressan & Lamounier (2013); Bressan, Souza & Bressan (2017).
Category	CATEG (Positive)	Dichotomous variable, equal to 1 for full-service single-tier credit unions and 0 otherwise.	Maia, Colares, Cruz & Bressan (2019); Central Bank of Brazil (BCB, 2022).
Size	TAM (Positive)	Ln Total Assets	Maia, Colares, Cruz & Bressan (2019); Santos & Santos (2020).

Source: Prepared by the authors.
Note: VDLoc = Change in net loan loss provision expenses; IGCoop = Cooperative Governance Index; VOC = Change in loan portfolio volume; RNDoc = Non-discretionary result; OpVenc = Overdue loan operations; Spread = Difference between the average lending rate and the average funding rate; Desemp = Growth of adjusted equity; Icoop = Age of the credit union (log); CATEG = Institutional category (dummy); TAM = Size of the credit union (log of total assets).

3.3 Model Specification

The analysis of the impact of income smoothing on the variables discussed was conducted using linear regression. Accordingly, the following model is proposed, based on the framework of Maia, Bressan and Lamounier (2013), which employs $VDLoc_{it}$ as the dependent variable and VOC_{it} and $RNDoc_{it}$, as independent variables, as shown below.

$$VDLoc_{it} = \beta_0 + \beta_1 IGCoop_{it} + \beta_2 VOC_{it} + \beta_3 RNDoc_{it} + \beta_4 OpVenc_{it} + \beta_5 Spread_{it} + \beta_6 Desemp_{it} + \beta_7 Icoop_{it} + \beta_8 Categ_{it} + \beta_9 Tam_{it} + \varepsilon_{it}$$

The choice of a fixed-effects model is justified by the fact that credit unions exhibit heterogeneous and unobservable structural characteristics—such as management practices, organizational culture, and regional context—that remain constant over time but influence the propensity for earnings management (Wooldridge, 2010; Baltagi, 2021).

The use of fixed effects allows these biases to be eliminated, focusing the analysis on within-cooperative variation over the 2018–2021 period. Although the temporal variation of IGCoop is limited, given that its construction is based on a relatively stable questionnaire, changes are observed in some cases due to the gradual implementation of regulatory and governance practices. Thus, the panel-data approach is suitable for capturing both this variation and the effects of the other explanatory variables.

Additionally, robust corrections for heteroskedasticity (White robust) were applied, ensuring consistency of the standard errors (Greene, 2018; Gujarati & Porter, 2011). The analyses were conducted using the econometric software Gretl, which is appropriate for panel-data estimation with statistical robustness. This procedure prevents non-constant variance across cooperatives from compromising the reliability of statistical tests, without assigning explicit weights to the observations (Cottrell & Lucchetti, 2023).

Accordingly, the specified model enables the investigation of whether IGCoop influences income smoothing via the Loan Loss Provision (PCLD), while controlling for financial and operational characteristics of the credit unions and mitigating the effects of unobserved heterogeneity and heteroskedasticity.

4 ANALYSIS AND DISCUSSION

4.1 Results

This subsection presents the core findings of the study, organized into three blocks: (i) the results of the cooperative governance questionnaire that originated the IGCoop and the corresponding descriptive statistics; (ii) the descriptive statistics of the variables used in the econometric model; and (iii) the results of the main econometric model.

4.1.1 Cooperative Governance Questionnaire

The results of the questionnaire that compose the proxy for Cooperative Governance (IGCoop), which originates from the BICG's *Guide to Best Corporate Governance Practices* (2015) and from the questionnaire used in a BCC (2014) study developed under the "Governance Project",are discussed below. Table 2 presents the descriptive statistics of the IGCoop, allowing an assessment of the evolution of the governance index between 2018 and 2021. Table 3, in turn, shows, for each questionnaire item, the proportion of cooperatives that fulfilled the governance requirement in each year, accompanied by the absolute number of positive responses (in parentheses).

The combined use of these two approaches, aggregate metrics of the index in Table 2 and the item-by-item breakdown in Table 3, makes it possible to understand not only the overall trend of strengthening or weakening governance practices, but also the concrete extent of cooperatives' adherence over time. This enables a simultaneous evaluation of both the proportional evolution and the absolute consistency of the implementation of governance mechanisms within the segment under study.

The analysis of Table 2 shows that the IGCoop increased on average from 7.36 (2018) to 8.66 (2021), suggesting progress in the adoption of governance practices. However, the coefficient of variation increased from 32.20% to 44%, indicating that although more cooperatives have incorporated governance practices, heterogeneity among them has also grown. This reinforces the notion of an ongoing but uneven regulatory institutionalization process among cooperatives in the S_4 segment.

Table 2
Descriptive Statistics of IGCoop

Year	Mean	Median	Standard Deviation	Minimum	Maximum	CV
2018	7.36	7	2.37	2	13	32.20
2019	8.32	9	2.92	1	13	35.10
2020	8.67	10	3.09	1	13	35.64
2021	8.66	10	3.81	1	16	44.00

Source: Prepared by the authors.

The analysis of the cooperative governance index reveals selective advancements and persistent weaknesses. In participation and representativeness (Section 1), the disclosure of general assemblies declined from 85.19% (2022) to 65% (2021), with a peak in engagement in 2020 (85.26%) due to remote assemblies (Q1–Q2). The publication of meeting minutes (Q3) dropped sharply to 16.67%, far below the 80.2% reported by BCB (2014).

In the administrative structure (Section 2), progress was observed in the disclosure of membership composition (Q4) and in the qualification of boards (Q5). However, the transparency of strategic planning (Q6) decreased after 2018. The definition of responsibilities (Q7) fluctuated, and transparency regarding compensation (Q8) remained low. Separation of duties (Q9) is prevalent, while consecutive terms (Q10) and representativeness (Q11) remain limited. Conflict-of-interest mechanisms (Q12) show regression.

In oversight (Section 3), disclosure regarding the Supervisory Board (Q13) increased to 64.71%, although still below BCB's 96.1%. Internal regulations (Q14) and internal auditing (Q15) continue to exhibit low levels of transparency. Whistleblowing channels (Q16) remain at 88.24%, yet below the previous 99.6%. External auditing (Q17) reached 96.08%, reflecting progress in institutional reliability.

Therefore, in a consolidated view, the governance questionnaire shows progress in certain practices, particularly those related to oversight and auditing. However, aspects associated with representativeness and transparency continue to exhibit weaknesses. Overall, cooperatives appear to have gradually incorporated governance elements throughout the period analyzed, although unevenly across dimensions. This pattern suggests that regulatory changes have encouraged the adoption of formal controls, but effective participation and accountability still represent areas requiring further development.

Table 3

Cooperative Governance Questionnaire

Nº	Questões	2018	2019	2020	2021
Section 1. Representativeness and Participation					
Q1	Is there a document or information regarding the General Assembly (GA) manual?	85.19% (69)	78.02% (71)	75.79% (72)	65.69% (67)
Q2	Are there actions or documents adopted by the cooperative to encourage member participation in GAs?	64.20% (52)	45.05% (41)	85.26% (81)	82.35% (84)
Q3	Are the GA minutes available to cooperative members?	7.41% (6)	8.79% (8)	17.89% (17)	16.67% (17)
Section 2. Administrative Structure					
Q4	Is the social structure composed of different members, without accumulation of positions?	24.69% (20)	75.82% (69)	75.79% (72)	64.71% (66)
Q5	Is there evidence of training and/or qualifications of board/executive members?	2.47% (2)	71.43% (65)	72.63% (69)	62.75% (64)
Q6	Is there a Strategic Plan approved by the Board of Directors (CA) currently in force?	81.48% (66)	7.69% (7)	3.16% (3)	2.94% (3)
Q7	Are the responsibilities of the Board of Directors (CA) defined in the bylaws or internal regulations?	51.85% (42)	74.73% (68)	72.63% (69)	65.69% (67)
Q8	Is information about the compensation of board members and executive directors available?	1.23% (1)	4.40% (4)	4.21% 4)	3.92% (4)
Q9	Is the management structure composed of CA, Executive Board (DE), and Supervisory Board (CF)?	87.65% (71)	82.42% (75)	82.11% (78)	80.39% (82)
Q10	Are consecutive terms prohibited for members of the CA?	2.47% (2)	1.10% (1)	1.05% (1)	0.98% (1)
Q11	Is there representation of different segments (regions, professional categories, external members, women) on the CA?	17.28% (14)	60.44% (55)	64.21% (61)	51.96% (53)
Q12	Is there internal regulation/manual or any document addressing conflicts of interest?	85.19% (69)	56.04% (51)	52.63% (50)	51.96% (53)
Section 3. Oversight					
Q13	Is there a formalized criterion for the composition of the Supervisory Board (CF)?	27.16% (22)	69.23% (63)	68.42% (65)	67.14% (66)
Q14	Does the CF have its own internal regulations?	4.94% (4)	8.79% (8)	8.42% (8)	11.76% (12)
Q15	Is there evidence of internal audit/internal control departments in the cooperative?	44.44% (36)	12.09% (11)	10.53% (10)	55.88% (57)
Q16	Does the credit unions have institutional channels for receiving complaints and claims from members?	82.72% (67)	82.42% (75)	80.00% (76)	88.24% (90)
Q17	Is there evidence/reports of external or independent auditors regarding the cooperative's economic and financial position?	65.43% (53)	93.41% (85)	92.63% (88)	96.08% (98)

Note: Values in parentheses represent the number of "yes" responses to each question.
Source: Prepared by the authors.

4.1.2 Descriptive statistics

At this initial stage, we sought to better understand the behavior of the data. Thus, given that the variables are quantitative, summary measures were employed (Fávero & Belfiore, 2017).

Tabela 4
Estatística Descritiva das Variáveis 2018-2021

Variable	Mean	Median	Standard Deviation	Minimum	Maximum	CV
VDLoc	-0.012	-0.001	0.126	-1.865	0.552	-9.801
IGcoop	8.295	9	3.167	1	16	0.381
VOC	2.523	1.228	9.005	0	129.147	3.5685
RNDoc	0.235	0.121	0.717	0	10.632	3.052
OpVenc	0.563	0.576	0.139	0.042	0.875	0.247
Spread	1.286	1.34	1.428	-21.048	4.023	1.110
Desemp	2.083	1.162	6.663	0.019	80.938	3.198
Icoop	31.590	31	10.112	4	52	0.320
TAM	20.900	20.906	0.888	17.830	22.968	0.042

Source: Prepared by the authors.

Table 3 reveals high heterogeneity among credit unions, except for size (TAM), which shows low dispersion (CV = 0.042). The dependent variable (VDLoc) exhibited a negative mean (–0.012), indicating a net reversal of provisions. The governance index (IGCoop) had an average of 8.30 and substantial variation (CV = 0.381), suggesting uneven adherence to good governance practices. VOC (CV = 3.57) and RNDoc (CV = 3.05) exhibit distortions influenced by extreme cases. On average, 56.3% of the loan portfolio (OpVenc) was concentrated in higher-risk categories. The Spread displayed strong asymmetry (min. = –21.05), while performance (Desemp) showed high volatility (CV = 3.20). The cooperatives' average age was 31.6 years (CV = 0.32), reflecting diverse institutional profiles.

4.1.3 Econometric Analysis

To achieve the objectives established in this study, a regression model was employed as presented in Equation 1, taking into consideration the baseline model of Maia, Bressan, and Lamounier (2013), which is grounded in specific accruals. Accordingly, the research hypothesis (H1) posits that the variation in net expenses with loan loss provisions (PCLD) and its relationship with the Cooperative Governance Index (IGCoop) is positive. The results presented in Table 4 provide evidence for this relationship.

Table 5
Panel 2018–2021 – Regression Results With and Without the IGCoop Variable

	Efeitos Fixos	MQP
Const	0.546401 (0.0453)**	0.0338717 (0.0914)*
IGcoop	-	0.000560367 (0.0008)***
VOC	−0.0171933 (1.06e-013)***	-0.13444 (8.25e-020)***
RNDoc	0.0804825 (0.0038)***	0.210762 (1.62e-038)***
OpVenc	−0.0357626 (0.3960)	-0.0055815 (0.1210)

Spread	−0.000304195 (0.8632)	0.000424583 (0.5237)
Desemp	0.00442139 (2.74e-06)***	0,00949656 (1.43e-035)***
Icoop	−0.116498 (0.1094)	-0.0150835 (1.67e-07)***
Categ	0.00323735 (0.6699)	0.00562870 (1.92e-05)***
TAM	−0.00571565 (0.2486)	-0.00135914 (0.1191)
	Adjusted R^2: 0.9201	Adjusted R^2: 0.8302
	Breusch–Pagan Test: 0,739747	Breusch–Pagan Test: 9,60953e-008
	Hausman Test: 7,44135e-020	Hausman Test: 5,2978e-005

Notes: VDLoc_it = variation in net expenses with loan loss provisions (PCLD); VOC_it = change in loan operations; RNDoc_it = nondiscretionary result; IGCoop_it = cooperative governance index; OpVenc_it = delinquency index; Spread_it = interest rate spread; Desemp_it = growth of adjusted equity;Icoop_it = cooperative age; Categ_it = institutional category; TAM_it = cooperative size. Significance levels: *** 1%, ** 5%, * 10%. Standard errors are reported in parentheses.
Source: *Prepared by the authors.*

Based on the statistical analysis and the econometric models applied, the results confirm the adequacy of the fixed effects model for both specifications – with and without the IGCoop variable – according to the Chow and Hausman tests ($p < 0.001$). The model including IGCoop was adjusted for heteroskedasticity using Weighted Least Squares (WLS), after the need for correction was identified by the Breusch–Pagan test ($p < 0.001$). The model without IGCoop presented a higher adjusted R^2; however, as argued by Fávero and Belfiore (2017), this value is not decisive for causal inference, which reinforces the importance of specification tests.

The inclusion of the IGCoop variable – a cooperative governance index constructed from objective data disclosed by the cooperatives – yielded a positive coefficient with statistical significance at the 1% level, indicating that higher levels of governance are associated with greater variation in net expenses with loan loss provisions (PCLD). This result leads to the non-rejection of hypothesis H1, which predicted a positive relationship between governance and income smoothing. Such a finding calls for a critical interpretation in light of the nature and role of governance in the context of credit unions.

Unlike traditional corporate governance, which focuses on protecting shareholders and mitigating agency conflicts between managers and investors (Mendes & Freire, 2014; Freitas et al., 2018), cooperative governance has an institutional character, seeking to preserve the stability and continuity of the organization vis-à-vis its members, who simultaneously assume the roles of owners, users, and financiers (BCC, 2014; BCO, 2016). Governed by specific regulations (Brazil, 1971, 2022; NMC, 2022), governance in this model operates through representative and decision-making structures—such as the Boards of Directors and Supervisory Boards—responsible for ensuring adherence to cooperative principles such as solidarity, transparency, and sustainability.

In this context, governance may foster income smoothing practices as a prudential strategy. By using loan loss provisions (PCLD) as a discretionary instrument of accounting cushioning, cooperatives shield themselves from volatility, preserving member confidence and avoiding negative signals to the market and supervisory authorities. The literature supports this interpretation by identifying income smoothing as a form of managing perceived risk (Maia et al., 2013; Bressan et al., 2016; Cunha & Piccoli, 2017), particularly in regulated sectors with high fiduciary responsibility, as is the case of financial cooperatives.

The other variables reinforce this diagnosis. VOC showed a negative sign with statistical significance at the 1% level in both models, suggesting that reductions in loan operations lead to higher provisions. This contrasts with part of the literature (Maia et al., 2013; Bressan et al., 2016), but is justifiable in contexts of greater risk aversion, such as periods of economic downturn. The variable RNDoc presented a positive coefficient and significance at the 1% level, indicating that more robust operating results are associated with greater use of loan loss provisions (PCLD), reinforcing the pattern of earnings management through accruals. Desemp, a proxy for institutional performance, was also statistically significant with a positive coefficient, suggesting that more efficient cooperatives tend to provision more, whether due to prudential requirements or as a stabilization strategy.

The variable Icoop, significant only in the model including IGCoop, showed a negative coefficient, indicating that younger cooperatives are more prone to income smoothing, a behavior typical of organizations in a phase of institutional consolidation (Cook, 2018; Santos, 2023). Complementarily, the variable Categ, also significant only when IGCoop is included, showed that cooperatives classified as "full-service," which offer a greater diversity of products and services, exhibit greater variation in provisions, reinforcing the idea that operational complexity demands more intensive accounting management. Meanwhile, OpVenc, Spread, and TAM did not present statistical significance in the estimated models.

Therefore, contrary to the premise that governance acts as a constraining factor on earnings management, the data suggest that, in this context, cooperative governance operates as a strategic support mechanism for income smoothing. By institutionalizing discretionary accounting practices under a prudential and regulatory perspective, it reinforces the logic of collective protection and continuity that is typical of the cooperative model. CMN Resolution No. 2,682/1999, which assigns to the institution itself the responsibility for classifying credit risk, broadens this discretionary space which, under more robust governance structures, can be channeled into conservative management practices aligned with financial sustainability.

Thus, greater governance does not necessarily imply less earnings smoothing; on the contrary, it may represent greater technical, institutional, and deliberative capacity to manage earnings in a strategic and prudent manner, thereby ensuring stability, trust, and continuity of the cooperative model.

4.2 Complementary Results

To strengthen the robustness of the findings, complementary analyses were conducted to provide a broader understanding of the relationship between cooperative governance and income smoothing.

First, the annual variation of the IGCoop between 2018 and 2021 was examined. A gradual increase in the index was observed, with the mean rising from 7.36 points in 2018 to 8.66 in 2021, indicating improvements in the aggregate level of governance among cooperatives. However, this evolution was not homogeneous across dimensions: while practices related to oversight and auditing showed consistent progress, aspects associated with representativeness and transparency remained comparatively weaker. This result suggests that regulatory and institutional changes have encouraged the adoption of formal control mechanisms, but effective member participation and information disclosure still constitute relevant challenges.

Next, additional robustness tests were performed on the econometric model. Re-estimating the model without the governance variable did not substantially alter the coefficients of the remaining explanatory variables, reinforcing the consistency of the specification. Additionally, the comparison between fixed and random effects—although the Hausman test indicated the adequacy of the former—showed that the signs and magnitudes remained stable, attesting to the robustness of the results. The assessment of multicollinearity, through the VIF, yielded values below the critical threshold of 10, ruling out severe correlation problems among the independent variables.

Finally, a qualitative discussion of the IGCoop components was conducted based on the questionnaire results. It is important to highlight that oversight and auditing practices—such as the functioning of the Supervisory Board, external auditing, and whistleblowing channels—achieved higher adherence rates throughout the period, strengthening institutional reliability. In contrast, dimensions such as participation in assemblies, disclosure of minutes, and representation on boards exhibited fluctuations or declines, indicating that governance does not evolve uniformly. This internal heterogeneity explains why the aggregate index captures overall improvements, while also revealing that not all governance dimensions directly translate into the mitigation of informational risks.

Taken together, the complementary results confirm the robustness of the main model and provide a more nuanced interpretation of the role of cooperative governance. While the aggregate index is positively associated with income smoothing, the qualitative analysis shows that this relationship stems primarily from the strengthening of prudential practices rather than from enhanced participation and transparency. This finding reinforces that governance, in the context of Brazilian credit cooperatives, functions as an institutional mechanism oriented toward stability and collective protection, rather than as a mere constraint on managerial discretion.

5 CONCLUSIONS

Credit unions reach segments of the population that, in many cases, remain underserved by the traditional banking system and, particularly over the last decade, have increasingly drawn the attention of academics and regulatory bodies regarding cooperative governance. This study therefore sought to analyze the relationship between income smoothing and cooperative governance practices in institutions classified under segment S4 during the period from 2018 to 2021. To achieve the proposed general objective, governance practices were measured through a questionnaire composed of 17 binary questions drawn from the Central Bank of Brazil's survey (2013–2014) and collected secondarily from the Internet, allowing the construction of a cooperative governance index with a maximum possible score of 17 points.

The governance index shows that the cooperatives analyzed promote representativeness and plurality in their organizational structure, with progress in qualification and separation of roles, but still fall short in the transparency of minutes and disclosure of compensation. The descriptive analysis demonstrated that the IGCoop showed positive evolution over the study period, although heterogeneously across dimensions—displaying more consistent advances in oversight and auditing, and persistent weaknesses in representativeness and transparency. The econometric results do not reject the hypothesis that governance is positively associated with income smoothing via loan loss provisions (PCLD). In this context, governance acts as a strategic support mechanism, legitimizing the discretionary use of PCLD for earnings stabilization, particularly because the institution itself is responsible for credit risk classification. This finding reinforces that, within the cooperative environment, governance functions not only as a constraint on managerial discretion but also as an instrument of collective protection and institutional stability. The study broadens the debate on governance in credit cooperatives, showing that the topic remains open to further investigation.

The limitations of this study relate to the possibility that some governance practices may indeed be adopted by the institutions analyzed but were not captured due to being restricted to users through login and password. Another limitation concerns the unavailability of certain accounts in the COSIF framework, as many cooperatives disclose only the information required by law, thereby limiting the range of indicators available. For future research, it is suggested that the discussion be expanded and that Environmental, Social, and Governance (ESG) studies be developed for credit cooperatives classified up to segmentation level S4. Additionally, with the implementation of CMN Resolutions No. 4,966/2021 and 5,019/2022, which modernize the way institutions measure PCLD, it becomes relevant to evaluate their effects in subsequent research, particularly after their full effectiveness beginning in 2025.

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